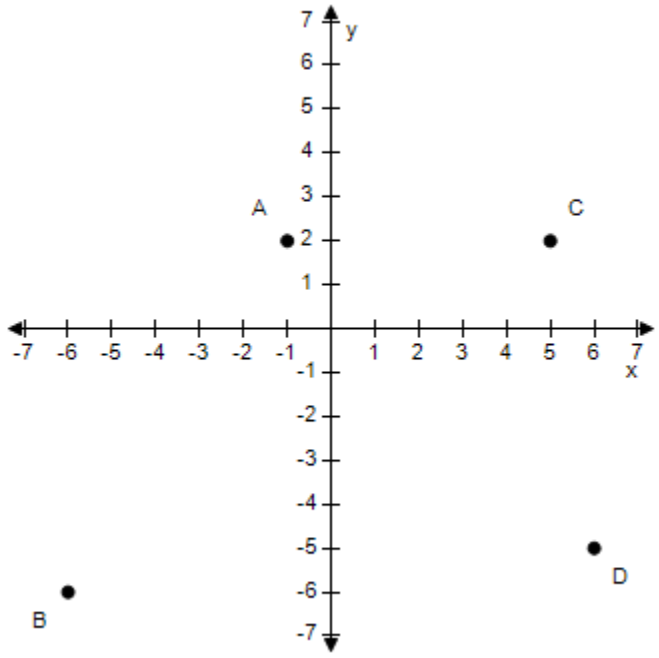
Precalculus with Limits 5th edition Larson Test Bank

SKU: 9780357457856-TEST-BANK

Section 1.1 - Rectangular Coordinates

1. Approximate the coordinates of the points.



a. A: (4, 2), B: (–6, –6), C: (5, 2), D: (6, –5)
b. A: (1, 2), B: (–6, –6), C: (5, 2), D: (6, –5)
c. A: (2, 2), B: (–6, –6), C: (5, 2), D: (6, –5)
d. A: (3, 2), B: (–6, –6), C: (5, 2), D: (6, –5)
e. A: (–1, 2), B: (–6, –6), C: (5, 2), D: (6, –5)

ANSWER: e
POINTS: 1
REFERENCES: P.6.5
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/15/2014 8:06 AM
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2. Find the coordinates of the point labeled **II**.

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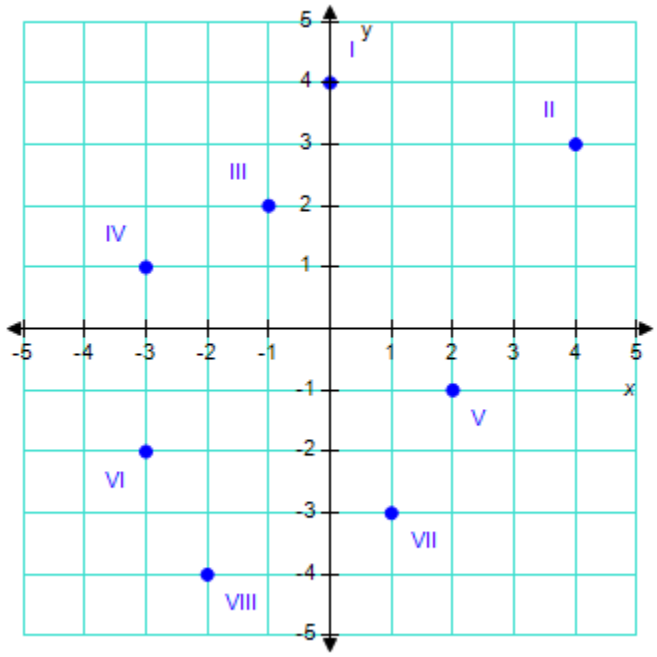

a. (-4, -3)
b. (-4, 3)
c. (3, 4)
d. (4, 3)
e. (-3, -4)

ANSWER: d
POINTS: 1
REFERENCES: P.6.6
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Approximate the coordinates of the points.

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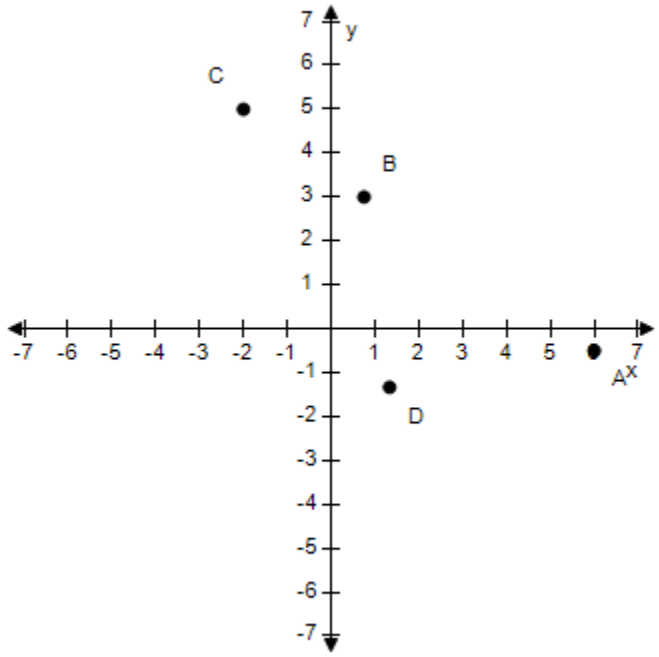

a. $A:\left(6,-\frac{1}{2}\right), B:\left(\frac{3}{4},3\right), C:(-2,5), D:\left(\frac{4}{3},-\frac{4}{3}\right)$

b. $A:\left(6,-\frac{1}{2}\right), B:\left(\frac{3}{4},-1\right), C:(-2,5), D:\left(\frac{4}{3},-\frac{4}{3}\right)$

c. $A:\left(6,-\frac{1}{2}\right), B:\left(\frac{3}{4},0\right), C:(-2,5), D:\left(\frac{4}{3},-\frac{4}{3}\right)$

d. $A:\left(6,-\frac{1}{2}\right), B:\left(\frac{3}{4},1\right), C:(-2,5), D:\left(\frac{4}{3},-\frac{4}{3}\right)$

e. $A:\left(6,-\frac{1}{2}\right), B:\left(\frac{3}{4},2\right), C:(-2,5), D:\left(\frac{4}{3},-\frac{4}{3}\right)$

ANSWER:	a
POINTS:	1
REFERENCES:	P.6.6
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
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DATE MODIFIED:	11/11/2014 1:23 AM

4. Which label corresponds to the coordinates (–3, –5)?

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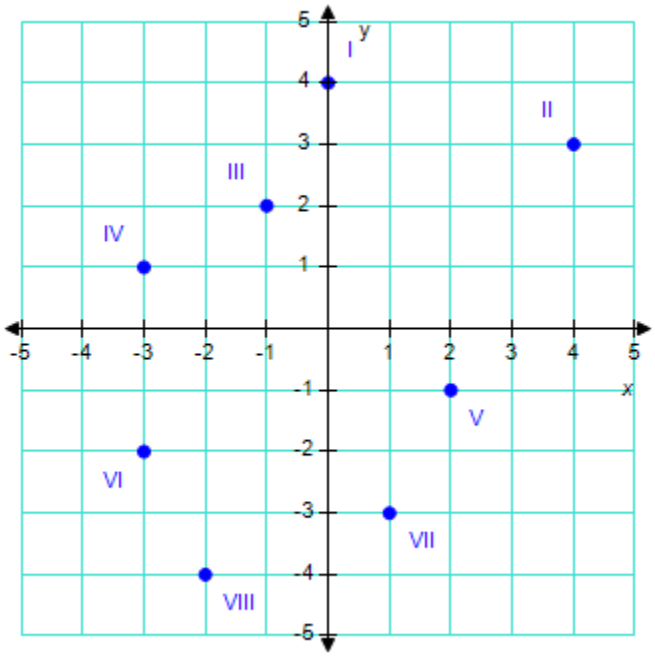

a. VI
b. VIII
c. V
d. VII
e. none

ANSWER: e
POINTS: 1
REFERENCES: P.6.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 4:56 AM

5. Plot the points in the Cartesian plane.

(–4, 1), (–5, –2), (5, 4), (2, –4)

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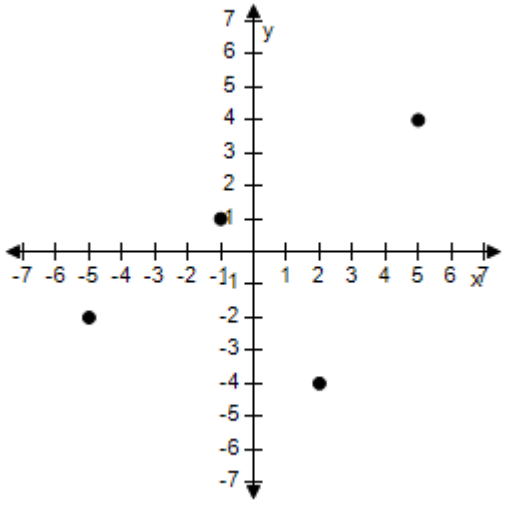
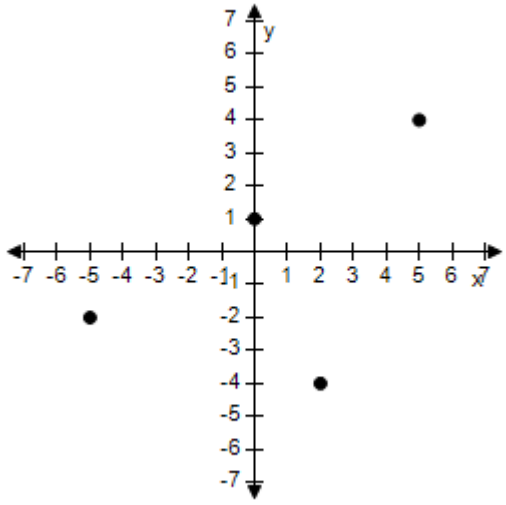
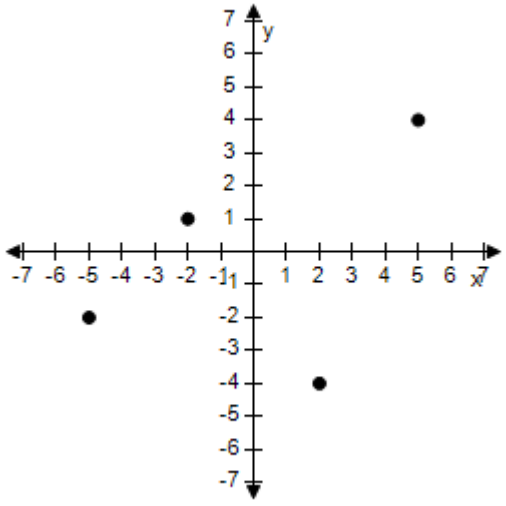
a.



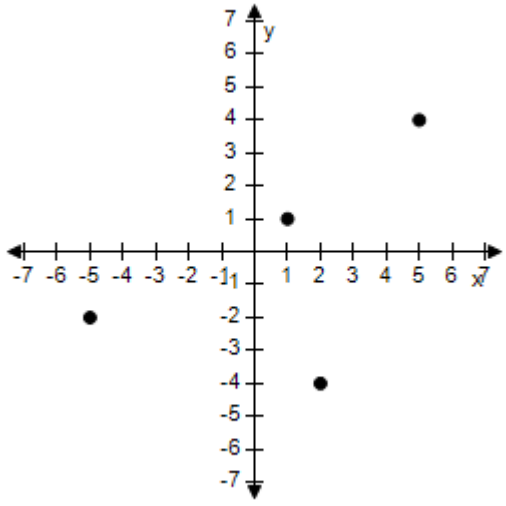
b.



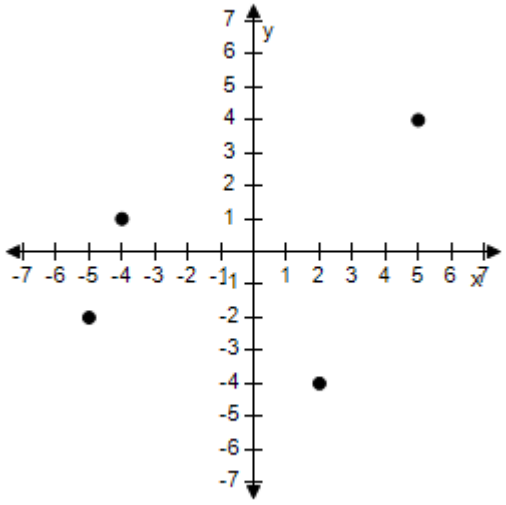
c.



d.



e.



ANSWER: e

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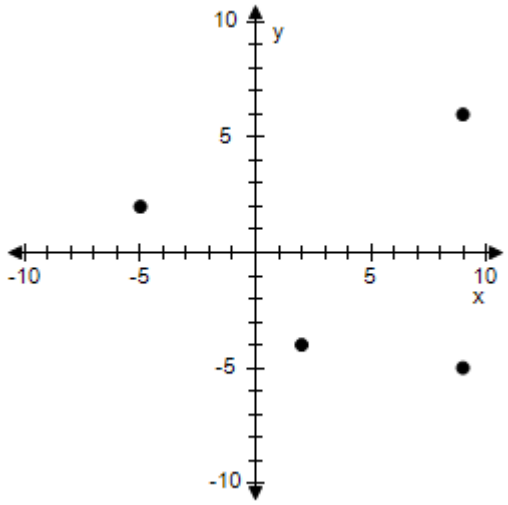
Section 1.1 - Rectangular Coordinates

POINTS: 1
REFERENCES: P.6.7
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/15/2014 9:08 AM
DATE MODIFIED: 9/15/2014 9:20 AM

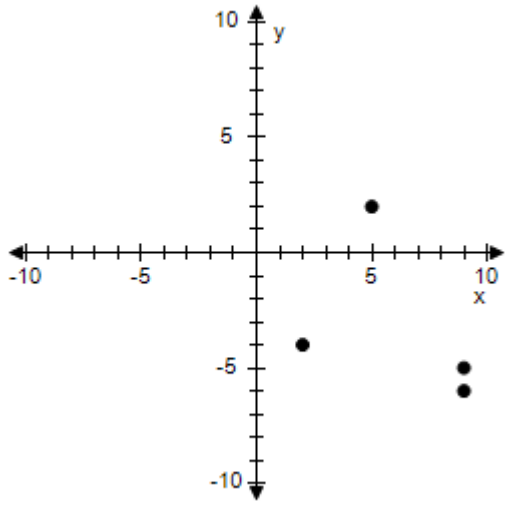
6. Plot the points below whose coordinates are given on a Cartesian coordinate system.

(5, 2), (9, –6), (2, –4), (9, –5)

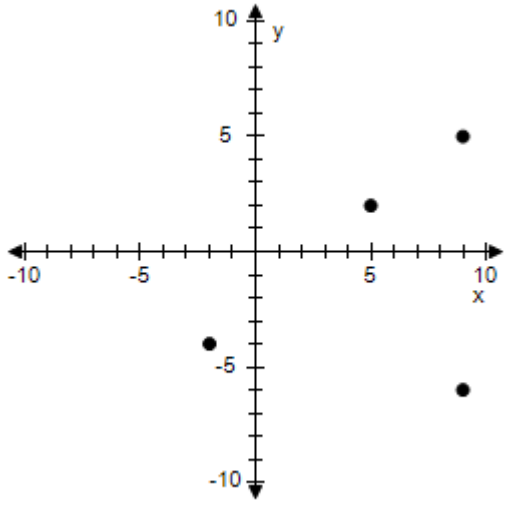
a.



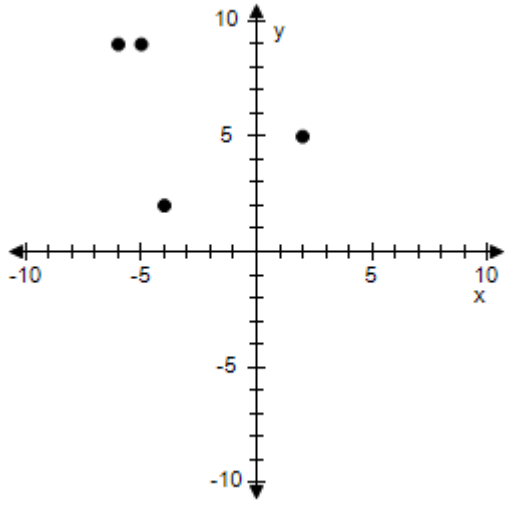
b.



c.



d.



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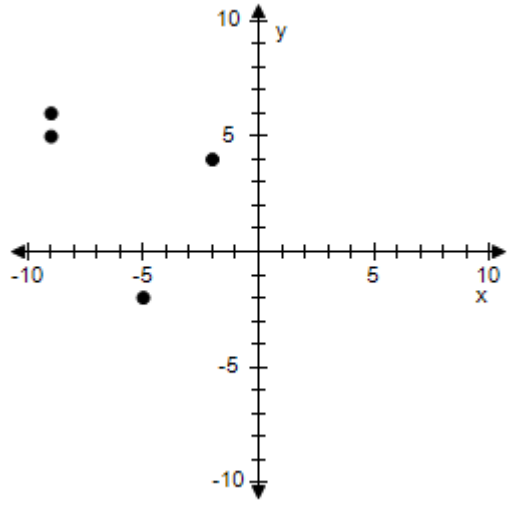
e.

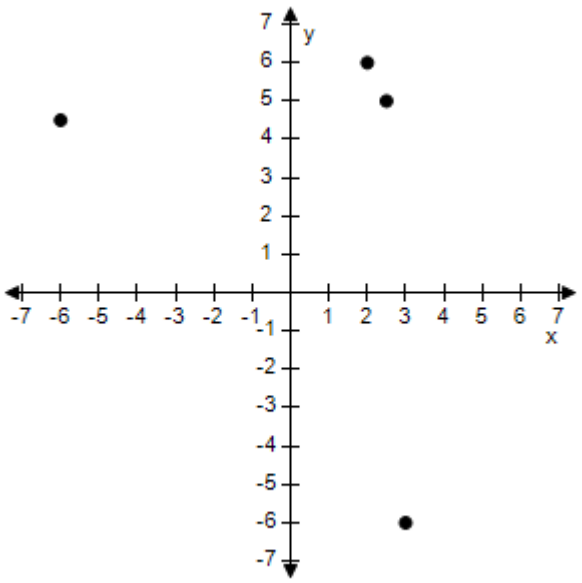


ANSWER: b
POINTS: 1
REFERENCES: P.6.8
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 9/18/2014 9:25 AM

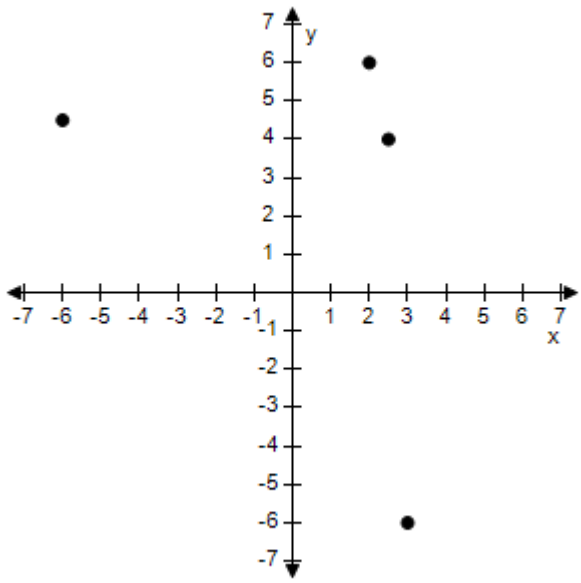
7. Plot the points in the Cartesian plane.

(2, 6), (2.5, 6), (3, –6), (–6, 4.5)

a.



b.



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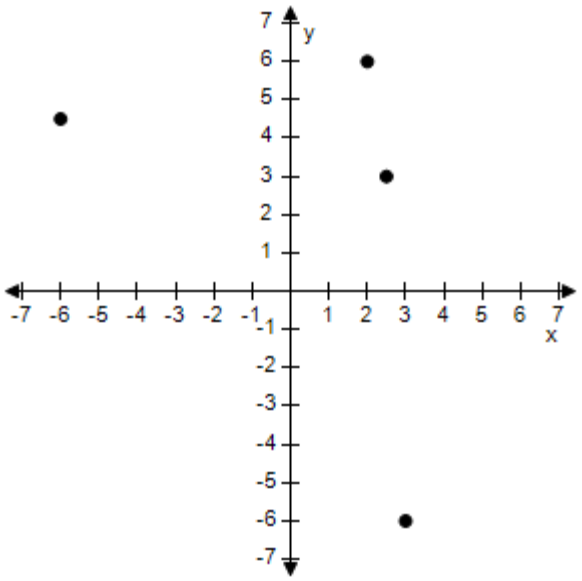
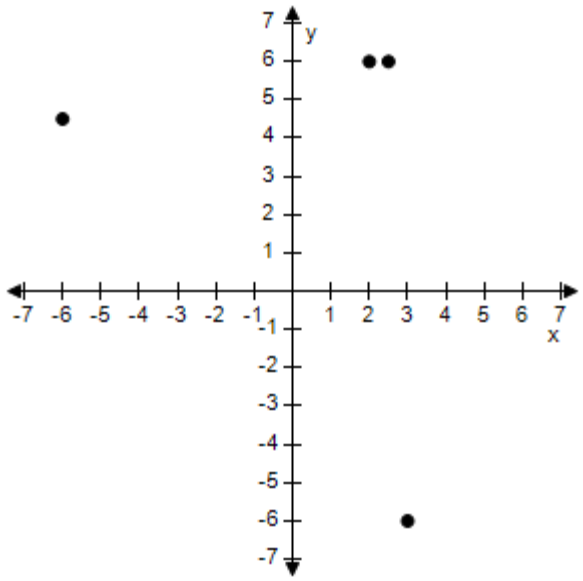
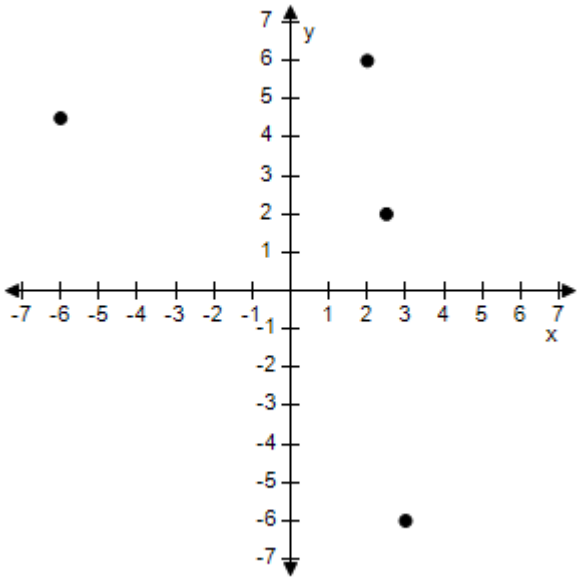
c.



d.



e.



ANSWER: d
POINTS: 1
REFERENCES: P.6.9
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/16/2014 1:25 AM
DATE MODIFIED: 9/16/2014 1:36 AM

8. Plot the points in the Cartesian plane.

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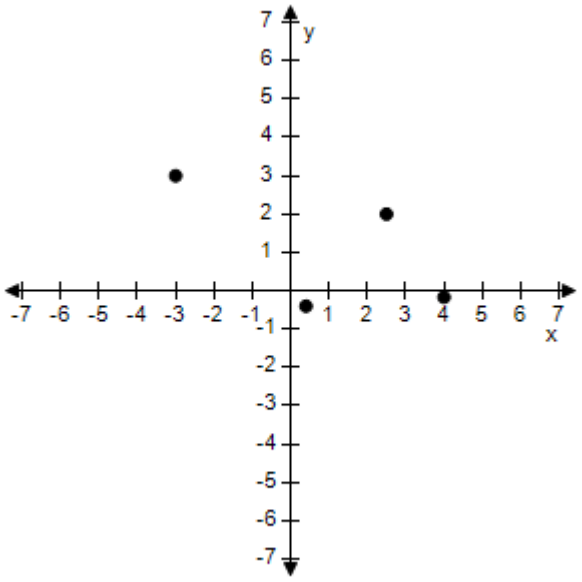
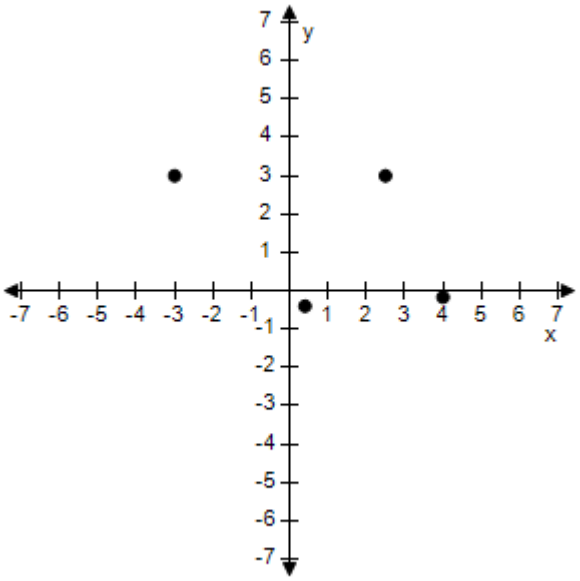
Section 1.1 - Rectangular Coordinates

$\left(4, -\frac{1}{6}\right), \left(\frac{5}{2}, 5\right), (-3, 3), \left(\frac{2}{5}, -\frac{2}{5}\right)$

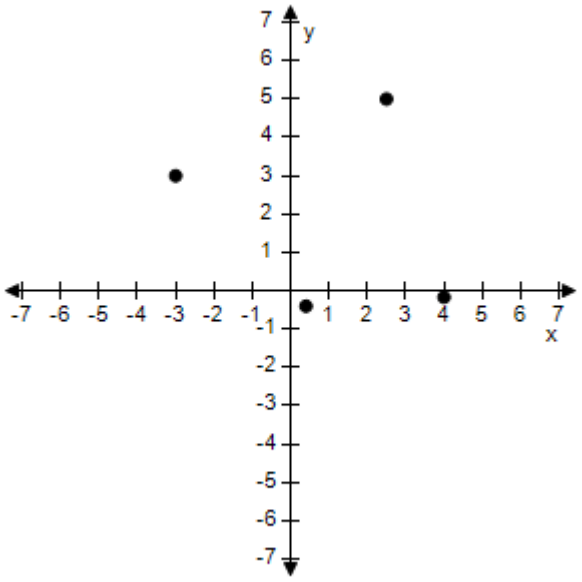
a.



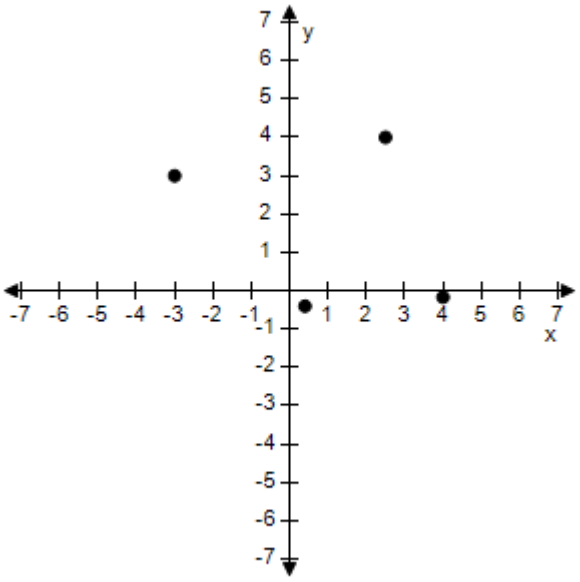
b.



c.



d.



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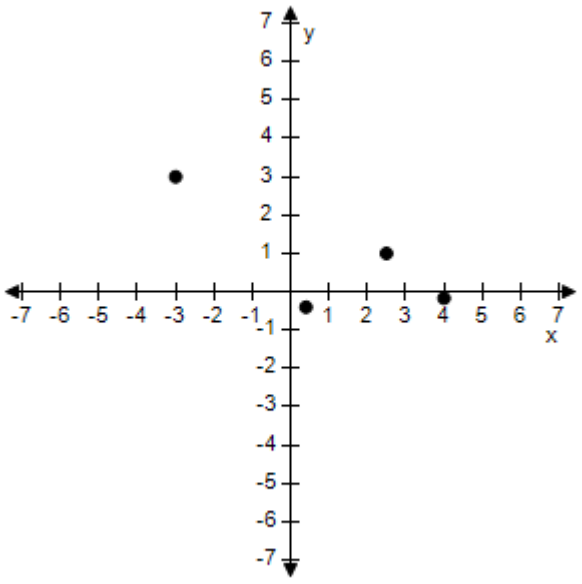
e.



ANSWER: c
POINTS: 1
REFERENCES: P.6.10
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/11/2014 1:22 AM

9. A point is located three units to the left of the *y*-axis and six units above the *x*-axis. Find the coordinates of the point.

a. (–3, 6)
b. (6, 3)
c. (–3, –6)
d. (3, –6)
e. (3, 6)

ANSWER: a
POINTS: 1
REFERENCES: P.6.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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10. Find the coordinates for the point that is ten units to the right of the *y*-axis and is six units up from the *x*-axis.

a. (10, -6)

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b. (-10, -6)
c. (10, 6)
d. (-8, 6)
e. (-10, 6)

ANSWER: c
POINTS: 1
REFERENCES: P.6.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 6/16/2021 8:57 AM

11. A point is located five units below the x-axis and the coordinates of the point are equal. Find the coordinates of the point.

a. (–5, 5)
b. (–5, 0)
c. (5, –5)
d. (–5, –5)
e. (5, 5)

ANSWER: d
POINTS: 1
REFERENCES: P.6.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/11/2014 1:34 AM

12. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x > 7$ and $y < 0$

a. Quadrant I and IV
b. Quadrant III
c. Quadrant I
d. Quadrant IV
e. Quadrant II

ANSWER: d
POINTS: 1
REFERENCES: P.6.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.1 - Rectangular Coordinates

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13. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x < -8$ and $y < -6$

a. Quadrant I
b. Quadrant I and II
c. Quadrant III
d. Quadrant II
e. Quadrant IV

ANSWER: c
POINTS: 1
REFERENCES: P.6.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/20/2014 8:05 AM

14. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x = -2$ and $y > 0$

a. Quadrant IV
b. Quadrant II or IV
c. Quadrant II
d. Quadrant I
e. Quadrant III

ANSWER: c
POINTS: 1
REFERENCES: P.6.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/20/2014 8:11 AM

15. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x > 3$ and $y = 1$

a. Quadrant III
b. Quadrant I
c. Quadrant III and IV

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d. Quadrant II
e. Quadrant IV

ANSWER: b
POINTS: 1
REFERENCES: P.6.18
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 3:18 AM

16. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$y < -6$

a. Quadrant II or IV
b. Quadrant III or IV
c. Quadrant IV
d. Quadrant I
e. Quadrant II

ANSWER: b
POINTS: 1
REFERENCES: P.6.19
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/20/2014 8:17 AM

17. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$x < -9$ and $-y > 6$

a. Quadrant I
b. Quadrant II
c. Quadrant IV
d. Quadrant III
e. Quadrant I or IV

ANSWER: d
POINTS: 1
REFERENCES: P.6.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM

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Section 1.1 - Rectangular Coordinates

DATE MODIFIED: 11/12/2014 3:20 AM

18. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$-x > 6$ and $y < -2$

a. Quadrant III
b. Quadrant I
c. Quadrant II
d. Quadrant I or IV
e. Quadrant IV

ANSWER: a
POINTS: 1
REFERENCES: P.6.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 6/16/2021 8:59 AM

19. Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

$xy < -4$

a. Quadrant II or III
b. Quadrant I or III
c. Quadrant III or IV
d. Quadrant II or IV
e. Quadrant I or IV

ANSWER: d
POINTS: 1
REFERENCES: P.6.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/20/2014 8:28 AM

20. Sketch a scatter plot of the data shown in the table.

The table shows the number y of Wal-Mart stores for each year x from 2000 through 2007.

Year, x	Number of stores, y
2000	3700
2001	4400
2002	4680

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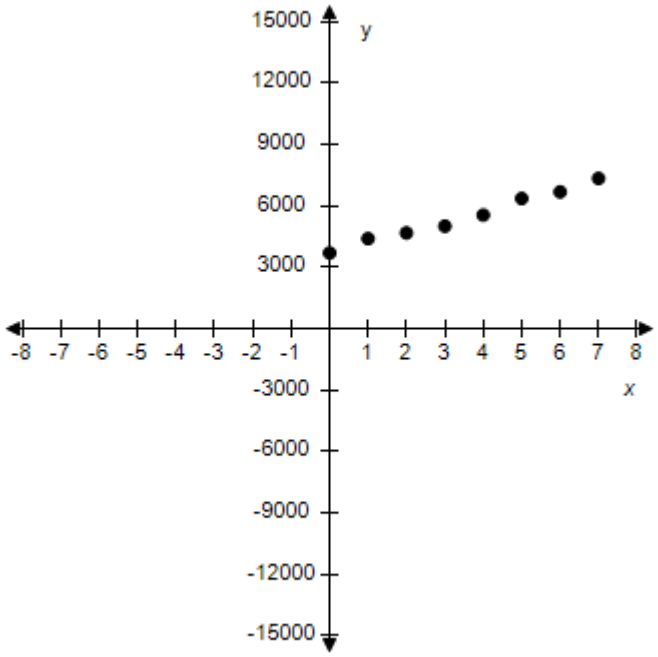
Section 1.1 - Rectangular Coordinates

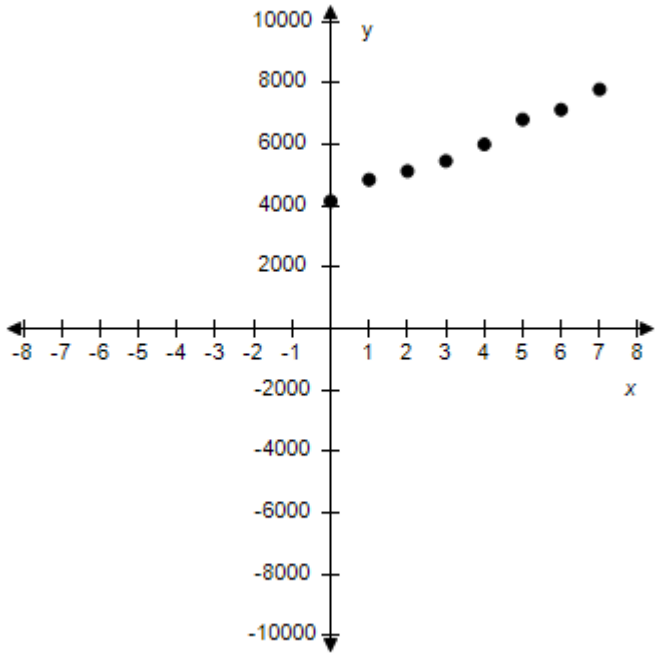
2003	5010
2004	5550
2005	6360
2006	6680
2007	7340

a.



x: Year (0 ↔ 2000)
y: Number of stores

b.



x: Year (0 ↔ 2000)
y: Number of stores

c.

d.

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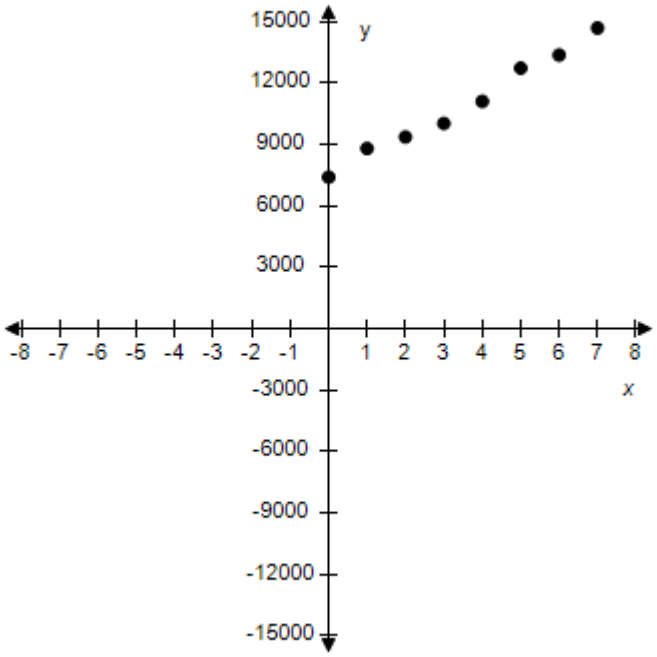
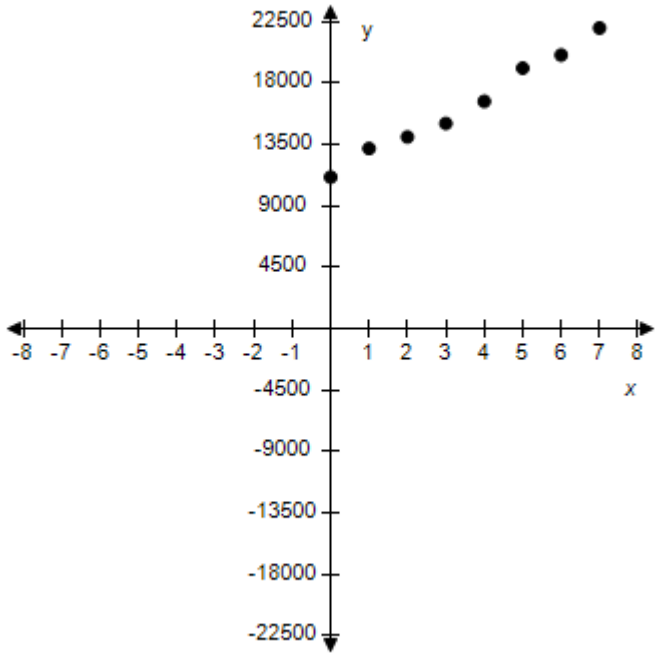
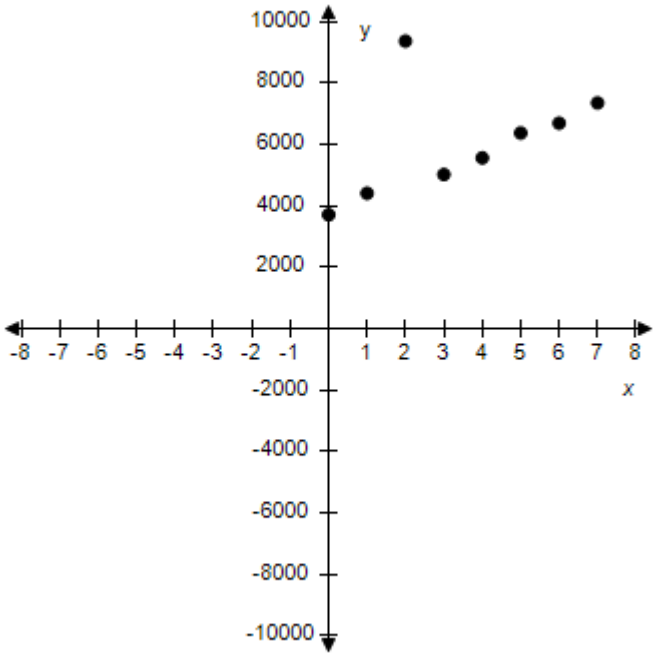


x: Year (0 ↔ 2000)
y: Number of stores



x: Year (0 ↔ 2000)
y: Number of stores

e.



x: Year (0 ↔ 2000)
y: Number of stores

ANSWER: a

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Section 1.1 - Rectangular Coordinates

POINTS: 1
REFERENCES: P.6.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/20/2014 8:51 AM

21. Sketch a scatter plot of the data shown in the table.

The table shows the lowest temperature on record y (in degrees Fahrenheit) in Duluth, Minnesota for each month x where $x = 1$ represents from January.

Months, x	Temperature, y
1	–46
2	–36
3	–23
4	–7
5	14
6	25
7	31
8	42
9	24
10	3
11	–26
12	–15

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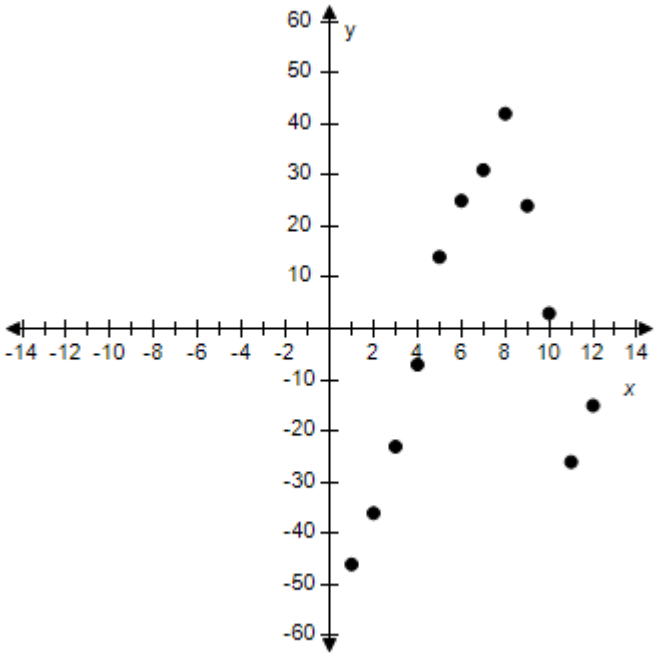
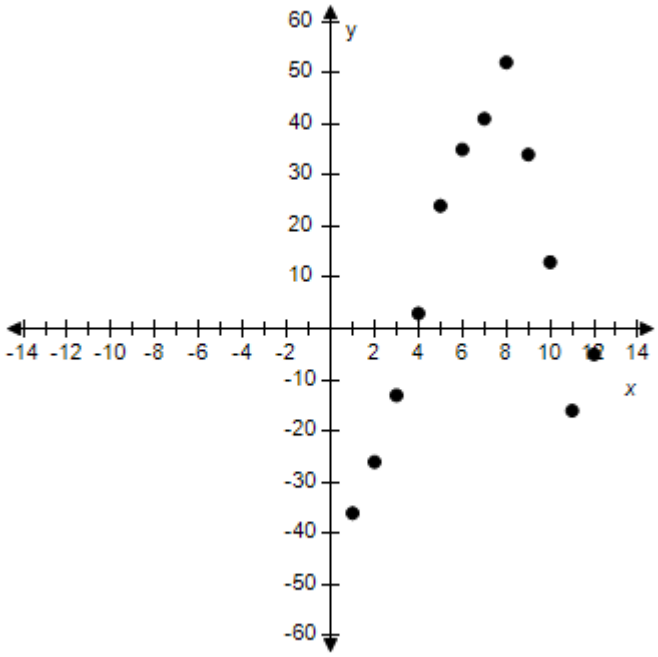
Section 1.1 - Rectangular Coordinates

a.



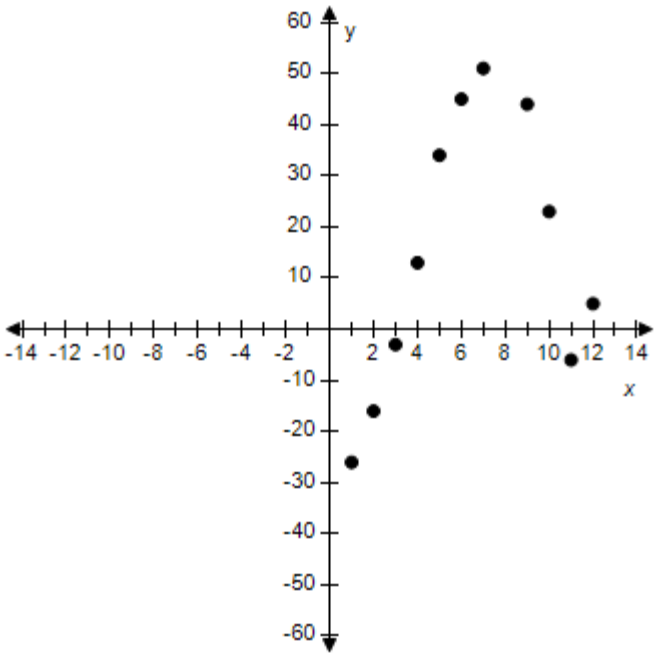
x: Months (1 ↔ January)
y: Temperature (in Fº)

b.



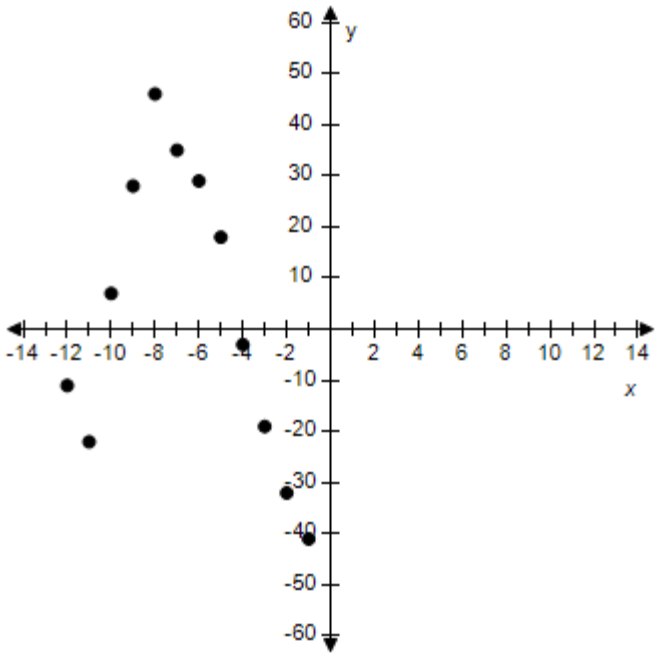
x: Months (1 ↔ January)
y: Temperature (in Fº)

c.



x: Months (1 ↔ January)
y: Temperature (in Fº)

d.



x: Months (1 ↔ January)
y: Temperature (in Fº)

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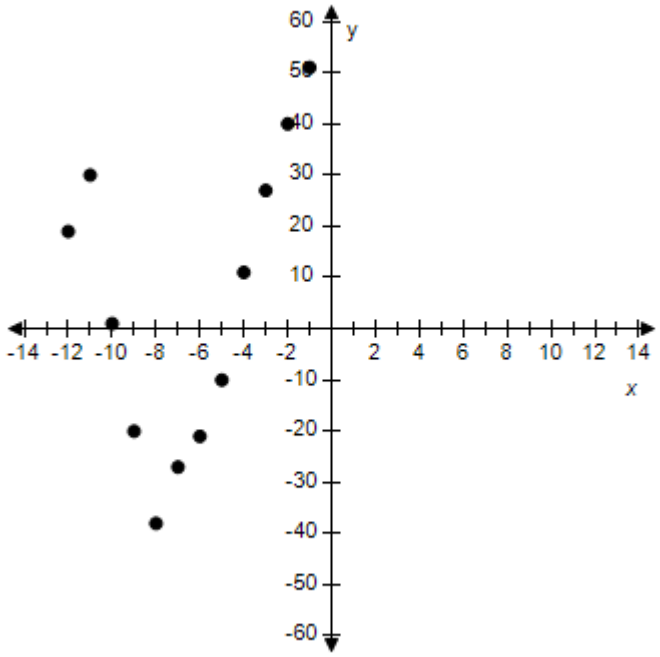
e.



x: Months (1 ↔ January)
y: Temperature (in F°)

ANSWER: a
POINTS: 1
REFERENCES: P.6.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 6/16/2021 9:01 AM

22. Find the distance between the two points (6, 1) and (6, 7).

a. 1
b. 13
c. 12
d. 11
e. 6

ANSWER: e
POINTS: 1
REFERENCES: P.6.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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DATE MODIFIED: 10/21/2014 1:47 AM

23. Find the distance between the two points (–3, –1) and (13, 29).

a. 65
b. 68
c. 102
d. 31
e. 34

ANSWER: e
POINTS: 1
REFERENCES: P.6.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 1:51 AM

24. Find the distance between the two points (10, 7) and (–5, 7).

a. 30
b. 20
c. 12
d. 40
e. 15

ANSWER: e
POINTS: 1
REFERENCES: P.6.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 1:55 AM

25. Find the distance between the points.

(–8, –5), (–2, 3)

a. 10
b. 100
c. 2
d. 5
e. 8

ANSWER: a
POINTS: 1

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REFERENCES: P.6.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 4:35 AM

26. Find the distance between the points.

(–9, 4), (3, –5)

a. 4
b. 15
c. 9
d. 3
e. 225

ANSWER: b
POINTS: 1
REFERENCES: P.6.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 4:40 AM

27. Find the distance between the points. (Round the answer to two decimal places)

(–6.5, 4.9), (–9.5, 7.5)

a. 15.76
b. 9.5
c. 7.5
d. 3.97
e. 6.5

ANSWER: d
POINTS: 1
REFERENCES: P.6.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 4:44 AM

28. Find the distance between the points. (Round the answer to two decimal places)

(9.5, –4.1), (–3.3, 8.7)

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a. 8.7
b. 9.5
c. 327.68
d. 3.3
e. 18.10

ANSWER: e
POINTS: 1
REFERENCES: P.6.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 2:22 AM

29. Show that the points form the vertices of the indicated polygon.

Right triangle: (6, 2), (3, 4), (–3, –5)

a. $\left(\sqrt{25}\right)^2+\left(\sqrt{117}\right)^2=\left(\sqrt{130}\right)^2$
b. $\left(\sqrt{7}\right)^2+\left(\sqrt{117}\right)^2=\left(\sqrt{130}\right)^2$
c. $\left(\sqrt{11}\right)^2+\left(\sqrt{117}\right)^2=\left(\sqrt{130}\right)^2$
d. $\left(\sqrt{13}\right)^2+\left(\sqrt{117}\right)^2=\left(\sqrt{130}\right)^2$
e. $\left(\sqrt{40}\right)^2+\left(\sqrt{117}\right)^2=\left(\sqrt{130}\right)^2$

ANSWER: d
POINTS: 1
REFERENCES: P.6.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 2:38 AM

30. Given the points (–6, –8) and (4, –6). Find a third point so that the three points form the vertices of a right triangle.

a. (-16, 4)
b. (-11, 17)
c. (-6, -9)
d. (5, -6)
e. (4, 6)

ANSWER: b

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Section 1.1 - Rectangular Coordinates

POINTS: 1
REFERENCES: P.6.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 5:48 AM

31. Show that the points form the vertices of the indicated polygon.

Right triangle: (3, 5), (5, 6), (6, 4)

a. $\left(\sqrt{5}\right)^2+\left(\sqrt{5}\right)^2=\left(\sqrt{10}\right)^2$

b. $\left(\sqrt{31}\right)^2+\left(\sqrt{5}\right)^2=\left(\sqrt{10}\right)^2$

c. $\left(\sqrt{7}\right)^2+\left(\sqrt{5}\right)^2=\left(\sqrt{10}\right)^2$

d. $\left(\sqrt{11}\right)^2+\left(\sqrt{5}\right)^2=\left(\sqrt{10}\right)^2$

e. $\left(\sqrt{34}\right)^2+\left(\sqrt{5}\right)^2=\left(\sqrt{10}\right)^2$

ANSWER: a
POINTS: 1
REFERENCES: P.6.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 2:50 AM

32. Given points (–11, –2) and (–3, 6) form the vertices of the base of a triangle. Choose the third point so that the three points form the vertices of an isosceles triangle.

a. (-6, -2)
b. (-5, -1)
c. (-8, 1)
d. (1, -6)
e. (-7, 2)

ANSWER: d
POINTS: 1
REFERENCES: P.6.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 6/17/2021 4:10 AM

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33. Show that the points form the vertices of the indicated polygon.

Isosceles triangle: (7, –6), (9, 8), (–5, 6)

a. Distances between the points: $\sqrt{37}, \sqrt{200}, \sqrt{288}$
b. Distances between the points: $\sqrt{200}, \sqrt{200}, \sqrt{288}$
c. Distances between the points: $\sqrt{26}, \sqrt{200}, \sqrt{288}$
d. Distances between the points: $\sqrt{43}, \sqrt{200}, \sqrt{288}$
e. Distances between the points: $\sqrt{19}, \sqrt{200}, \sqrt{288}$

ANSWER: b
POINTS: 1
REFERENCES: P.6.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 10/21/2014 4:14 AM

34. Show that the points form the vertices of the indicated polygon.

Isosceles triangle: (7, 1), (5, 4), (2, 6)

a. Distances between the points: $\sqrt{19}, \sqrt{13}, \sqrt{50}$
b. Distances between the points: $\sqrt{13}, \sqrt{13}, \sqrt{50}$
c. Distances between the points: $\sqrt{43}, \sqrt{13}, \sqrt{50}$
d. Distances between the points: $\sqrt{26}, \sqrt{13}, \sqrt{50}$
e. Distances between the points: $\sqrt{37}, \sqrt{13}, \sqrt{50}$

ANSWER: b
POINTS: 1
REFERENCES: P.6.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/12/2014 7:00 AM

35. Plot the following points and find the distance between the points.

(11, 3), (5, 3)

a. b.

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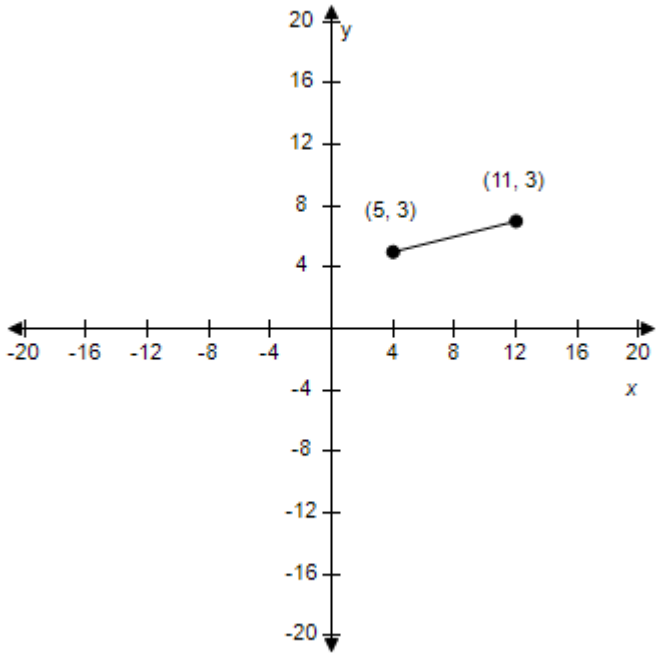
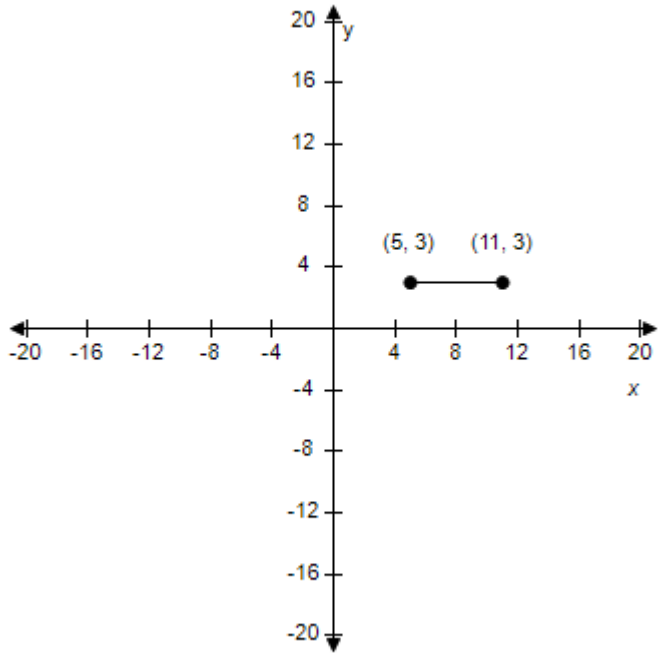


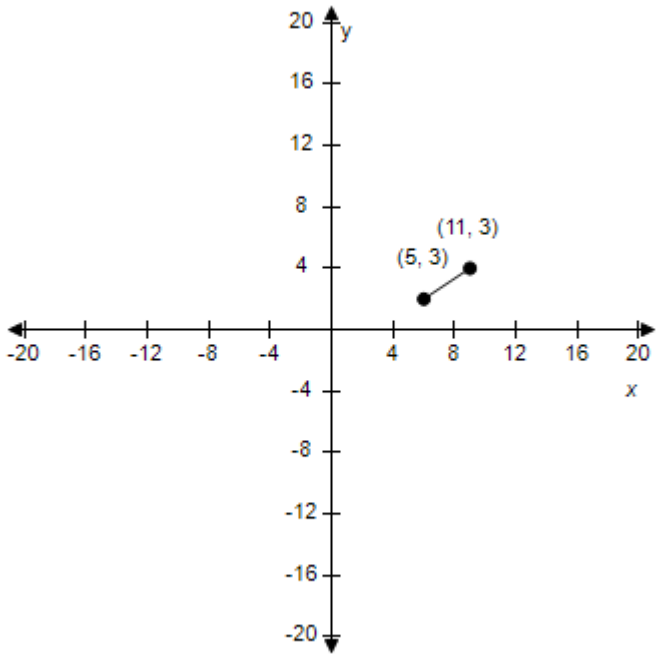
Distance: 8

c.



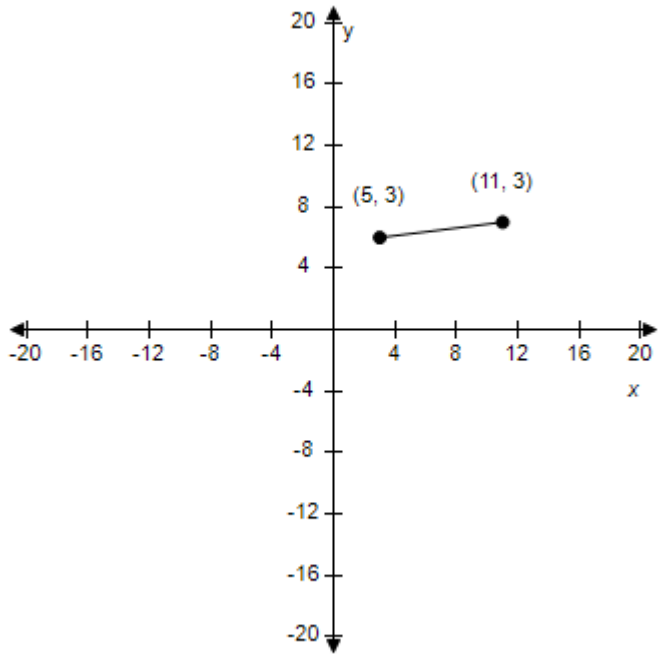
Distance: 6

d.



Distance: 9

e.



Distance: 10

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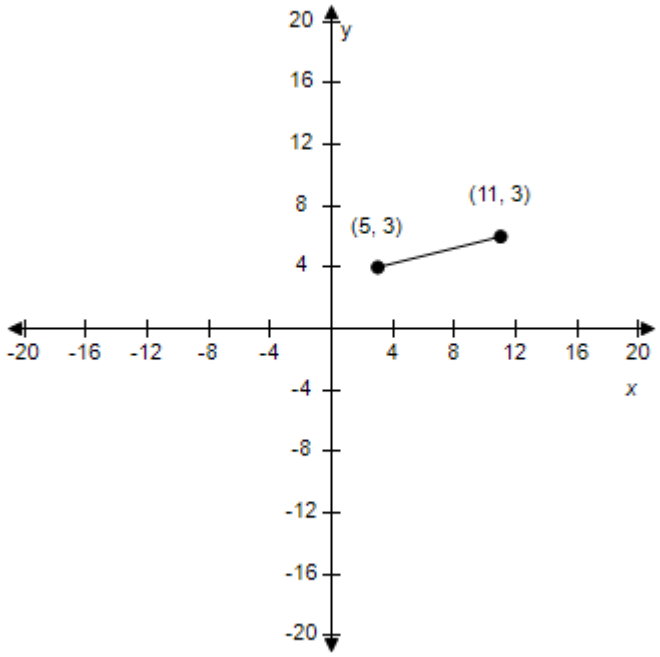

Distance: 7

ANSWER:	b
POINTS:	1
REFERENCES:	P.6.47
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:15 PM
DATE MODIFIED:	11/13/2014 8:59 AM

36. Plot the following points and find the midpoint of the line segment joining the points.

(9, 6), (5, 6)

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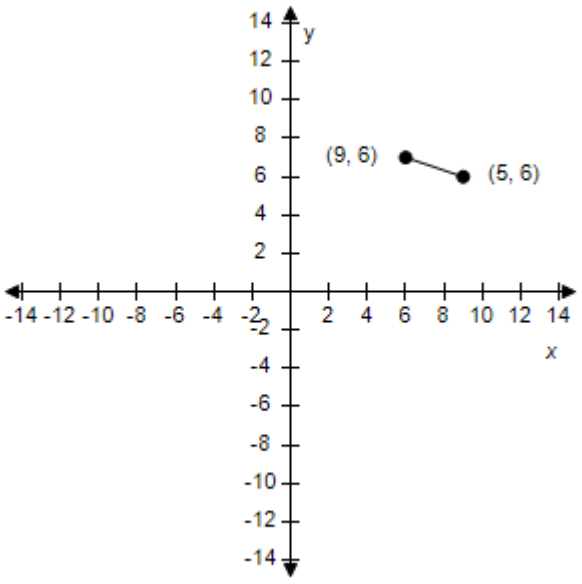
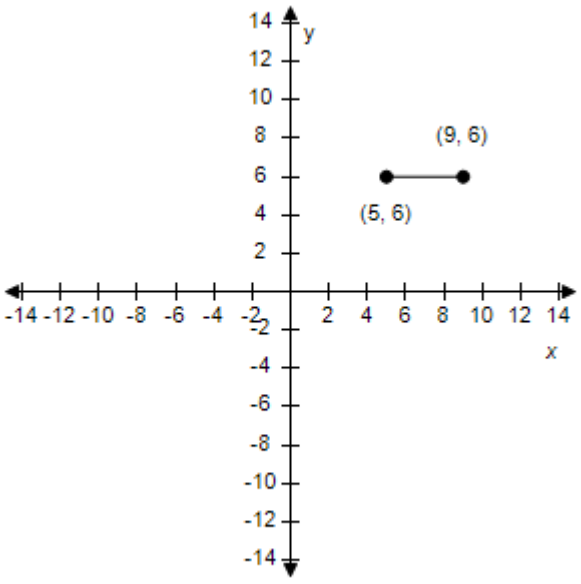
Section 1.1 - Rectangular Coordinates

a.



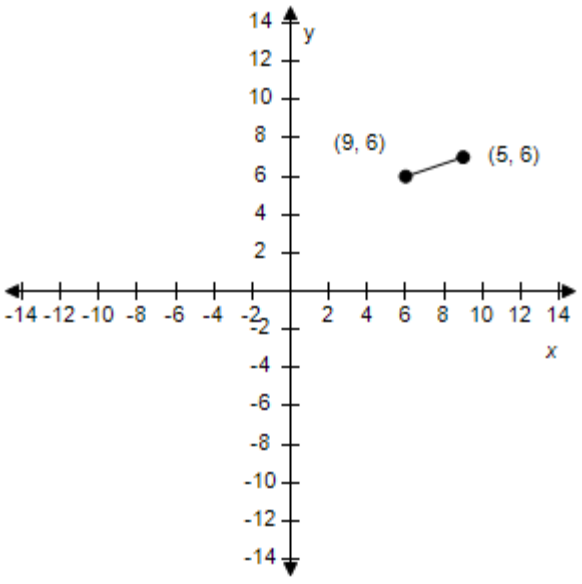
Midpoint: (7, 6)

b.



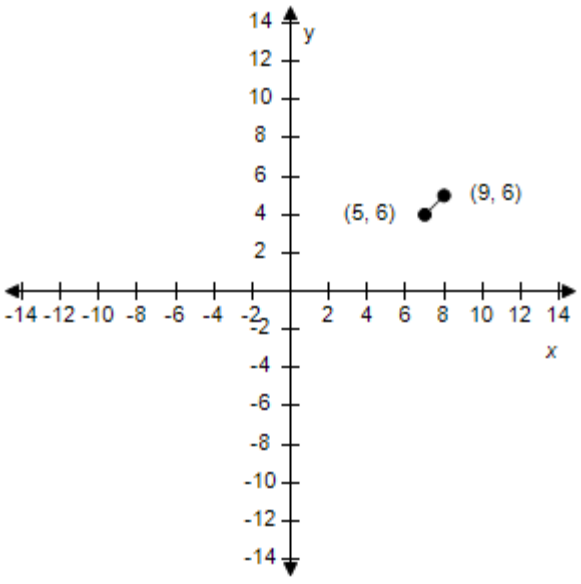
Midpoint: (7, 6)

c.



Midpoint: (7, 6)

d.



Midpoint: (7, 6)

e.

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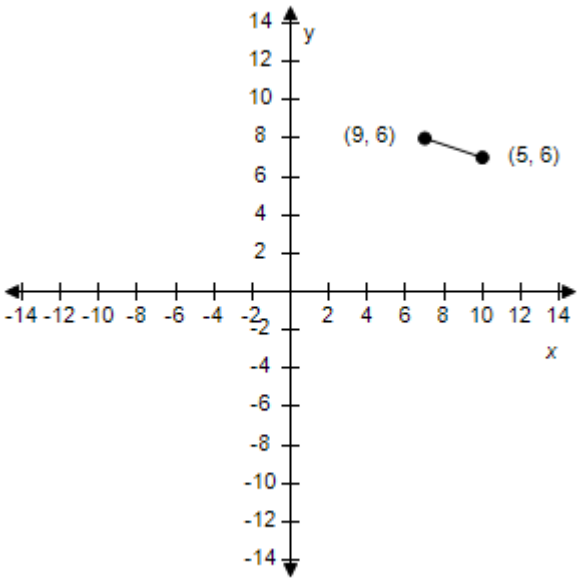

Midpoint: (7, 6)

ANSWER: b
POINTS: 1
REFERENCES: P.6.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 6/16/2021 9:59 AM

37. Find the midpoint between the two points (–19, 9) and (11, 13).

a. (-15, 2)
b. (-15, 11)
c. (-8, 11)
d. (-4, 2)
e. (-4, 11)

ANSWER: e
POINTS: 1
REFERENCES: P.6.49c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/13/2014 6:54 AM

38. Plot the following points and find the distance between the points.

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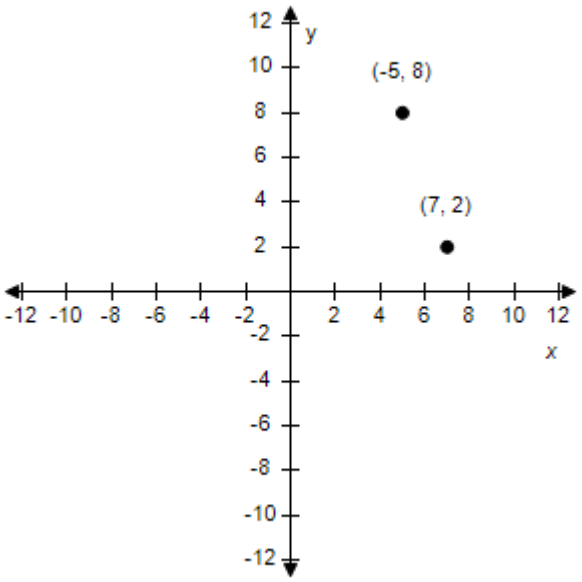
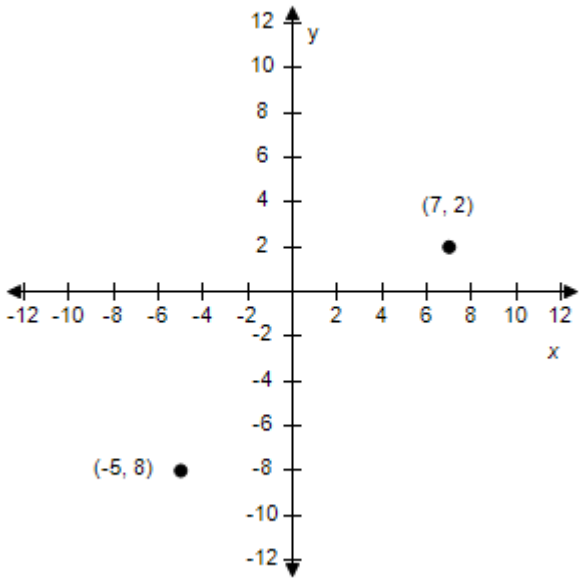
(–5, 8), (7, 2)

a.



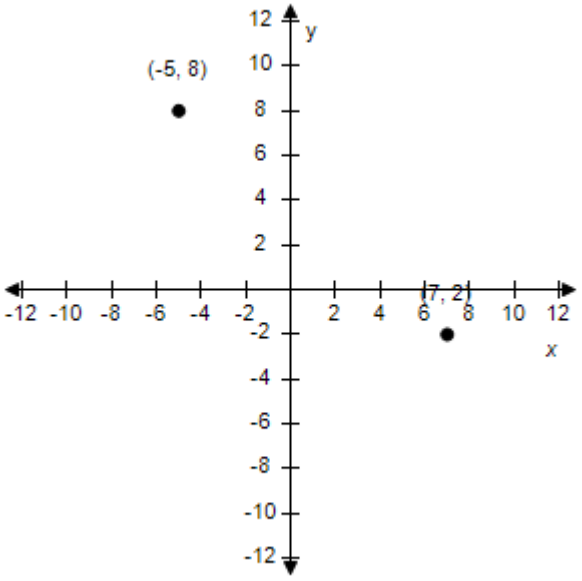
Distance: $6\sqrt{5}$

b.



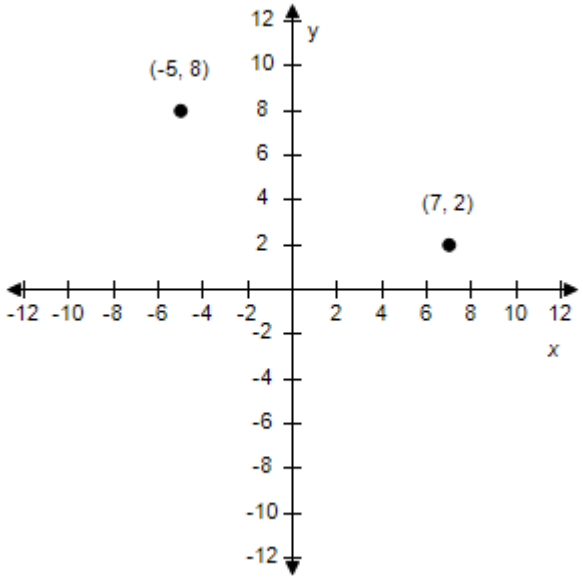
Distance: $6\sqrt{5}$

c.



Distance: $6\sqrt{5}$

d.



Distance: $6\sqrt{5}$

e.

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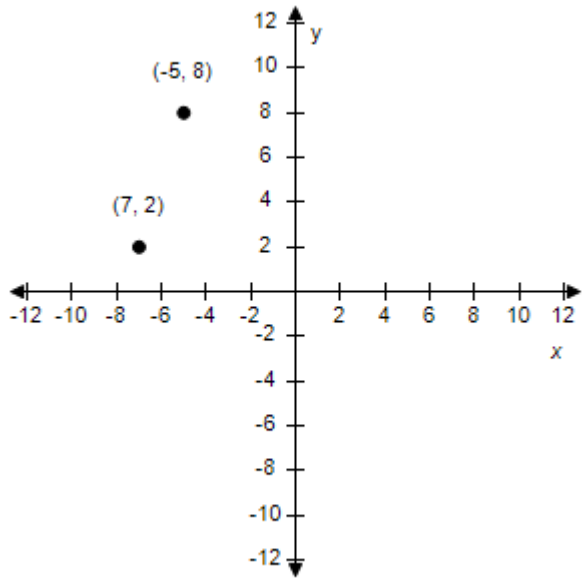

Distance: $6\sqrt{5}$

ANSWER: d
POINTS: 1
REFERENCES: P.6.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/13/2014 8:34 AM

39. Plot the following points and find the distance between the points.

(3, 8), (8, 3)

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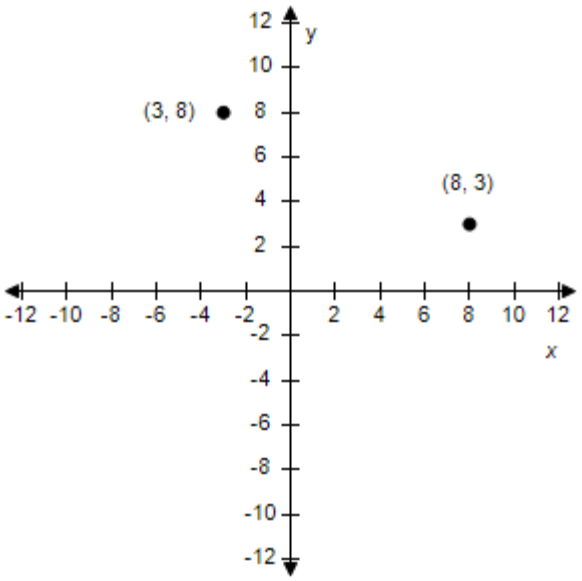
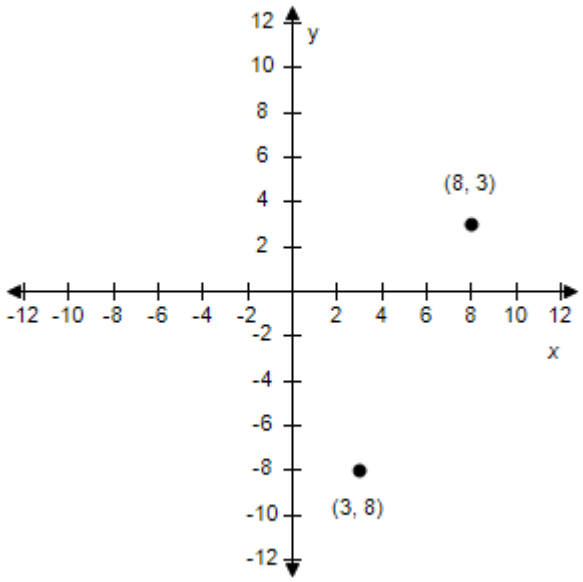
Section 1.1 - Rectangular Coordinates

a.



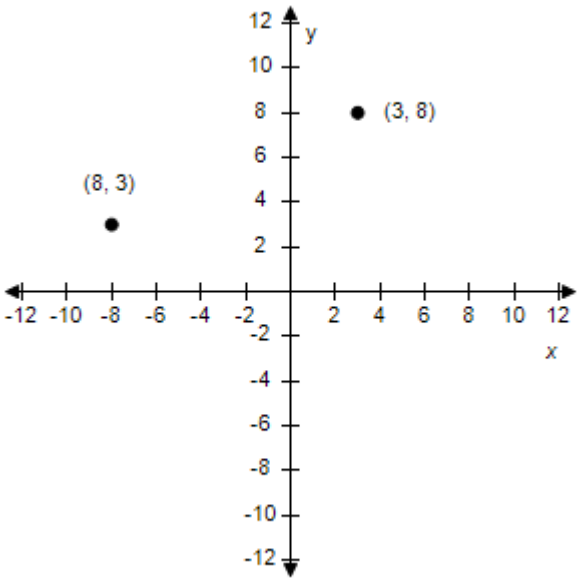
Distance: $5\sqrt{2}$

b.



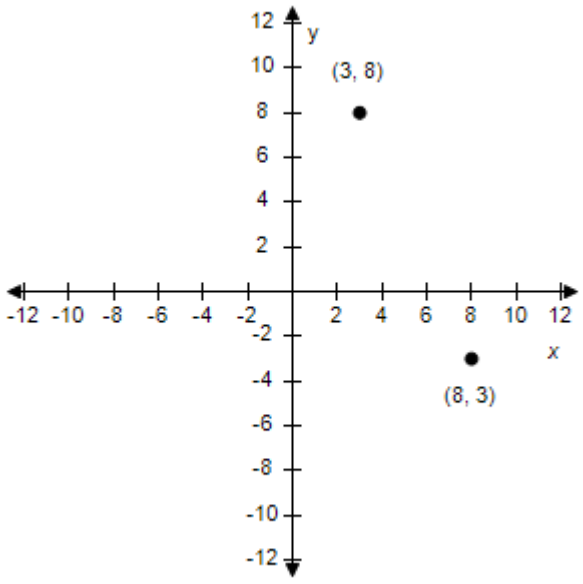
Distance: $5\sqrt{2}$

c.



Distance: $5\sqrt{2}$

d.



Distance: $5\sqrt{2}$

e.

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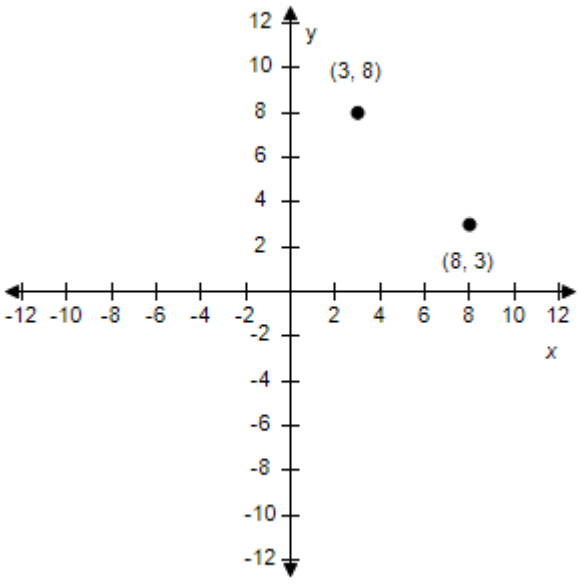

Distance: $5\sqrt{2}$

ANSWER: e
POINTS: 1
REFERENCES: P.6.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/14/2014 12:32 AM

40. An airplane flies from one city in a straight line to another city, which is 360 kilometers north and 150 kilometers west of first city. How far does the plane fly?

a. 150 km
b. 390 km
c. 255 km
d. 360 km
e. 350 km

ANSWER: b
POINTS: 1
REFERENCES: P.6.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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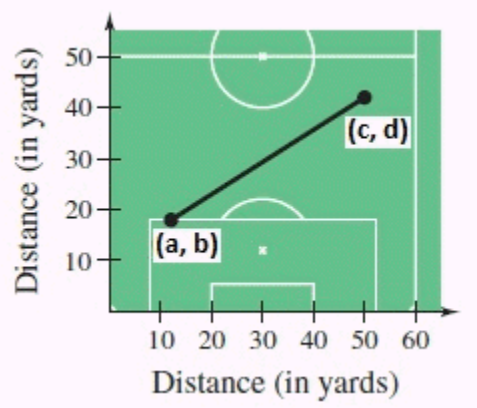
41. A soccer player passes the ball from a point that is 13 yards from the end line and 16 yards from the sideline. The pass is received by a teammate who is 48 yards from the same end line and 39 yards from the same sideline, as shown in the figure. How long is the pass?



(a, b): (13, 16)
(c, d): (48, 39)

a. 44 yd
b. 43 yd
c. 45 yd
d. 42 yd
e. 46 yd

ANSWER: d
POINTS: 1
REFERENCES: P.6.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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42. A quarterback is standing in the middle of the field 41 yards from his goal line. He passes the ball to a player 8 yards to his left on the 26 yard line. How long was the pass?

a. 42 yards
b. 15 yards
c. 27 yards
d. 17 yards
e. 67 yards

ANSWER: d
POINTS: 1
REFERENCES: P.6.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.1 - Rectangular Coordinates

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43. Use the Midpoint Formula to estimate the sales of Big Lots, Inc. in 2005, given the sales in 2003 and 2007. Assume that the sales followed a linear pattern.

Big Lots

Year	Sales (in millions)
2003	4174
2007	4700

a. $4700 million
b. $4457 million
c. $4174 million
d. $4437 million
e. $4447 million

ANSWER: d
POINTS: 1
REFERENCES: P.6.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. Use the Midpoint Formula to estimate the sales of Dollar Tree Stores, Inc. in 2005, given the sales in 2003 and 2007. Assume that the sales followed a linear pattern.

Dollar tree

Year	Sales (in millions)
2003	2200
2007	4283

a. $3241.5 million
b. $3251.5 million
c. $3246.5 million
d. $3256.5 million
e. $3261.5 million

ANSWER: a
POINTS: 1
REFERENCES: P.6.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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45. Find the coordinates of the vertices of the polygon in its new position.

Original coordinates of vertices: (–5, –3), (–3, 6), (–5, –4), (–4, –7)
Shift: three units to the right, four units upward

a. (–2, 1), (0, 10), (–2, 0), (–1, –3)
b. (1, 1), (0, 10), (–2, 0), (–1, –3)
c. (2, 1), (0, 10), (–2, 0), (–1, –3)
d. (3, 1), (0, 10), (–2, 0), (–1, –3)
e. (4, 1), (0, 10), (–2, 0), (–1, –3)

ANSWER: a
POINTS: 1
REFERENCES: P.6.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. Find the coordinates of the vertices of the polygon in its new position.

Original coordinates of vertices: (6, 5), (3, 2), (4, 2), (5, 2)
Shift: six units downward, two units to the left

a. (13, –1), (1, –4), (2, –4), (3, –4)
b. (10, –1), (1, –4), (2, –4), (3, –4)
c. (12, –1), (1, –4), (2, –4), (3, –4)
d. (4, –1), (1, –4), (2, –4), (3, –4)
e. (11, –1), (1, –4), (2, –4), (3, –4)

ANSWER: d
POINTS: 1
REFERENCES: P.6.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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47. Use the graph, which shows the average retail prices of 1 gallon of whole milk from 1996 through 2007.

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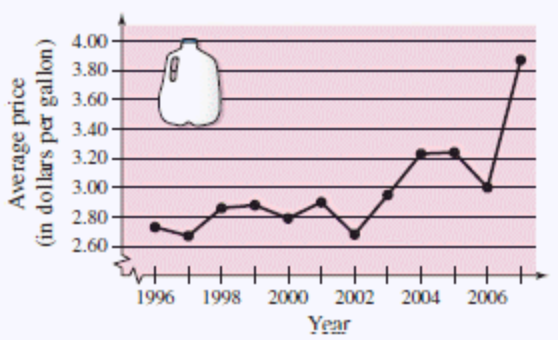

Approximate the lowest price of a gallon of whole milk shown in the graph. When did this occur?

a. $2.97 / gal; 2001
b. $3.17 / gal; 2002
c. $3.07 / gal; 2003
d. $2.67 / gal; 1997
e. $3.87 / gal; 2004

ANSWER: d
POINTS: 1
REFERENCES: P.6.65
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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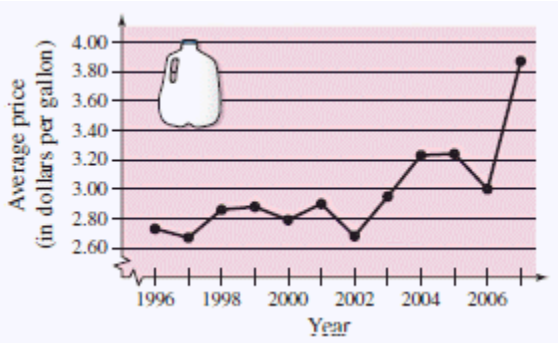
48. Use the graph, which shows the average retail prices of 1 gallon of whole milk from 1996 through 2007.



Approximate the percent change in the price of milk from the price in 2000 to the highest price shown in the graph.

a. About 48%
b. About 58%
c. About 43%
d. About 53%
e. About 38%

ANSWER: e

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Section 1.1 - Rectangular Coordinates

POINTS: 1
REFERENCES: P.6.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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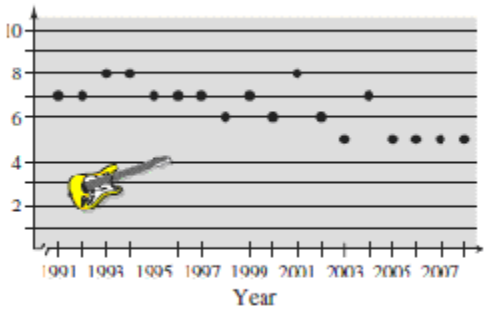
49. The graph shows the numbers of performers who were elected to the Rock and Roll Hall of Fame from 1991 through 2008. Describe any trends in the data. From these trends, predict the number of performers elected in 2009.



a. The number of performers elected in last four years in the graph seems to be nearly steady except for the first few years therefore five performers will be elected in 2009.
b. The number of performers elected in last four years in the graph seems to be nearly steady except for the first few years therefore seven performers will be elected in 2009.
c. The number of performers elected in last four years in the graph seems to be nearly steady except for the first few years therefore eight performers will be elected in 2009.
d. The number of performers elected in last four years in the graph seems to be nearly steady except for the first few years therefore six performers will be elected in 2009.
e. The number of performers elected in last four years in the graph seems to be nearly steady except for the first few years therefore nine performers will be elected in 2009.

ANSWER: a
POINTS: 1
REFERENCES: P.6.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. The Coca-Cola Company had sales of $19,999 million in 1999 and $29,511 million in 2007. Use the Midpoint Formula to estimate the sales in 2003. Assume that the sales followed a linear pattern.

a. $24,905 million

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b. $24,855 million
c. $24,755 million
d. $24,955 million
e. $24,805 million

ANSWER: c
POINTS: 1
REFERENCES: P.6.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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51. Determine the quadrant(s) in which (x, y) is located so that the condition is satisfied.
$x = 2$ and $y < -8$

a. quadrant II
b. quadrant IV
c. quadrants I and IV
d. quadrants II and IV
e. quadrants III and IV

ANSWER: b
POINTS: 1
REFERENCES: 11-20
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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52. Find the distance between the points. Round to the nearest hundredth, if necessary.

$(-8, -8), (-1, 9)$

a. 19.24
b. 7.07
c. 18.38
d. 10
e. 9.06

ANSWER: c
POINTS: 1
REFERENCES: 23-32
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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53. Given points (–3,–15) and (15,3) form the vertices of the base of a triangle. Choose the third point so that the three points form the vertices of an isosceles triangle.

a. (6, -6)
b. (11, -12)
c. (2, -10)
d. (4, -4)
e. (10, -15)

ANSWER: d
POINTS: 1
REFERENCES: 37-44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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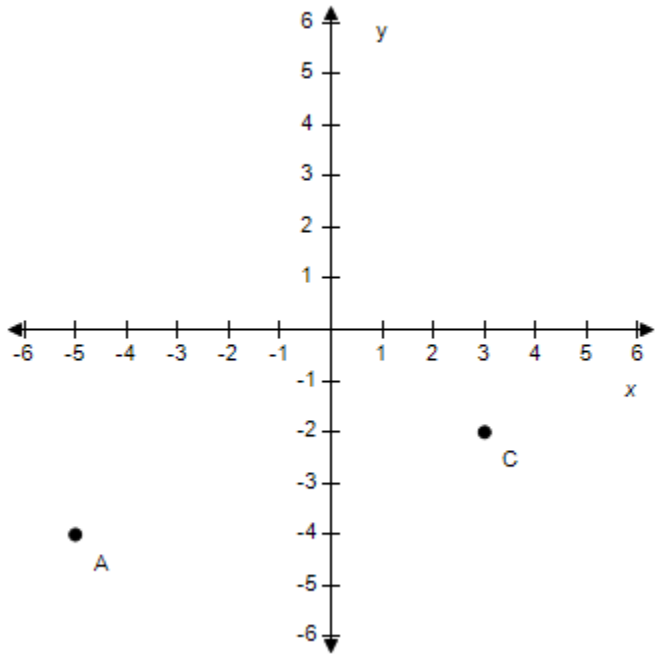
54. Find the coordinates of the point C shown below.



a. (–2, 3)
b. (3, -2)
c. (–4, –5)
d. (-5, -4)
e. (–5, –2)

ANSWER: b

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Section 1.1 - Rectangular Coordinates

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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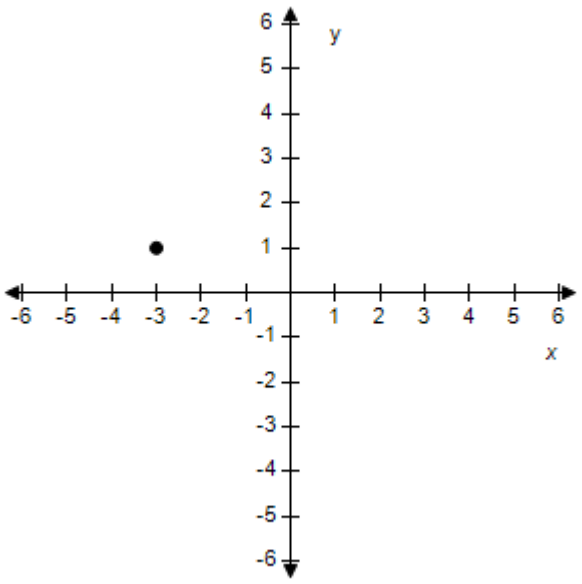
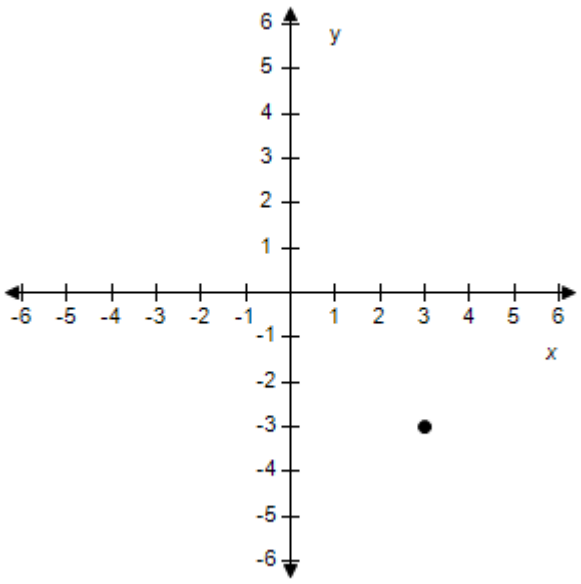
55. Plot the point (–3, 3) on the Cartesian plane.

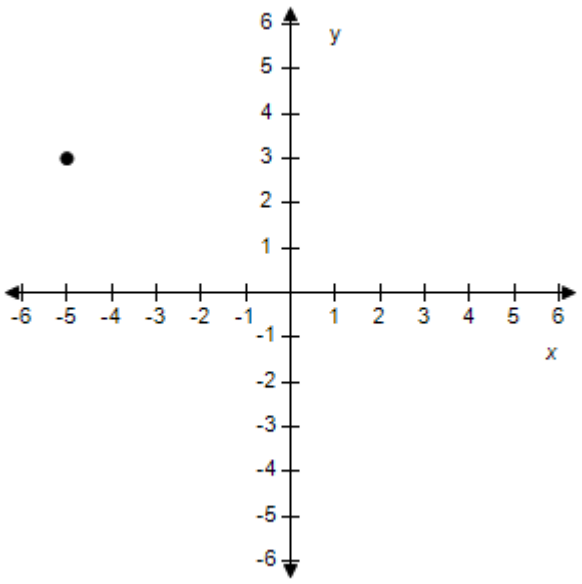
a.



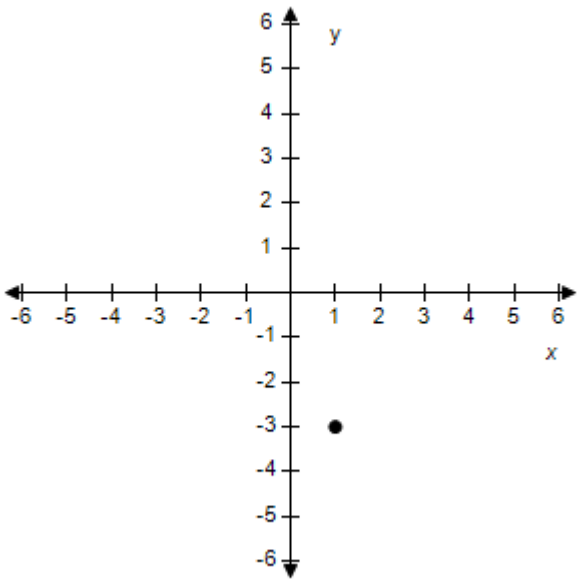
b.



c.



d.



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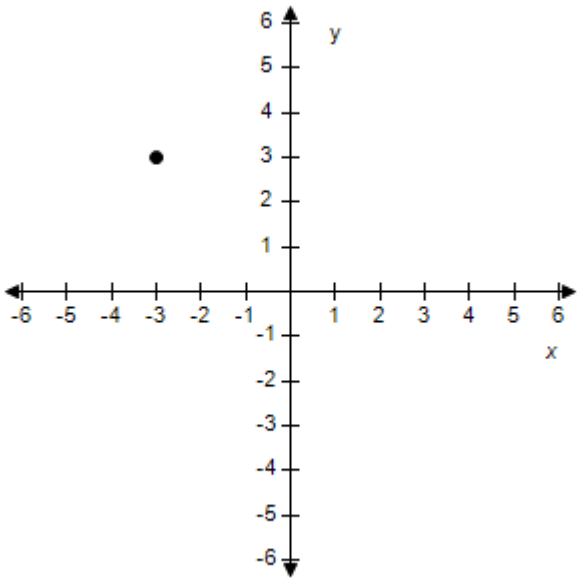
e.



ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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56. Find the coordinates of the point that is located 8 units below the x-axis and 3 units to the left of the y-axis.

a. (–8, –3) b. (8, –3)
c. (–3, 8) d. (3, –8)
e. (–3, –8)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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57. Find the distance between the points (4, –3) and (11, –3).

a. 10 b. $\sqrt{7}$
c. 3 d. $\sqrt{10}$
e. 7

ANSWER: e

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Section 1.1 - Rectangular Coordinates

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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58. Find the distance between the points (4, –5) and (9, 0). Round the answer to the nearest tenth.

a. 7.1 b. 7.4
c. 7.3 d. 7.5
e. 6.9

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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59. Find the midpoint of the line segment joining the points (3, 6) and (9, –4).

a. (6, –10) b. (12, 2)
c. (6, 1) d. (–3, 5)
e. (3, –5)

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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60. Find the midpoint of the line segment joining the points (5.5, 4.3) and (13.6, –1.2).

a. (19.1, 3.1) b. (8.1, –5.5)
c. (–4.05, 2.75) d. (9.55, 1.55)
e. (4.05, –2.75)

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.1 - Rectangular Coordinates

61. Let M denote the midpoint of the line segment joining (4, 3) and (11, 6). Find the distance from M to the point (–6, –5). Round the answer to the nearest tenth.

a. 16.7 b. 16.1
c. 16.5 d. 15.9
e. 16.2

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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62. Let M denote the midpoint of the line segment joining (2, 3) and (7, 6). Find the midpoint between M and (–6, –4).

a. (2, 0.25) b. (–0.75, 0.25)
c. (–2, –0.5) d. (4.5, 4.5)
e. (0.5, 1)

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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63. Let S represent the midpoint between (5, 3) and (–5, –7). Let T represent the midpoint between (5, 3) and S. Find the coordinates of T.

a. (–2.5, –4.5) b. (0, –2)
c. (0, 0.5) d. (2.5, 0.5)
e. (2.5, –2)

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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64. Write the standard form of the equation of the circle with center (5, –7) and radius 5.

a. $(x+5)^2+(y-7)^2=5$ b. $(x-5)^2+(y+7)^2=5$
c. $(x-5)^2+(y+7)^2=25$ d. $(x+5)^2+(y-7)^2=25$

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e. $(x-5)^2+(y-7)^2=25$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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65. Write the standard form of the equation of the circle with center (3, –2) and solution point (–2, 3).

a. $(x+3)^2+(y-2)^2=50$ b. $(x-3)^2+(y+2)^2=\sqrt{50}$

c. $(x-3)^2+(y-2)^2=50$ d. $(x+3)^2+(y-2)^2=\sqrt{50}$

e. $(x-3)^2+(y+2)^2=50$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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66. Write the standard form of the equation of the circle which has (–5, 4) and (–1, 8) as endpoints of a diameter.

a. $(x+3)^2+(y-6)^2=\sqrt{8}$ b. $(x-3)^2+(y+6)^2=8$

c. $(x-3)^2+(y-6)^2=8$ d. $(x-3)^2+(y-6)^2=\sqrt{8}$

e. $(x+3)^2+(y-6)^2=8$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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67. Write the standard form of the equation of the circle tangent to the *y*-axis and with center (–3, –6).

a. $(x+3)^2+(y-6)^2=9$ b. $(x+3)^2+(y-6)^2=3$

c. $(x-3)^2+(y-6)^2=9$ d. $(x+3)^2+(y+6)^2=3$

e. $(x+3)^2+(y+6)^2=9$

ANSWER: e

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Section 1.1 - Rectangular Coordinates

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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68. Find the center and radius of the circle with equation $(x+7)^2+(y-2)^2=25$.

a. Center: (7, 2)
Radius: 5

b. Center: (–7, 2)
Radius: 25

c. Center: (7, –2)
Radius: 25

d. Center: (7, –2)
Radius: 5

e. Center: (–7, 2)
Radius: 5

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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69. The point *A* has coordinates (–3, 5). If *A* is moved 3 units upward 6 units to the left, what are the new coordinates of *A*?

a. (0, –1)
b. (3, 8)
c. (0, 11)
d. (–9, 8)
e. (3, 2)

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.2 - Graphs of Equations

1. Determine which of the following points lies on the graph of the equation.

$y = \sqrt{x + 62}$

a. (2, 10)
b. (2, 9)
c. (2, 8)
d. (9, 8)
e. (3, 8)

ANSWER: c
POINTS: 1
REFERENCES: 1.1.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Determine which of the following points lies on the graph of the equation.

$y = |x - 2| + 4$

a. (5, 7)
b. (5, 9)
c. (5, 8)
d. (8, 7)
e. (6, 7)

ANSWER: a
POINTS: 1
REFERENCES: 1.1.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:58 PM

3. Write the standard form of the equation of the circle with the given characteristics.

Endpoints of a diameter: (2, 2), (12, 2)

a. $(x - 7)^2 + (y - 2)^2 = 5$

b. $(x - 2)^2 + (y - 7)^2 = 25$

c. $(x + 2)^2 + (y + 7)^2 = 25$

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d. $(x+7)^2+(y+2)^2=25$

e. $(x-7)^2+(y-2)^2=25$

ANSWER: e
POINTS: 1
REFERENCES: 1.1.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Write the standard form of the equation of the circle with the given characteristics.

Center:(3, 1); Radius: 7

a. $(x-3)^2+(y-1)^2=49$

b. $(x-3)^2+(y-1)^2=7$

c. $(x-3)^2+(y-1)^2+7=0$

d. $x^2+y^2=0$

e. $(x-3)^2+(y-1)^2-49=0$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 9/15/2014 9:16 AM

5. Find the center and radius of the circle, and sketch its graph.

$x^2+y^2=16$

a. Center (0, 0), Radius 16

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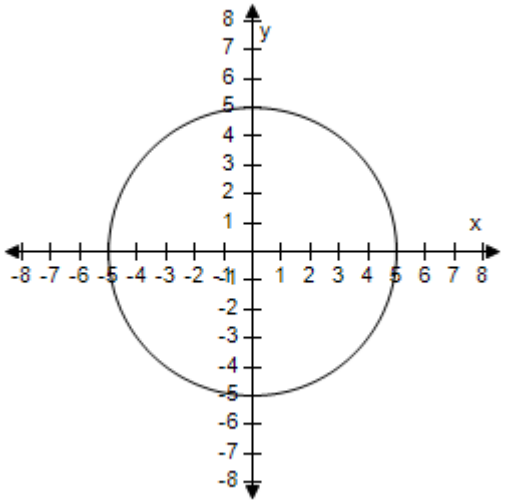
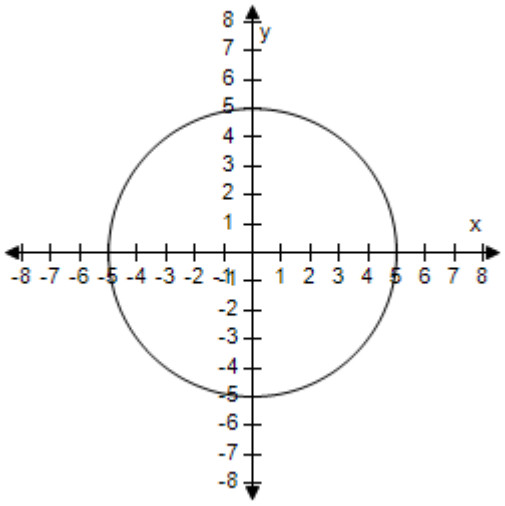
Section 1.2 - Graphs of Equations



b. Center (0, 0), Radius 4



c. Center (0, 0), Radius 4

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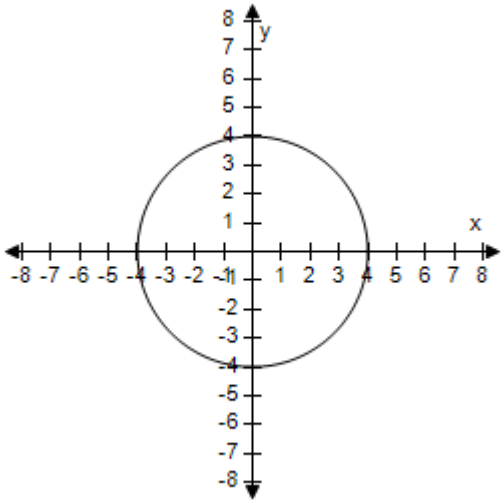
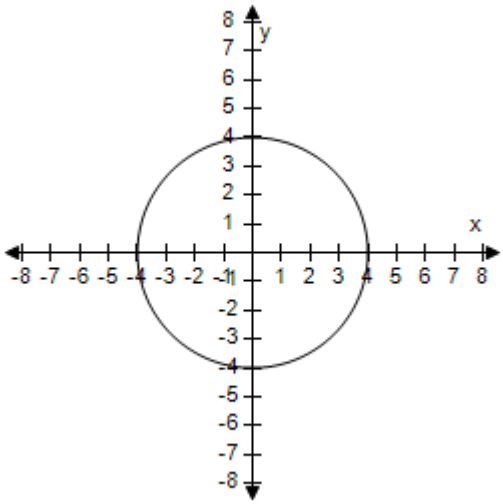
Section 1.2 - Graphs of Equations



d. Center (0, 0), Radius 16



e. Center (0, 0), Radius 4

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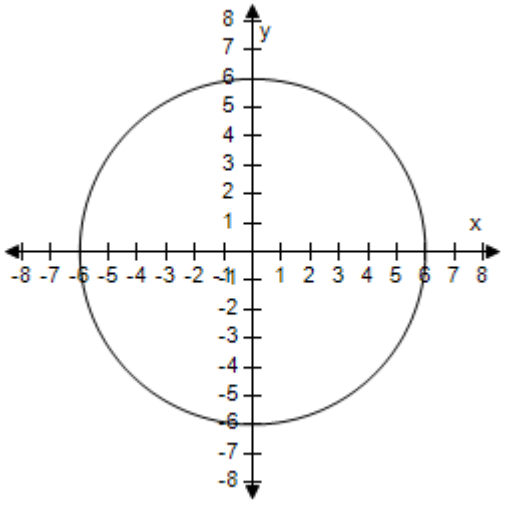
Section 1.2 - Graphs of Equations



ANSWER: c
POINTS: 1
REFERENCES: 1.1.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:50 PM

6. Find the center and radius of the circle, and sketch its graph.

$$\left(x-\frac{1}{2}\right)^2+\left(y-\frac{1}{2}\right)^2=\frac{49}{4}$$

a. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{49}{4}$

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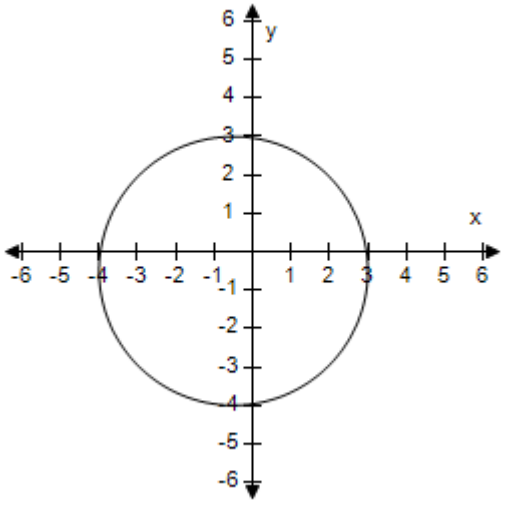
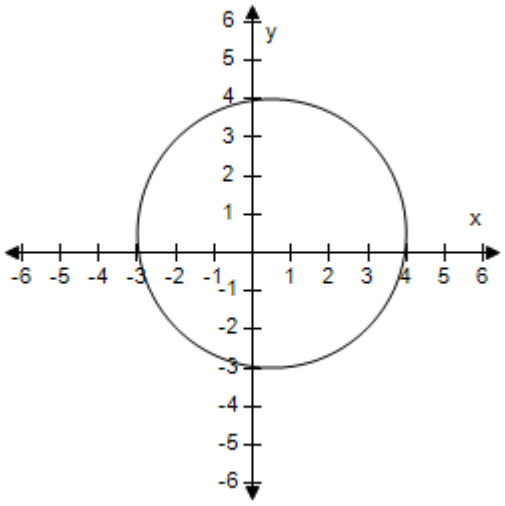


b. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{49}{4}$



c. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{7}{2}$

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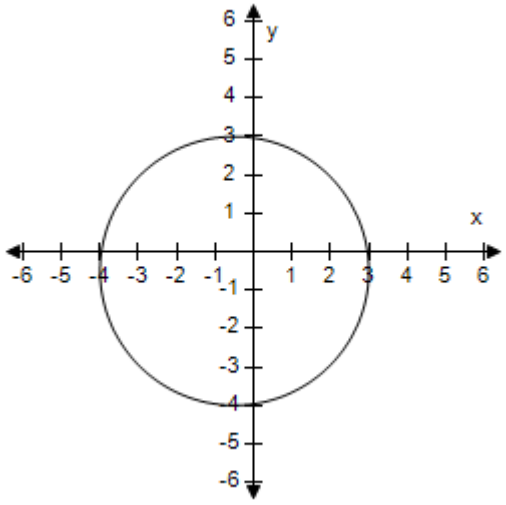
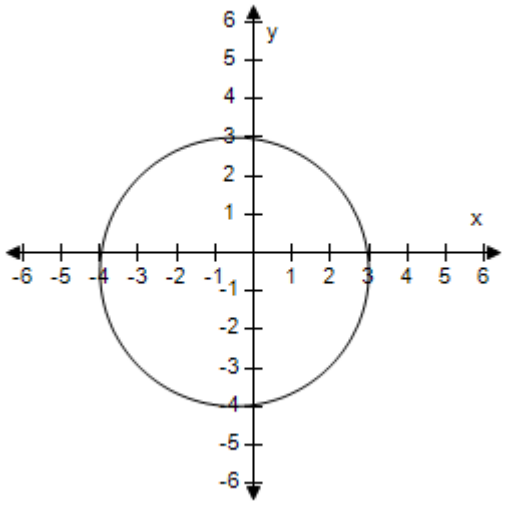
Section 1.2 - Graphs of Equations



d. Center $\left(-\frac{1}{2}, -\frac{1}{2}\right)$, Radius $\frac{7}{4}$



e. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{7}{2}$

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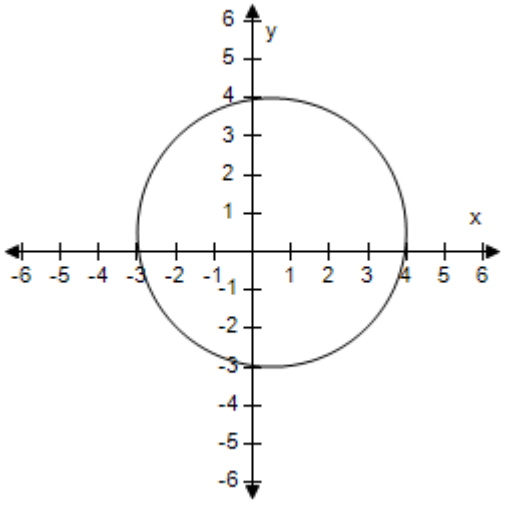
Section 1.2 - Graphs of Equations



ANSWER: e
POINTS: 1
REFERENCES: 1.1.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:51 PM

7. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = x^2 - 4x$

a. x-intercepts : (0, 0), (4, 0)
y-intercept : (0, 0)
No symmetry

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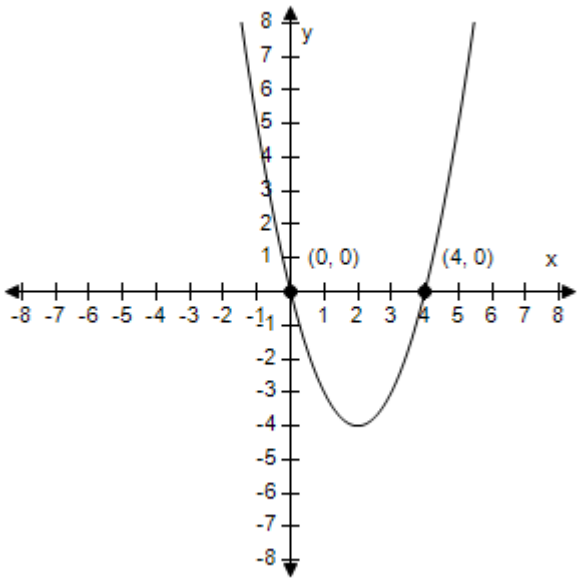
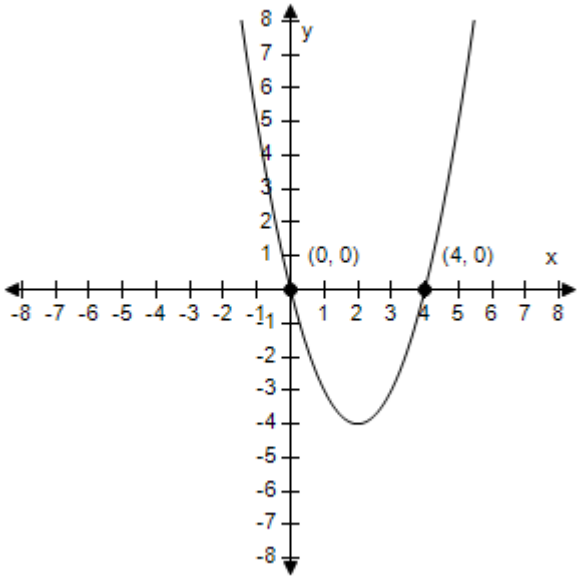


b. x-intercepts : (0, 0), (–4, 0)
y-intercept : (0, 1)
No symmetry



c. x-intercepts : (4, 0), (4, 0)
y-intercept : (0, 1)
No symmetry

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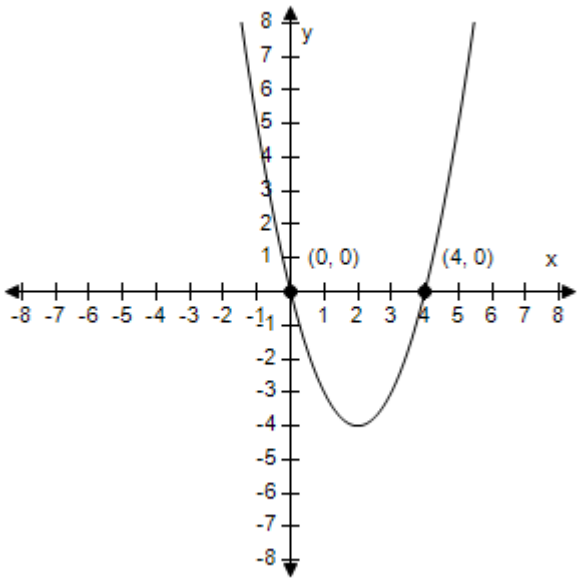
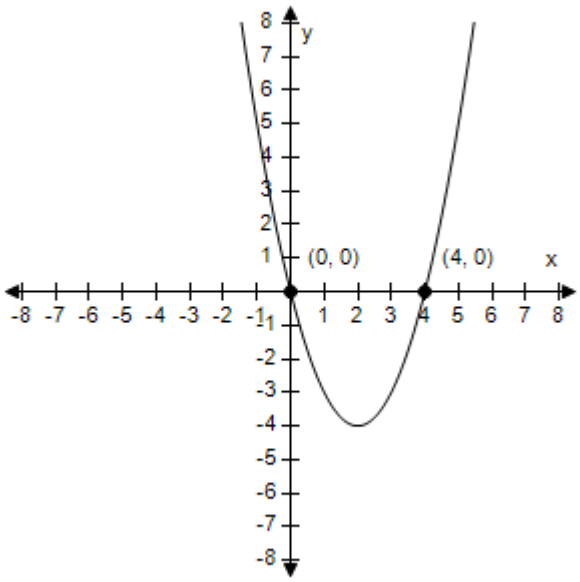


d. x-intercepts : (0, 0), (4, 0)
y-intercept : (0, 1)
No symmetry



e. x-intercepts : (0, 0), (4, 0)
y-intercept : (0, –1)
No symmetry

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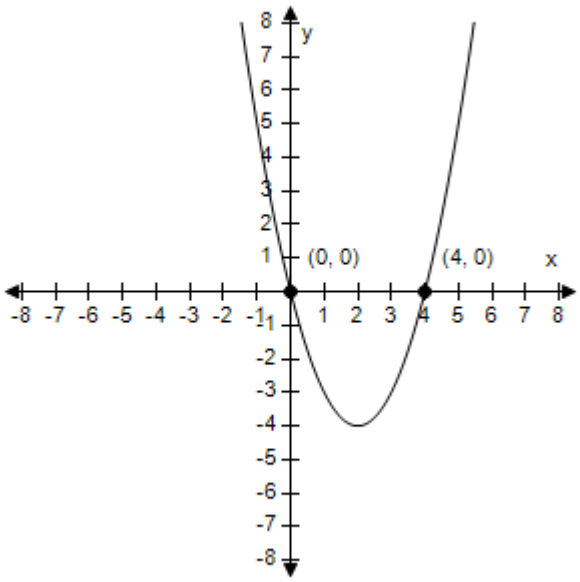

ANSWER: a
POINTS: 1
REFERENCES: 1.1.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:52 PM

8. Write the standard form of the equation of the circle with the given characteristics.

Center: (6, 1); Solution point: (5, 9)

a. $(x+6)^2+(y+1)^2=65$

b. $(x-6)^2+(y+1)^2-65=0$

c. $(x+6)^2+(y+1)^2+65=0$

d. $(x-6)^2+(y-1)^2=65$

e. $(x-1)^2+(y-6)^2=65$

ANSWER: d
POINTS: 1
REFERENCES: 1.1.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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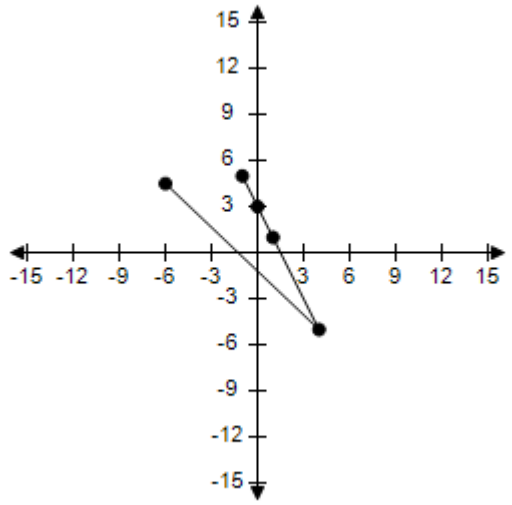
9. Complete the table. Use the resulting solution points to sketch the graph of the equation.

$y = -2x + 3$

x	–1	0	1	4	$\frac{9}{2}$
y					
(x, y)					

a.

x	–1	0	1	4	$\frac{9}{2}$
y	5	3	1	–5	–6
(x, y)	(–1, 5)	(0, 3)	(1, 1)	(4, –5)	$(\frac{9}{2}, 9)$



b.

x	–1	0	1	4	$\frac{9}{2}$
y	5	3	1	–5	–6
(x, y)	(–1, 5)	(0, 1)	(1, 3)	(4, –5)	$(\frac{9}{2}, -6)$

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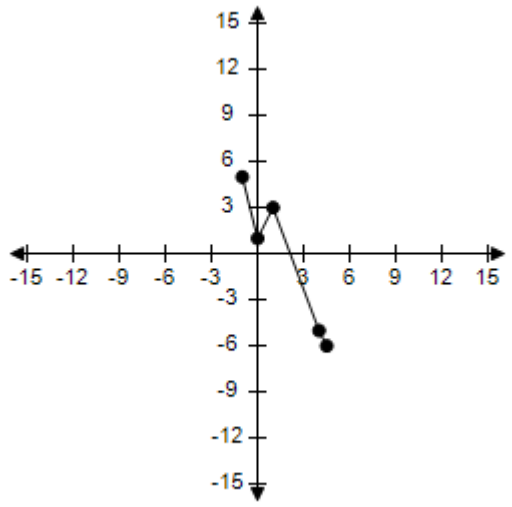
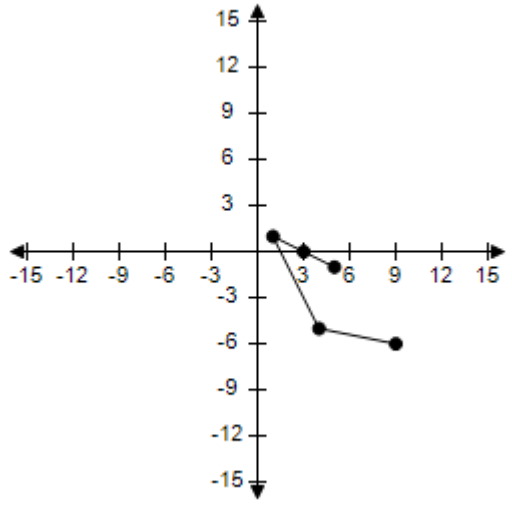
Section 1.2 - Graphs of Equations



c.

x	–1	0	1	4	$\frac{9}{2}$
y	5	3	1	–5	–6
(x, y)	(5, –1)	(3, 0)	(1, 1)	(4, –5)	$(\frac{9}{2}, -6)$



d.

x	–1	0	1	4	$\frac{9}{2}$
y	5	3	1	–5	–6
(x, y)	(–1, 5)	(3, 0)	(1, 1)	(4, –5)	$(\frac{9}{2}, -6)$

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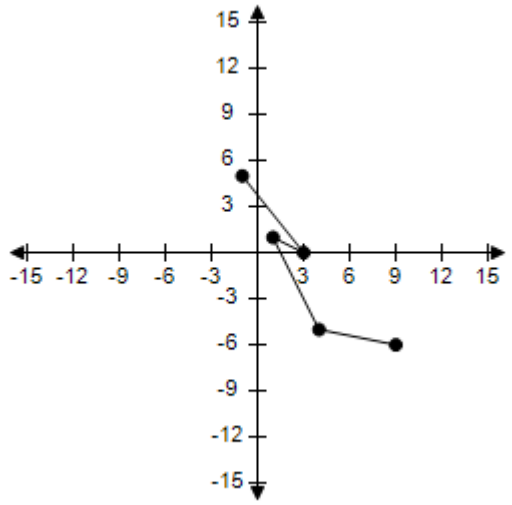
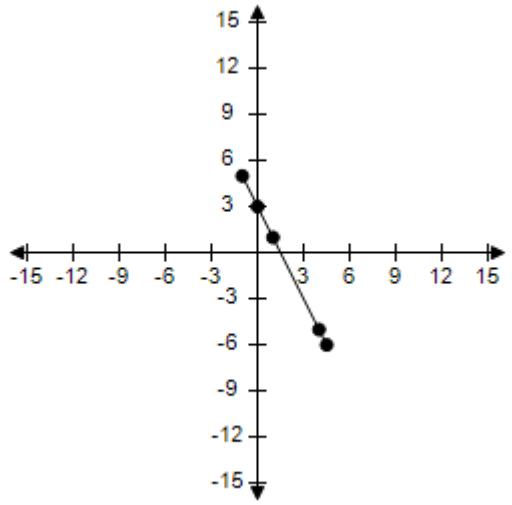


e.

x	–1	0	1	4	$\frac{9}{2}$
y	5	3	1	–5	–6
(x, y)	(–1, 5)	(0, 3)	(1, 1)	(4, –5)	$(\frac{9}{2}, -6)$



ANSWER: e
POINTS: 1
REFERENCES: 1.1.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.2 - Graphs of Equations

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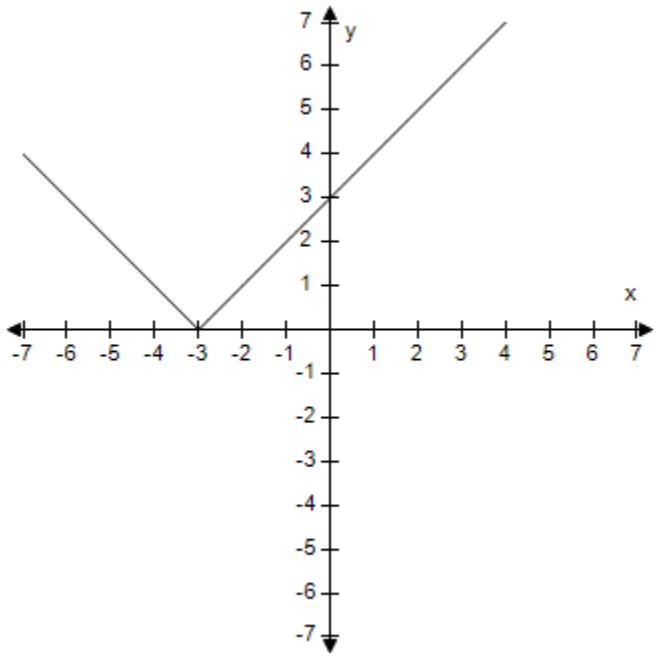
10. Graphically estimate the x- and y-intercepts of the graph.

$y = |x + 3|$



a. x-intercept: $(-3, 0)$
   y-intercept: $(0, 3)$
b. x-intercept: $(0, -3)$
   y-intercept: $(3, 0)$
c. x-intercept: $(0, -3)$
   y-intercept: $(0, 3)$
d. x-intercept: $(3, 0)$
   y-intercept: $(3, 0)$
e. x-intercept: $(0, 3)$
   y-intercept: $(3, 0)$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.2 - Graphs of Equations

11. Determine which of the following points lies on the graph of the equation.

$x^2 + y^2 = 5$

a. (3, 1)
b. (2, 3)
c. (4, 1)
d. (2, 1)
e. (2, 2)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:57 PM

12. Which of the following graphs is symmetric about the *y*-axis?

a. $y = x^7 - x^6 + 18$
b. $y = x^7 - x^{12} + 18$
c. $y = x^9 - x^7 + 18$
d. $y = x^{12} - x^6 + 18$
e. $y = x^9 + x^7 + 18$

ANSWER: d
POINTS: 1
REFERENCES: 1.1.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:57 PM

13. You purchase an all-terrain vehicle (ATV) for $2,000. The depreciated value y after t years is given by $y = 2{,}000 - 500t$, $0 \le t \le 6$. Sketch the graph of the equation.

a.

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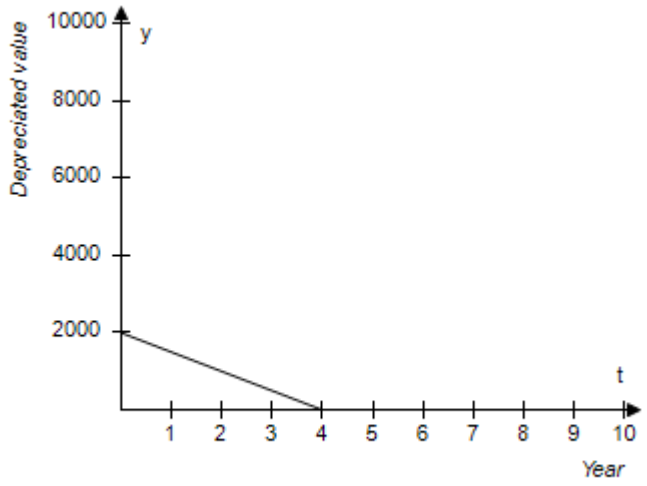
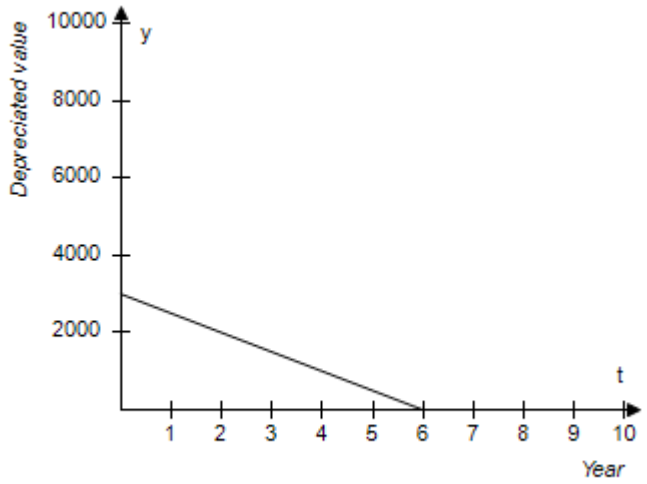
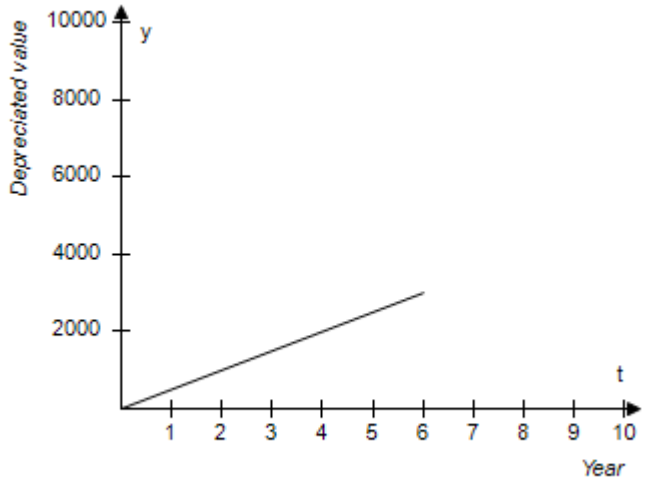


b.



c.



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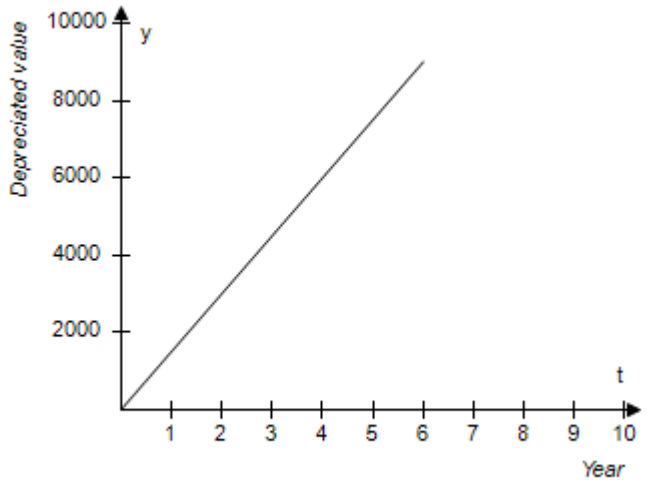
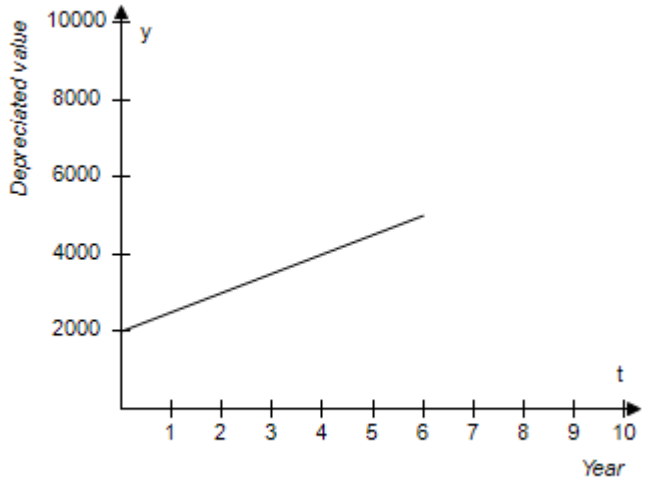
d.



e.



ANSWER:	a
POINTS:	1
REFERENCES:	1.1.76
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:15 PM
DATE MODIFIED:	9/19/2014 4:40 AM

14. The resistance y (in ohms) of 1,000 feet of solid copper wire at 68 degrees Fahrenheit can be approximated by the model

$$y = \frac{10{,}770}{x^2} - 0.37, \quad 5 \le x \le 100$$

where x is the diameter of the wire in mils (0.001 inch).

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Section 1.2 - Graphs of Equations

Complete the table.

x	15	45	55	70	75
y					

Round the answer to two decimal places.

a.

x	15	45	55	70	75
y	47.50	1.54	3.19	1.83	4.95

b.

x	15	45	55	70	75
y	47.50	4.95	3.19	1.54	1.83

c.

x	15	45	55	70	75
y	47.50	4.95	1.83	3.19	1.54

d.

x	15	45	55	70	75
y	47.50	3.19	4.95	1.83	1.54

e.

x	15	45	55	70	75
y	47.50	4.95	3.19	1.83	1.54

ANSWER: e
POINTS: 1
REFERENCES: 1.1.80
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 2:50 AM

15. A hospital purchases a new magnetic resonance imaging (MRI) machine for $600,000. The depreciated value y (reduced value) after t years is given by $y = 600{,}000 - 20{,}000t$, $0 \le t \le 6$. Sketch the graph of the equation.

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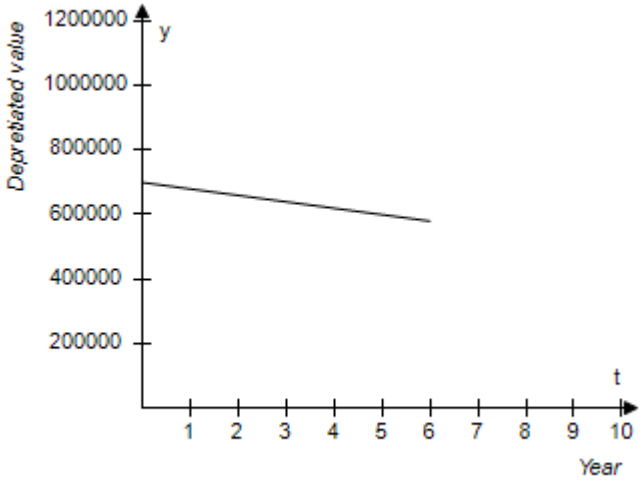
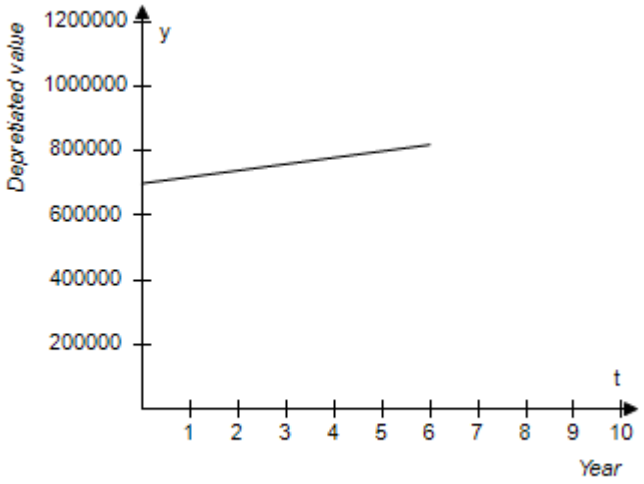
Section 1.2 - Graphs of Equations

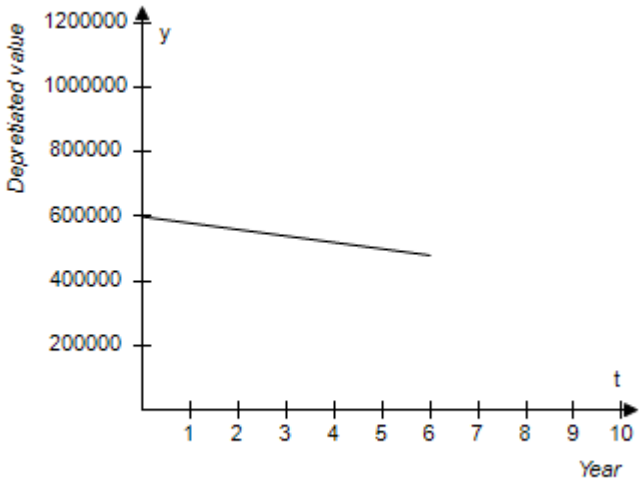
a.



b.



c.



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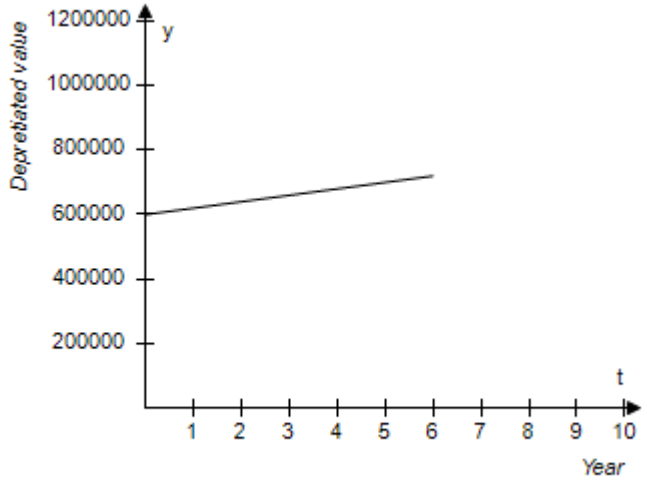
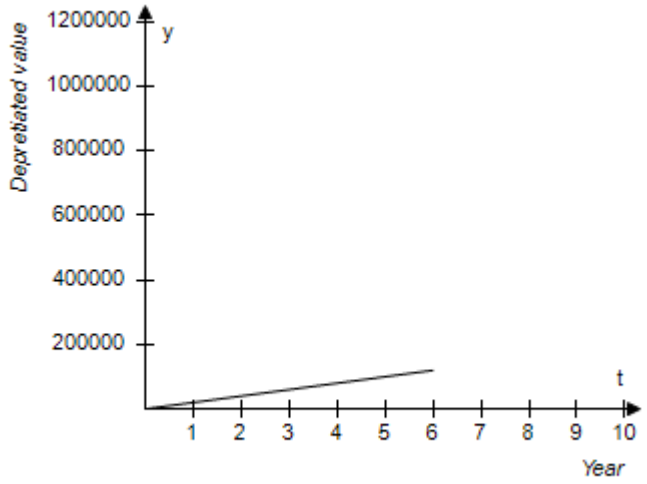
d.



e.



ANSWER: c
POINTS: 1
REFERENCES: 1.1.75
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 12:00 AM

16. Determine which of the following point lies on the graph of the equation.

$$y = \frac{1}{3}x^3 - x^2$$

a. (6, 36)
b. (2, 1)

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c. (7, 1)
d. (6, 2)
e. (6, 3)

ANSWER: a
POINTS: 1
REFERENCES: 1.1.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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17. Complete the table.

$$y = \frac{3}{4}x - 1$$

x	–12	–8	4	12	16
y					
(x,y)					

a.

x	–12	–8	4	12	16
y	–10	–7	2	8	11
(x,y)	(–10, –12)	(–7, –8)	(4, 2)	(12, 8)	(16, 11)

b.

x	–12	–8	4	12	16
y	–10	–7	2	8	11
(x,y)	(–12, –10)	(–8, –7)	(2, 4)	(12, 8)	(11, 16)

c.

x	–12	–8	4	12	16
y	–10	–7	2	8	11
(x,y)	(–12, –10)	(–7, –8)	(2, 4)	(12, 8)	(16, 11)

d.

x	–12	–8	4	12	16
y	–10	–7	2	8	11
(x,y)	(–12, –10)	(–8, –7)	(4, 2)	(12, 8)	(16, 11)

e.

x	–12	–8	4	12	16
y	–10	–7	2	8	11
(x,y)	(–12, –10)	(–8, 2)	(4, –7)	(12, 8)	(16, 11)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.16
QUESTION TYPE: Multi-Mode (Multiple choice)

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Section 1.2 - Graphs of Equations

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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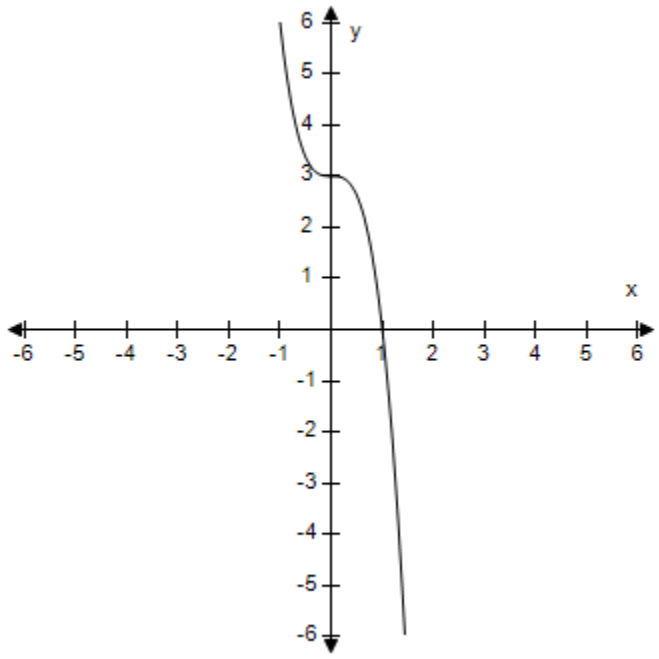
18. Graphically estimate the x- and y-intercepts of the graph.

$y = 3 - 3x^3$



a. x-intercept: (0, 1)
y-intercept: (0, 3)
b. x-intercept: (1, 0)
y-intercept: (3, 0)
c. x-intercept: (0, 1)
y-intercept: (3, 0)
d. x-intercept: (1, 0)
y-intercept: (0, 3)
e. x-intercept: (1, 0)
y-intercept: (0, –3)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.2 - Graphs of Equations

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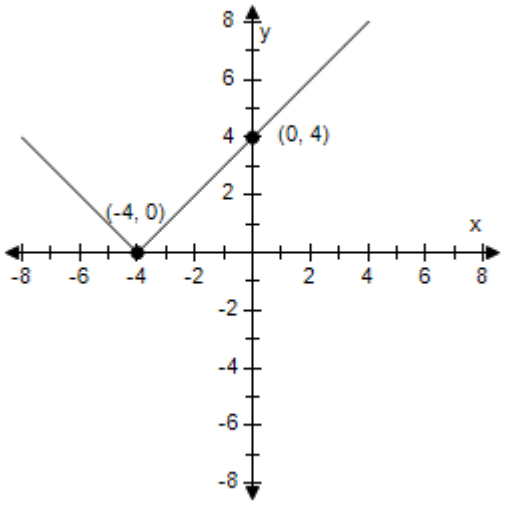
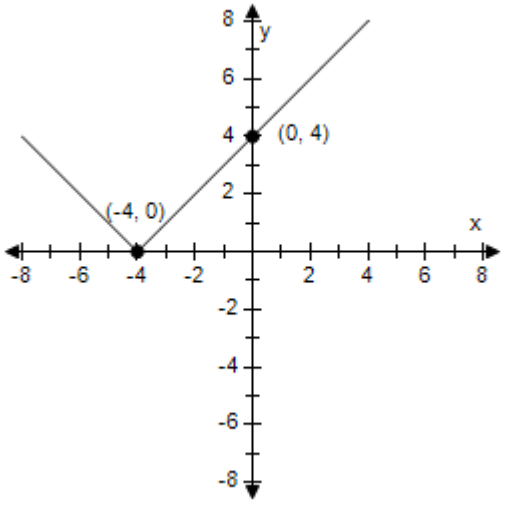
19. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = |x - 4|$

a. x- intercept: (4, 0)
y- intercept: (0, 4)
No symmetry



b. x- intercept: (-4, 0)
y- intercept: (0, 4)
No symmetry



c. x- intercept: (4, 0)
y- intercept: (4, 0)

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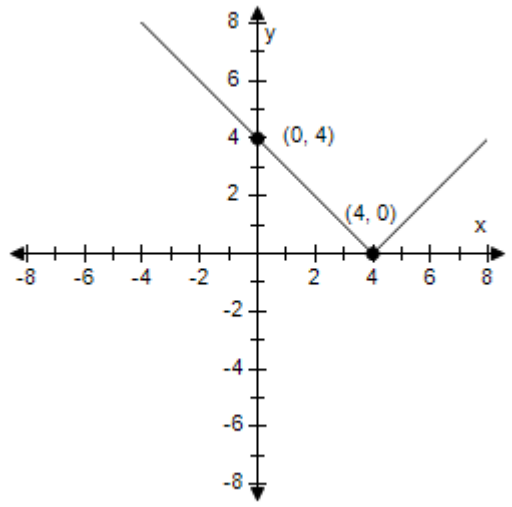
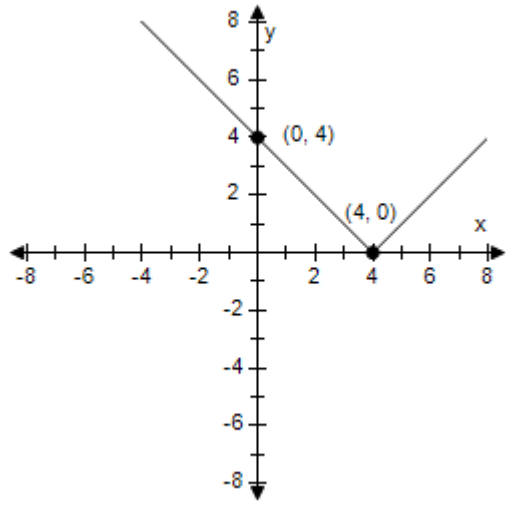
No symmetry



d. *x*- intercept: (4, 0)
y- intercept: (0, 4)
No symmetry



e. *x*- intercept: (4, 0)
y- intercept: (4, 0)
No symmetry

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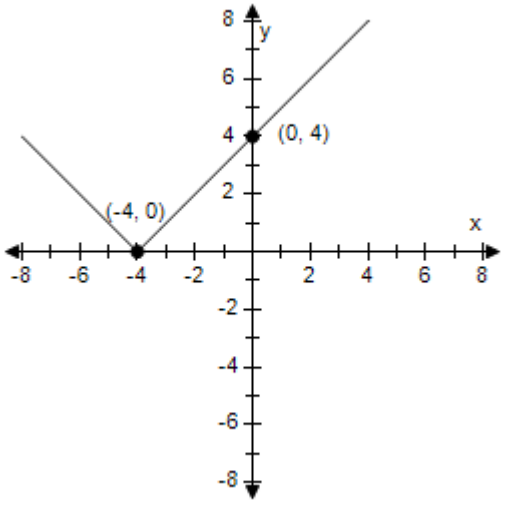
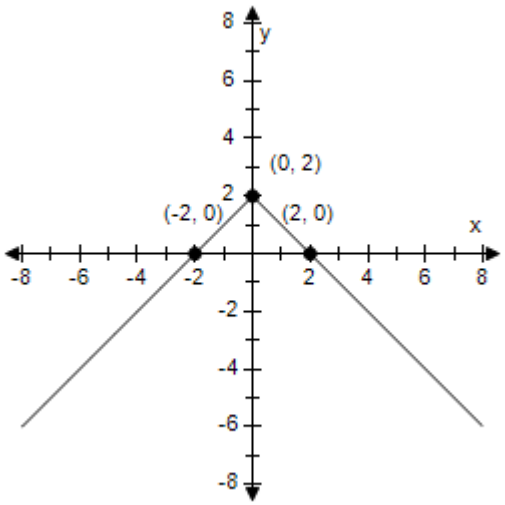


ANSWER: d
POINTS: 1
REFERENCES: 1.1.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/18/2014 2:44 AM

20. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = 2 - |x|$

a. x- intercepts: $(\pm 2, 0)$
y- intercept: $(0, 2)$
y-axis symmetry



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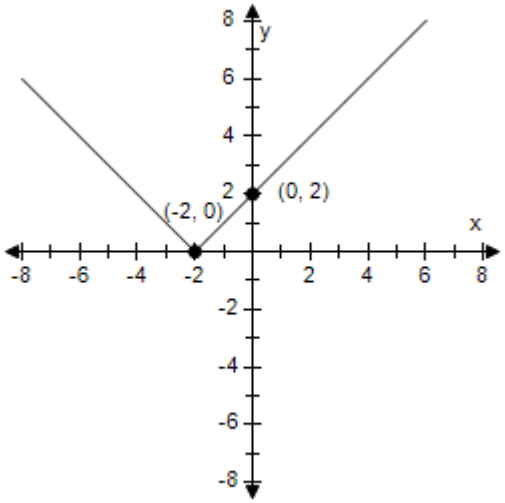
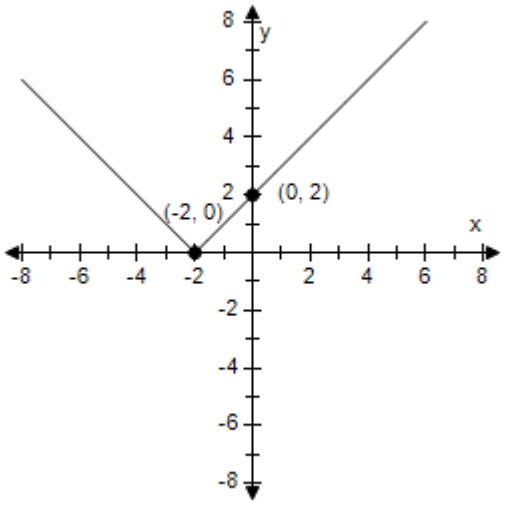
b. *x*- intercept: (-2, 0)
y- intercept: (0, 2)
y-axis symmetry



c. *x*- intercept: (2, 0)
y- intercepts: (0, ±2)
y-axis symmetry



d. *x*- intercept: (2, 0)
y- intercept: (0, 2)
y-axis symmetry

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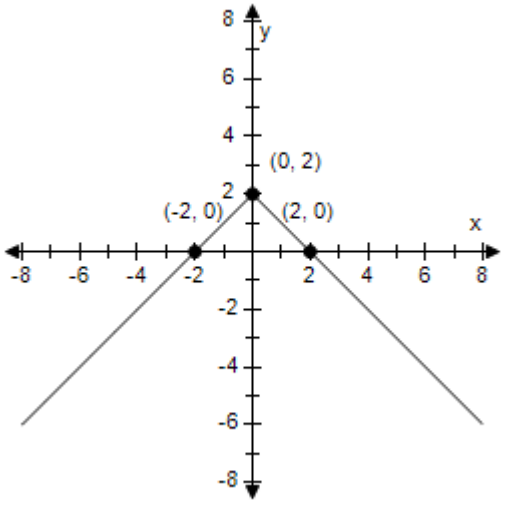
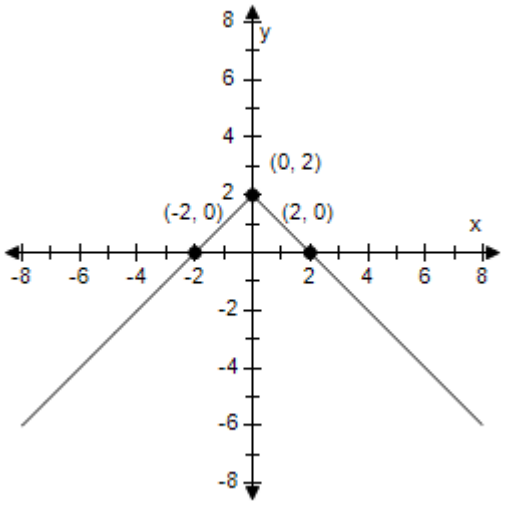
Section 1.2 - Graphs of Equations



e. x- intercept: (-2, 0)
y- intercept: (0, 2)
y-axis symmetry



ANSWER:	a
POINTS:	1
REFERENCES:	1.1.46
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:15 PM
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21. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = \sqrt{x-2}$

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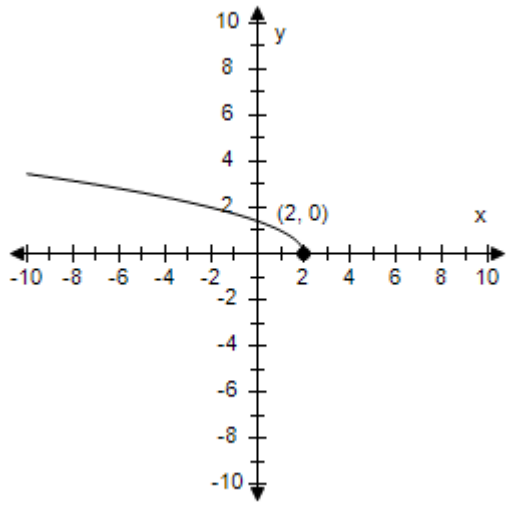
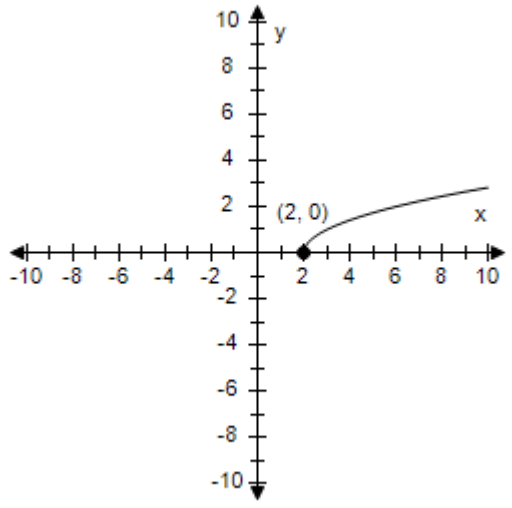
a. x-intercept: (2, 0)
y-intercept: none
No symmetry



b. x-intercept: (2, 0)
y-intercept: none
No symmetry



c. x-intercept: (2, 0)
y-intercept: $(0, \sqrt{2})$
No symmetry

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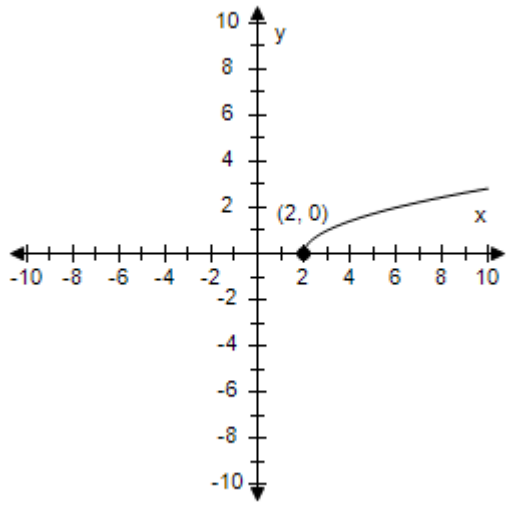
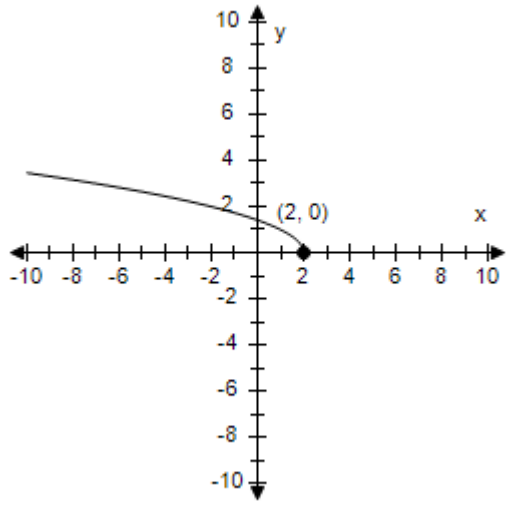


d. *x*-intercept: (-2, 0)
y-intercept: none
No symmetry



e. *x*-intercept: (-2, 0)
y-intercept: none
No symmetry

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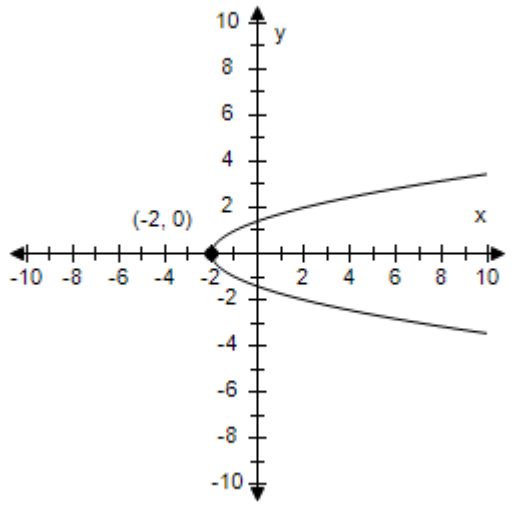
Section 1.2 - Graphs of Equations



ANSWER: b
POINTS: 1
REFERENCES: 1.1.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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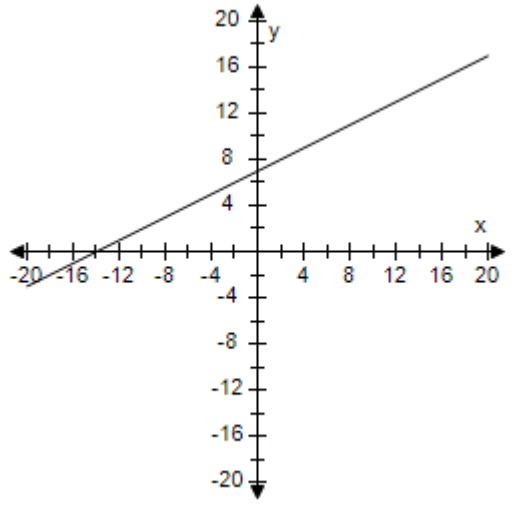
DATE MODIFIED: 11/18/2014 2:40 AM

22. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$$y = 7 - \frac{1}{2}x$$

a. Intercepts: (0, 7), (-14, 0)



b. Intercepts: (-14, 0), (0, -7)

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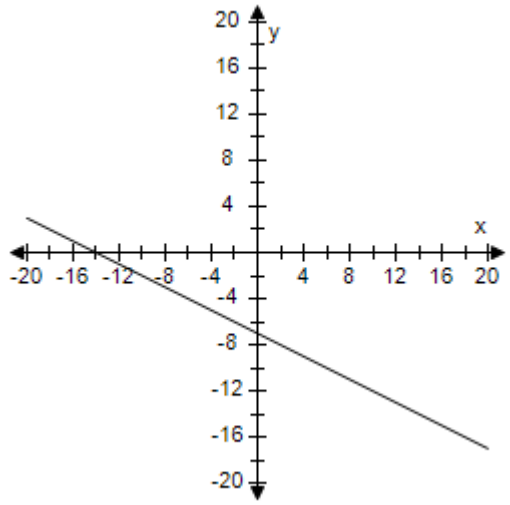
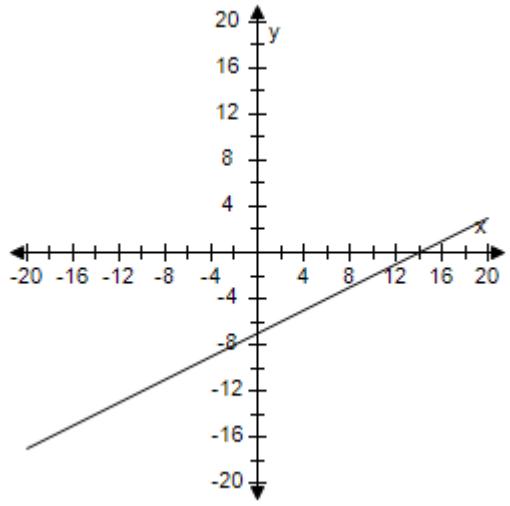


c. Intercepts: (14, 0), (0, -7)



d. Intercepts: (0, 8), (15, 0)

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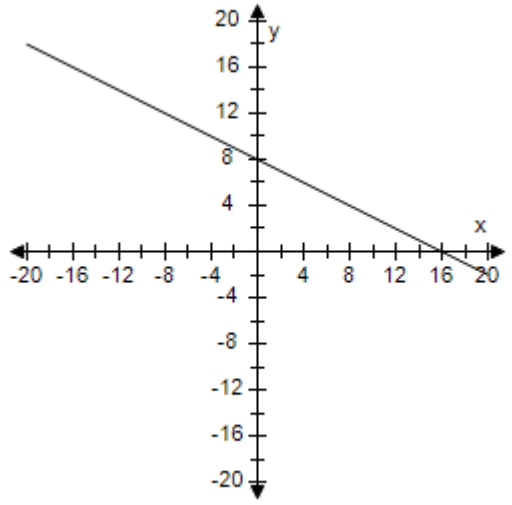
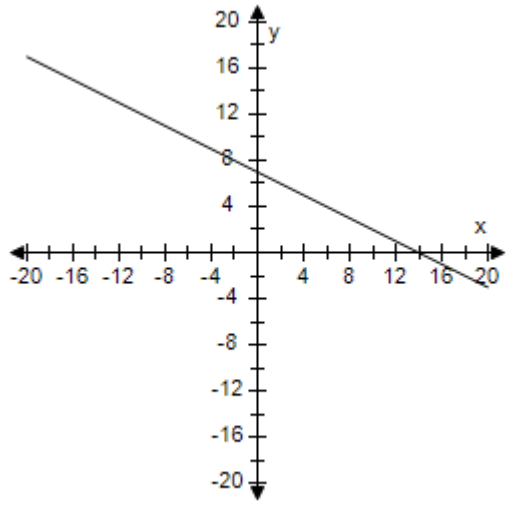


e. Intercepts: (14, 0), (0, 7)



ANSWER: e
POINTS: 1
REFERENCES: 1.1.49
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/18/2014 2:34 AM

23. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$y = |x + 2|$

a. Intercepts: (0, -2), (0, 2)

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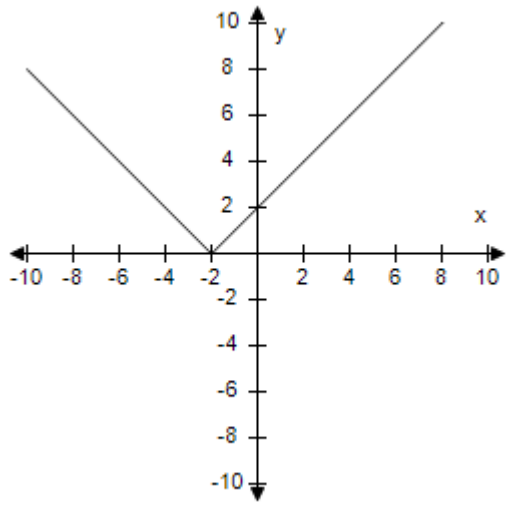
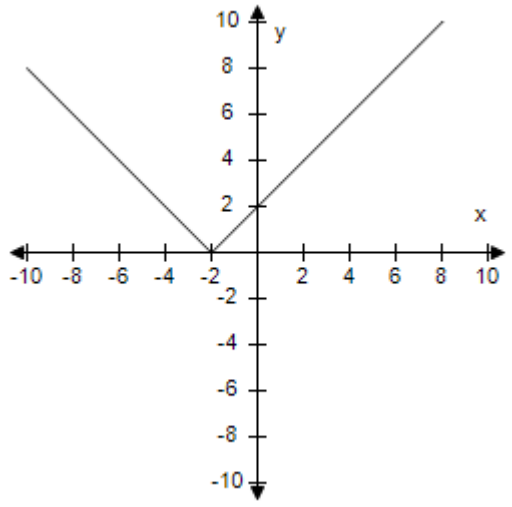


b. Intercepts: (-2, 0), (0, -2)



c. Intercepts: (2, 0), (0, 2)

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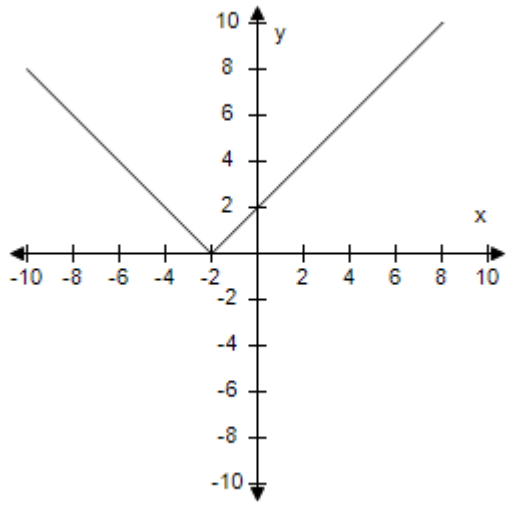
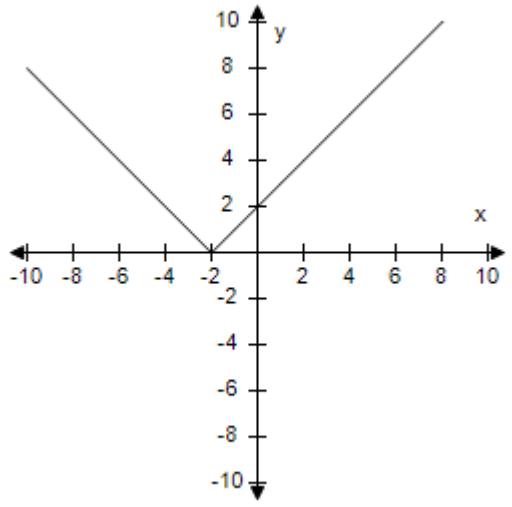


d. Intercepts: (-2, 0), (0, 2)



e. Intercepts: (-2, 0), (2, 0)

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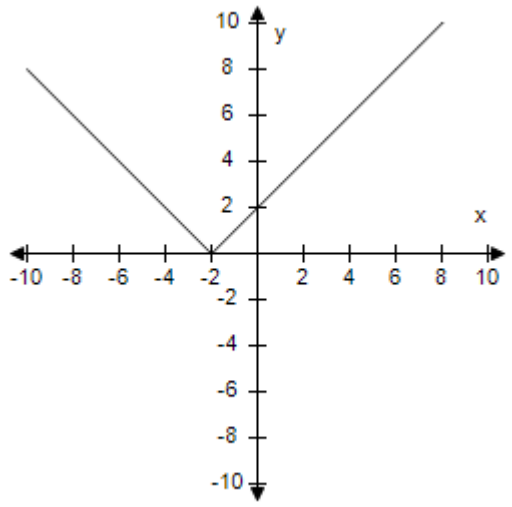
Section 1.2 - Graphs of Equations

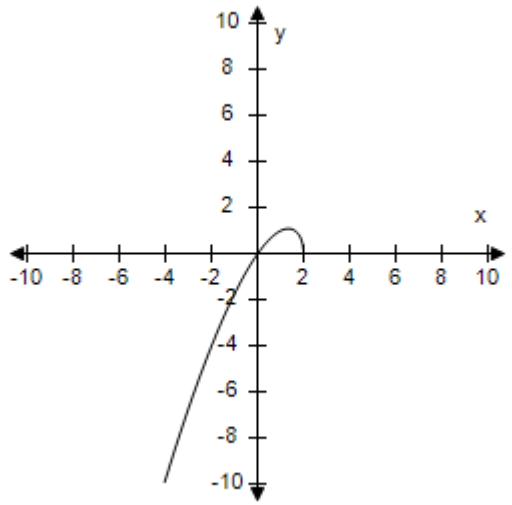


ANSWER: d
POINTS: 1
REFERENCES: 1.1.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/18/2014 2:29 AM

24. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$y = x\sqrt{x+2}$

a. Intercepts: (0, 0), (-2, 0)



b. Intercepts: (0, 0), (2, 0)

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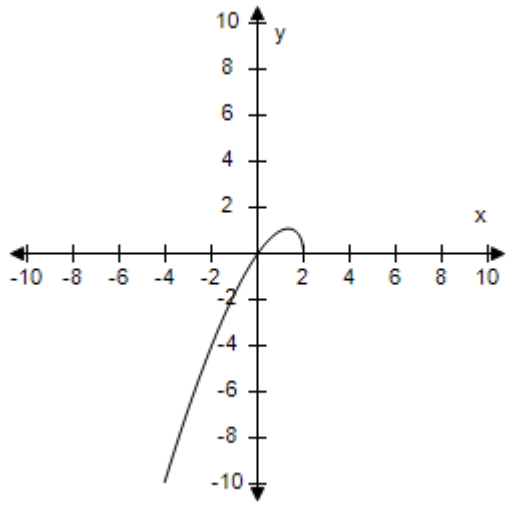
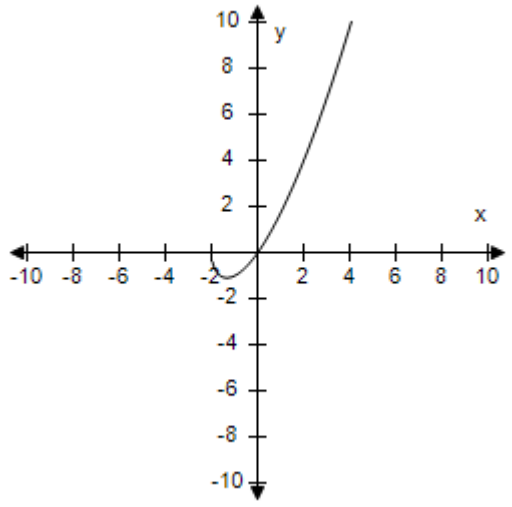


c. Intercepts: (0, 0), (-2, 0)



d. Intercepts: (0, 0), (-2, 0)

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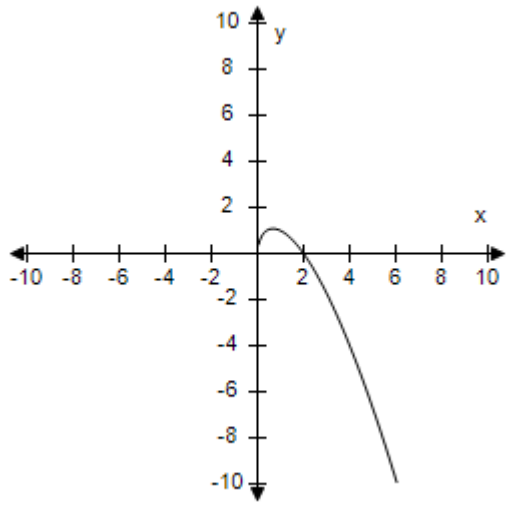
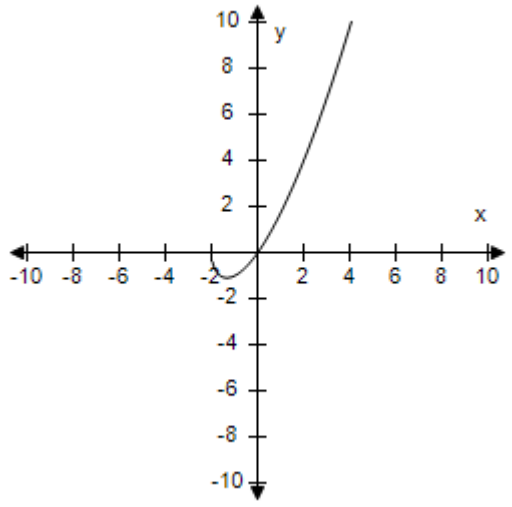


e. Intercepts: (0, 0), (6, 0)



ANSWER: c
POINTS: 1
REFERENCES: 1.1.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/8/2015 12:08 PM

25. Determine which of the following points lies on the graph of the equation.

$y = 3 - |x - 1|$

a. (4, 2)
b. (6, 0)

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c. (5, 0)
d. (4, 0)
e. (4, 1)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.10
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 12:30 AM

26. Complete the table. Use the resulting solution points to sketch the graph of the equation.

$y = 7 - 4x^2$

x	–2	–1	0	1	2
y					
(x,y)					

x	7	4	–1	–2	–5
y					
(x,y)					

x	7	4	–1	–2	–5
y					
(x,y)					

a.

x	–2	–1	0	1	2
y	9	–3	–7	–3	9
(x,y)	(–2, 9)	(–1, –3)	(0, –7)	(1, –3)	(2, 9)

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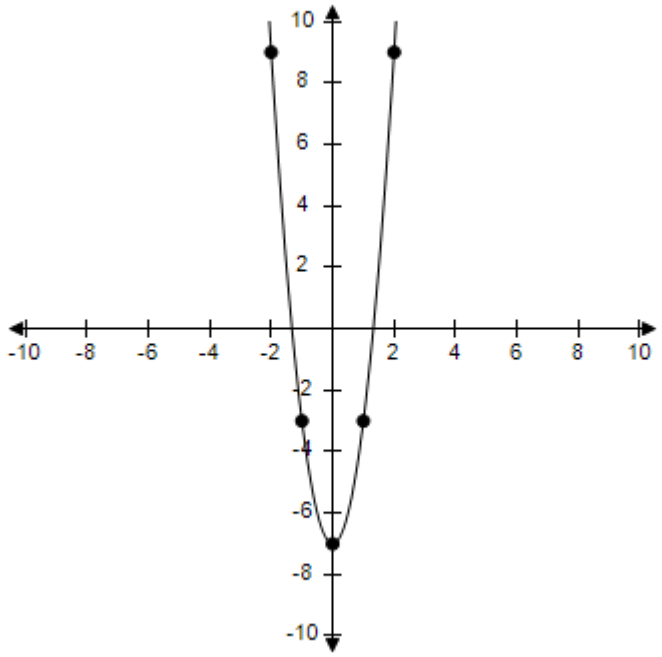
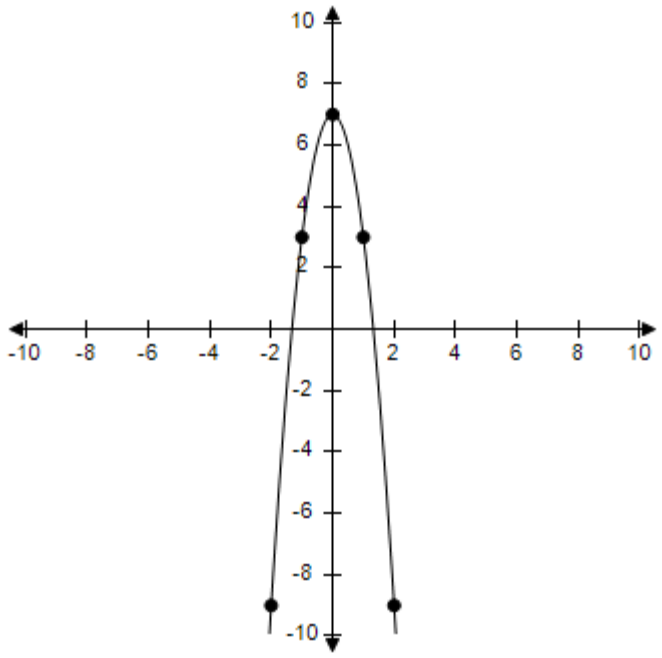


b.

x	–2	–1	0	1	2
y	–9	3	7	3	–9
(x,y)	(–2, –9)	(–1, 3)	(0, 7)	(1, 3)	(2, –9)



c.

x	–2	–1	0	1	2

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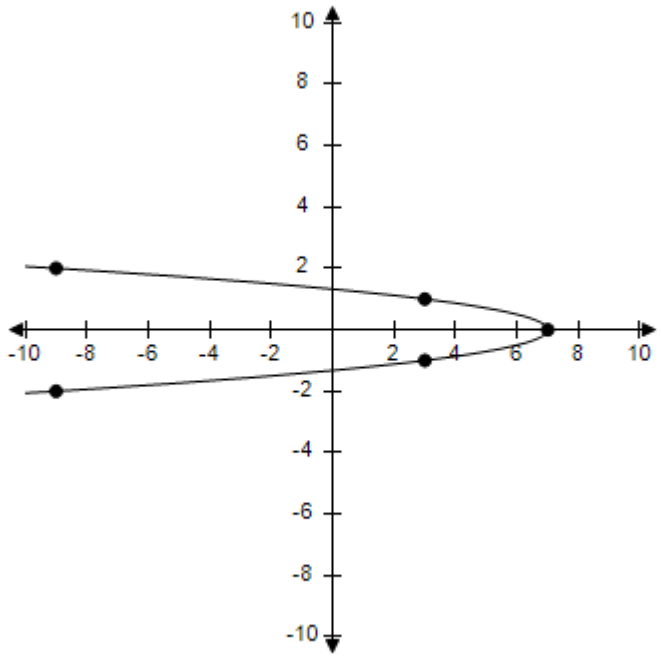
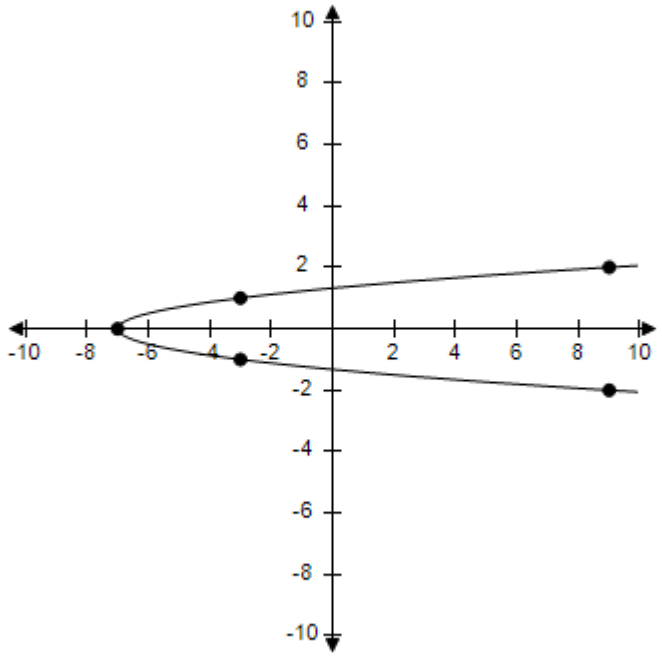
y	–9	3	7	3	–9
(x,y)	(–2, –9)	(–1, 3)	(0, 7)	(1, 3)	(2, –9)



d.

x	–2	–1	0	1	2
y	9	–3	–7	–3	9
(x,y)	(–2, 9)	(–1, –3)	(0, –7)	(1, –3)	(2, 9)



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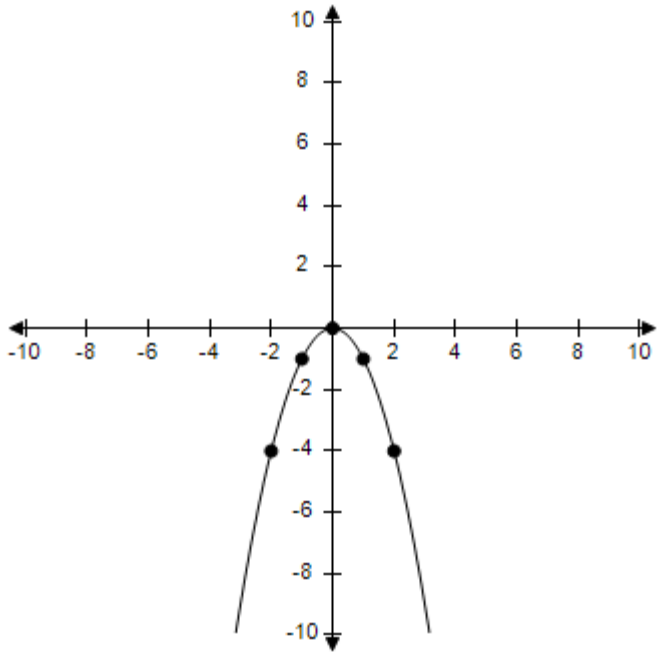
e.

x	–2	–1	0	1	2
y	–4	–1	0	–1	–4
(x,y)	(,)	(,)	(,)	(,)	(,)



ANSWER: b
POINTS: 1
REFERENCES: 1.1.18
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:35 AM

27. Graphically estimate the x- and y-intercepts of the graph.

$y = 81 - 9x^2$

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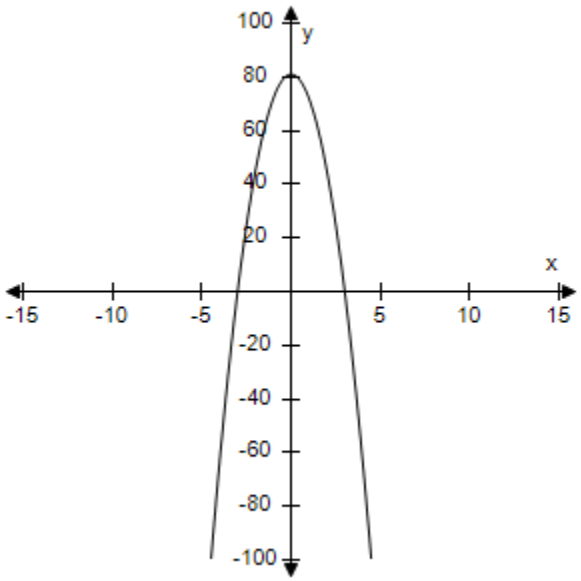
Section 1.2 - Graphs of Equations



a. x-intercepts: $(\pm 3, 0)$
   y-intercept: $(0, 81)$
b. x-intercept: $(3, 0)$
   y-intercept: $(0, 81)$
c. x-intercept: $(-3, 0)$
   y-intercept: $(0, 81)$
d. x-intercepts: $(\pm 3, 0)$
   y-intercept: $(0, 9)$
e. x-intercept: $(0, 3)$
   y-intercept: $(0, 81)$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.20
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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28. Graphically estimate the x- and y-intercepts of the graph.

$y = x^3 - x$

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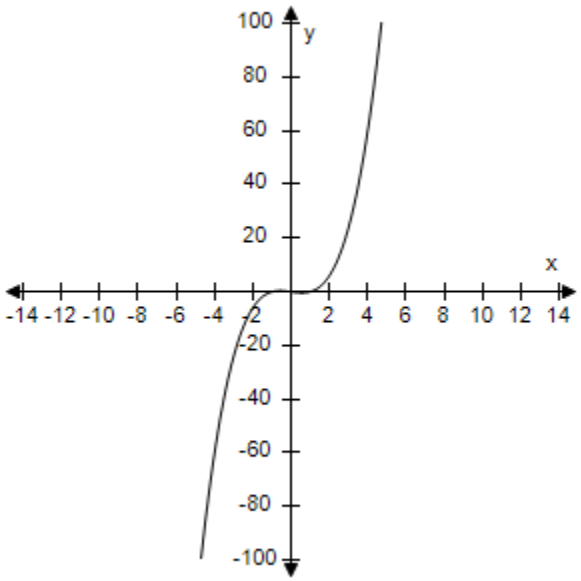
Section 1.2 - Graphs of Equations



a. x-intercepts: $(\pm 1, 0)$, $(0, 0)$
   y-intercept: $(0, 0)$
b. x-intercepts: $(1, 0)$, $(0, 0)$
   y-intercept: $(0, 0)$
c. x-intercepts: $(-1, 0)$, $(0, 0)$
   y-intercept: $(0, 0)$
d. x-intercepts: $(0, \pm 1)$, $(0, 0)$
   y-intercept: $(0, 0)$
e. x-intercepts: $(0, 1)$, $(0, 0)$
   y-intercept: $(0, 0)$

ANSWER:	a
POINTS:	1
REFERENCES:	1.1.24
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:15 PM
DATE MODIFIED:	7/6/2021 10:38 AM

29. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = x^3 - 6$

a. x- intercept: $(\sqrt[3]{6}, 0)$
   y- intercept: $(0, \pm 6)$
   No symmetry

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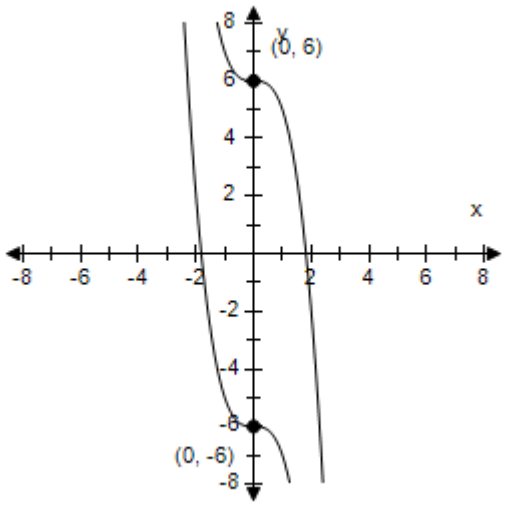
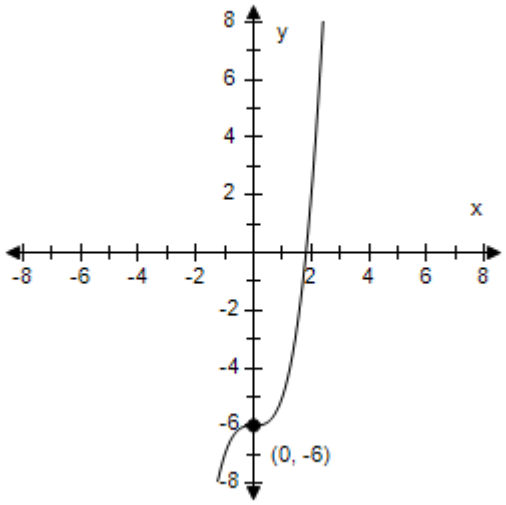


b. x- intercept: $(\sqrt[3]{6}, 0)$
y- intercept: (0, -6)
No symmetry



c. x- intercept: $(\sqrt[3]{6}, 0)$
y- intercept: (0, 6)
No symmetry

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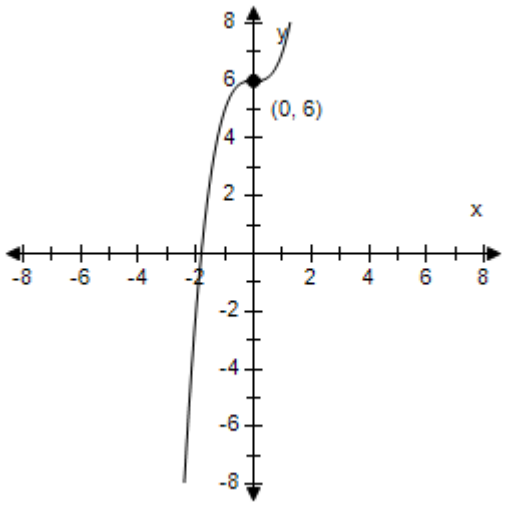
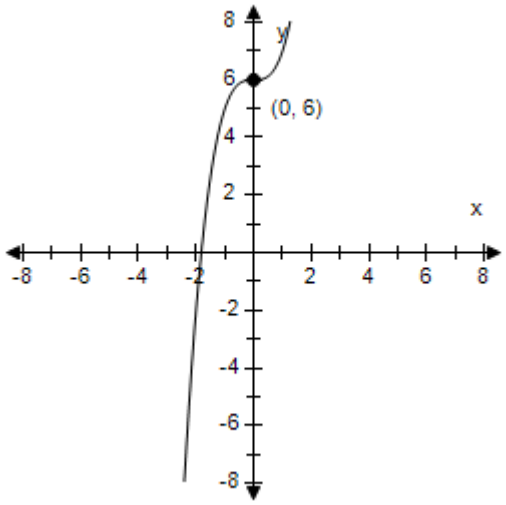


d. x- intercept: $(\sqrt[3]{-6}, 0)$
y- intercept: $(0, 6)$
No symmetry



e. x- intercept: $(\sqrt[3]{-6}, 0)$
y- intercept: $(0, \pm 6)$
No symmetry

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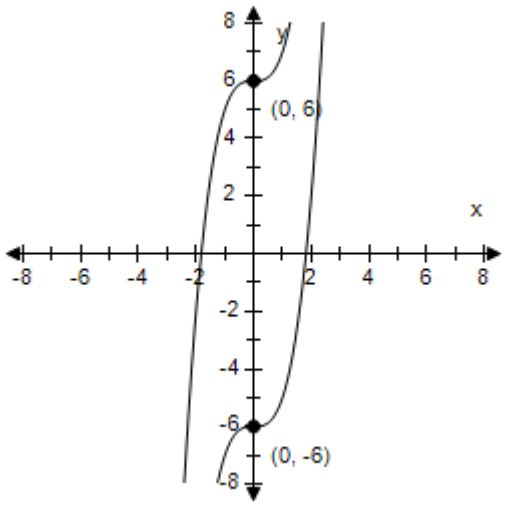
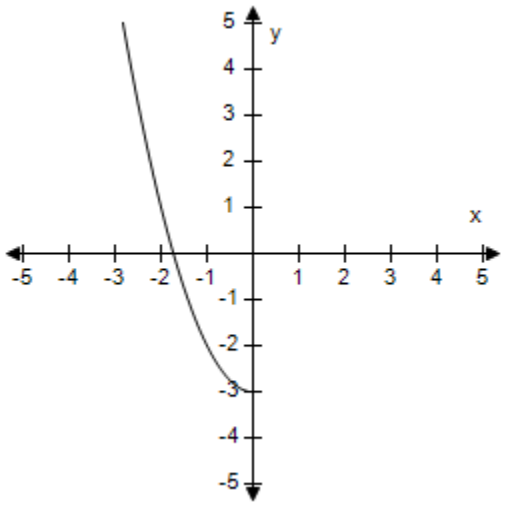
Section 1.2 - Graphs of Equations



ANSWER: b
POINTS: 1
REFERENCES: 1.1.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 1:31 AM

30. Assume that the graph has *y*-symmetry. Select the complete graph of the equation.



a.

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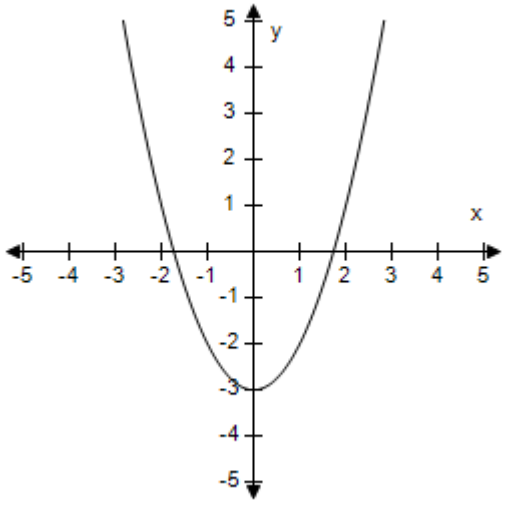
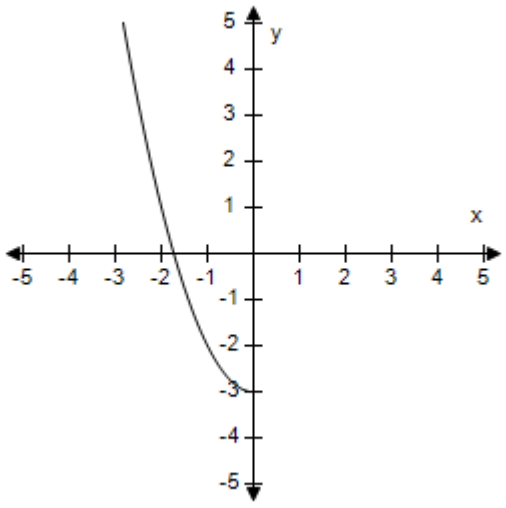


b.



c.

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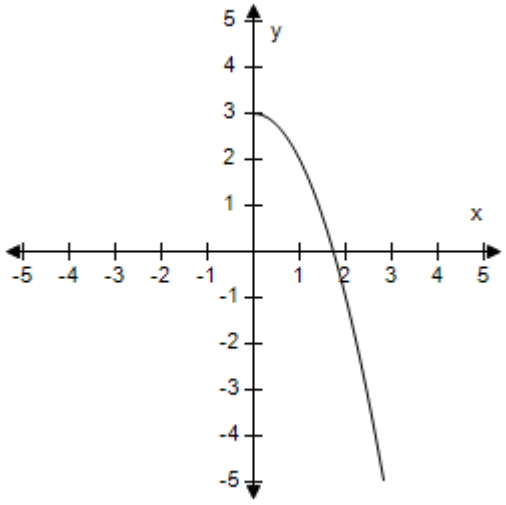
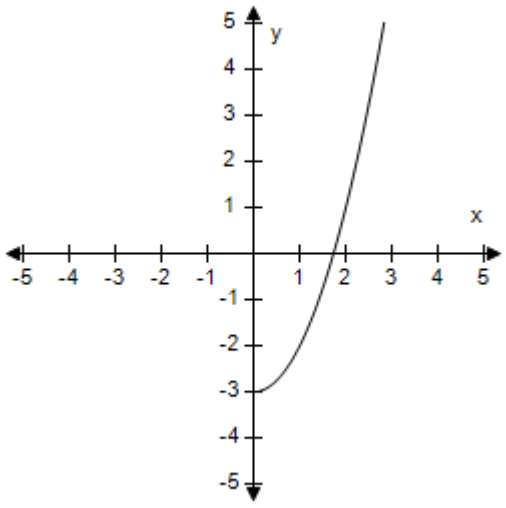


d.



e.

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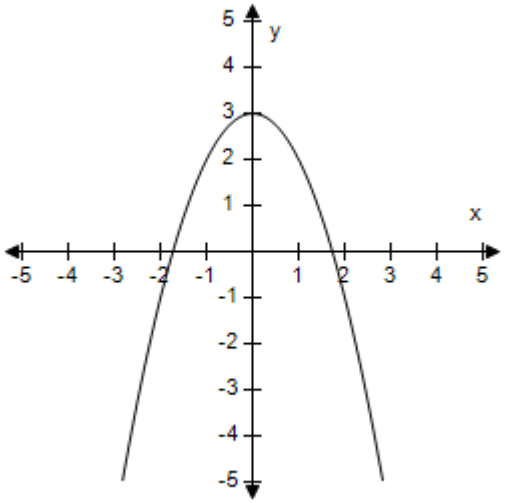
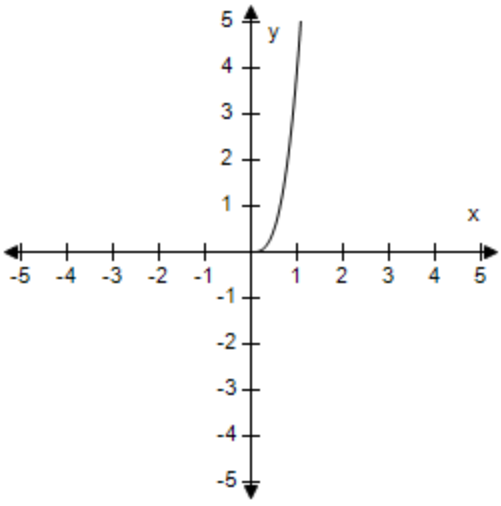


ANSWER: a
POINTS: 1
REFERENCES: 1.1.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 1:41 AM

31. Assume that the graph has Origin symmetry. Select the complete graph of the equation.



a. b.

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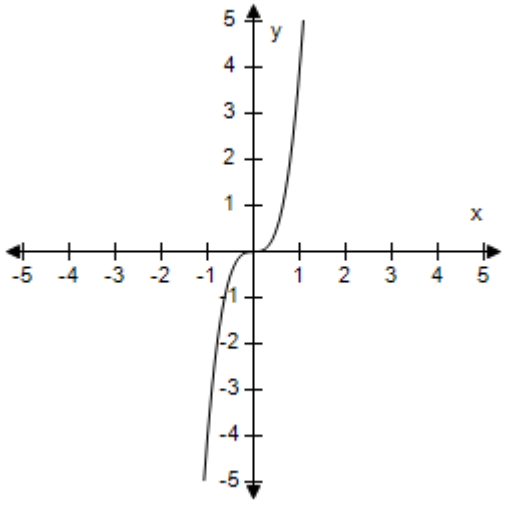
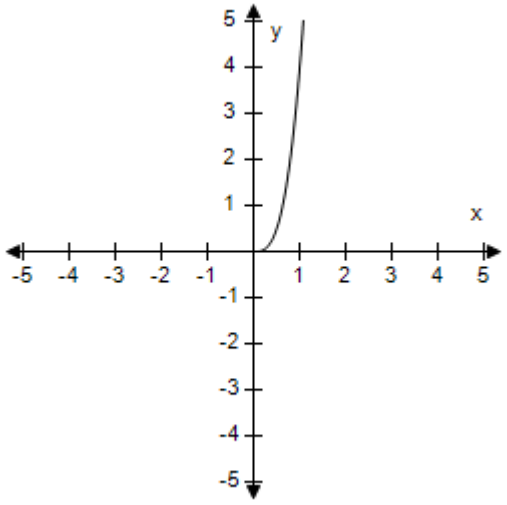
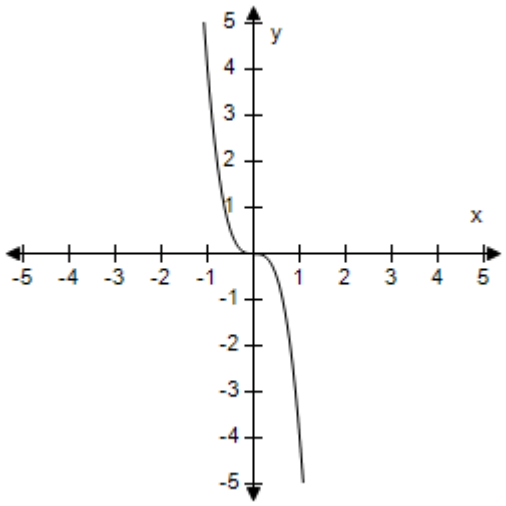
c.

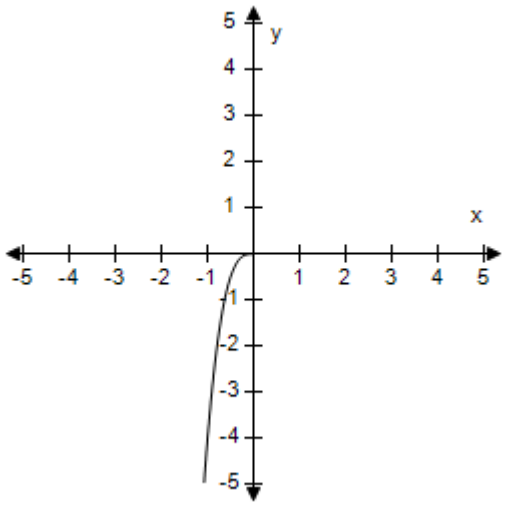


d.



e.





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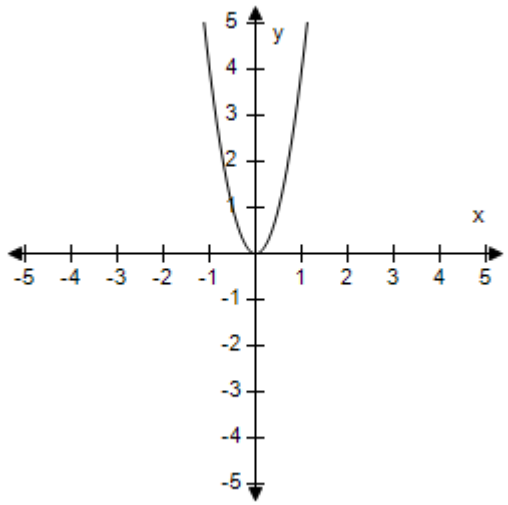
Section 1.2 - Graphs of Equations



ANSWER: a
POINTS: 1
REFERENCES: 1.1.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 2:08 AM

32. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$y = x^2 + 3$

a. x-intercept : none
y-intercept : (0, 3)
The graph has y-symmetry.

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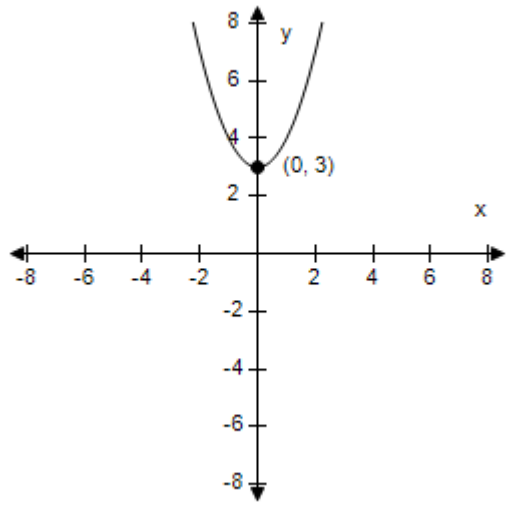
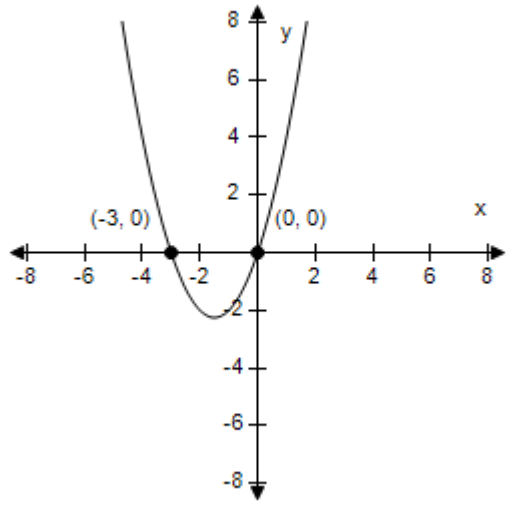


b. *x*-intercepts : (0, 0), (-3, 0)
y-intercept : (0, 0)
No symmetry



c. *x*-intercepts : (0, 0), (-3, 0)
y-intercept : (0, 0)
No symmetry

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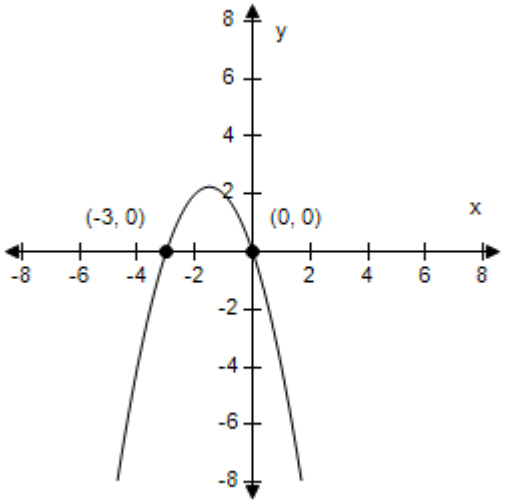
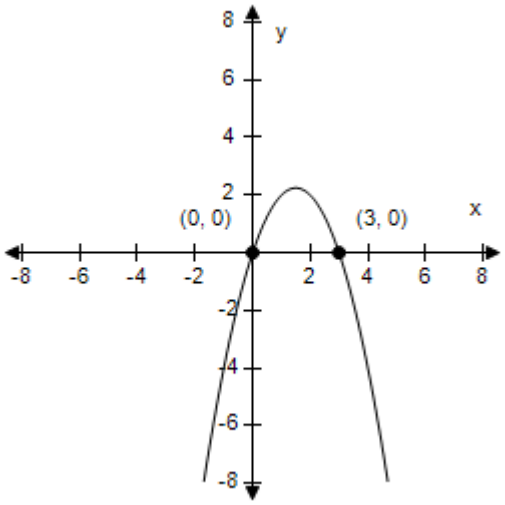


d. *x*-intercepts : (0, 0), (3, 0)
y-intercept : (0, 0)
No symmetry



e. *x*-intercepts : (0, 0), (3, 0)
y-intercept : (0, 0)
No symmetry

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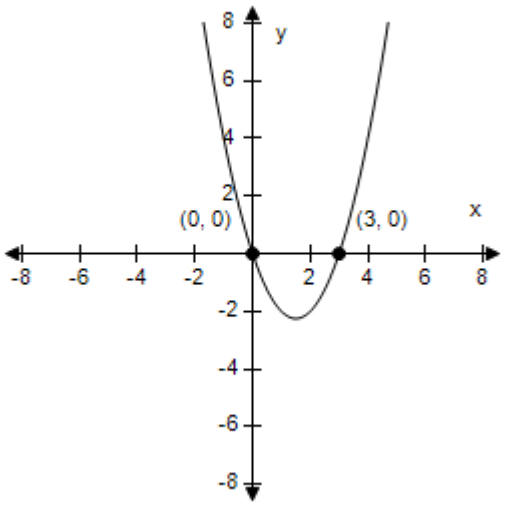
Section 1.2 - Graphs of Equations

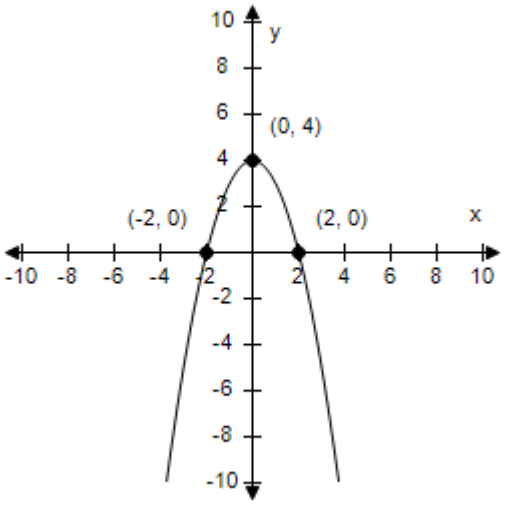


ANSWER: a
POINTS: 1
REFERENCES: 1.1.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:39 AM

33. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$y = x^2 - 4$

a.



Intercepts: (-2, 0), (2, 0), (0, 4)

b.

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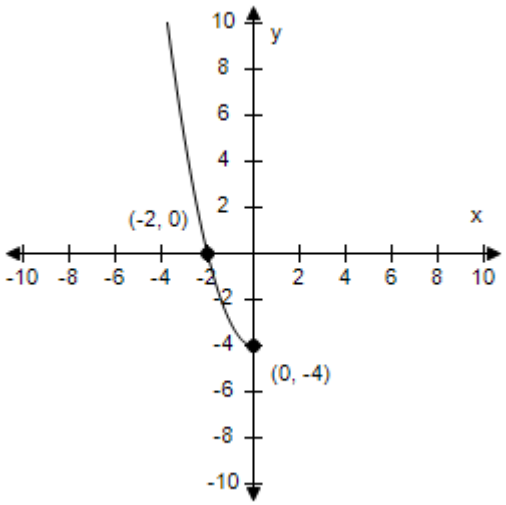
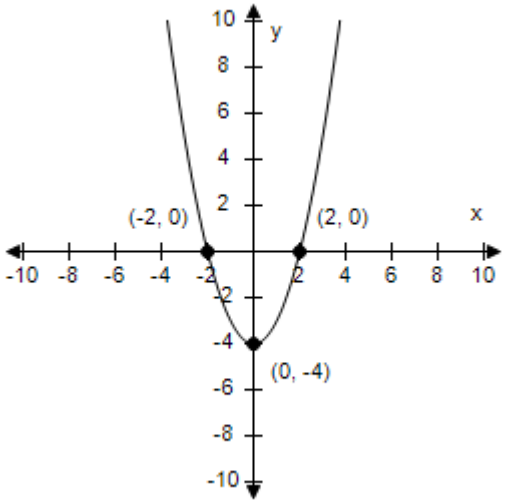


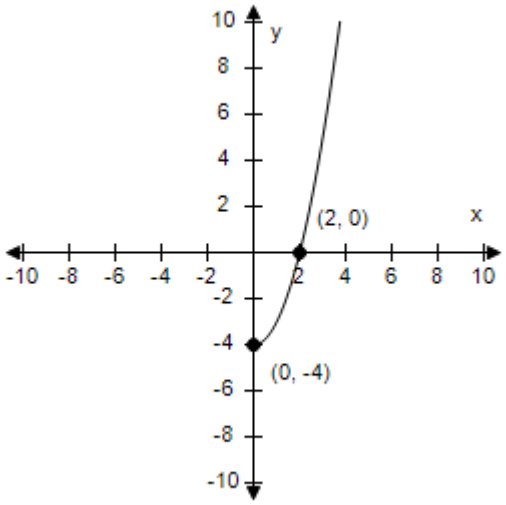
Intercepts: (-2, 0), (0, -4)

c.



Intercepts: (-2, 0), (2, 0), (0, -4)

d.



Intercepts: (2, 0), (0, -4)

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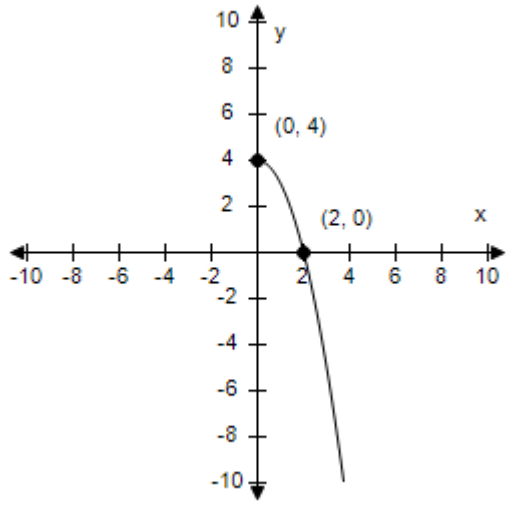
e.



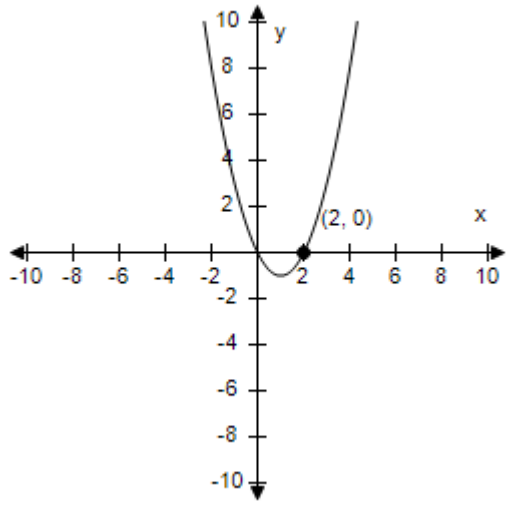
Intercepts: (2, 0), (0, 4)

ANSWER: c
POINTS: 1
REFERENCES: 1.1.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 2:47 AM

34. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$y = x^2 - 2x$

a.



Intercepts: (0, 0), (-2, 0)

b.

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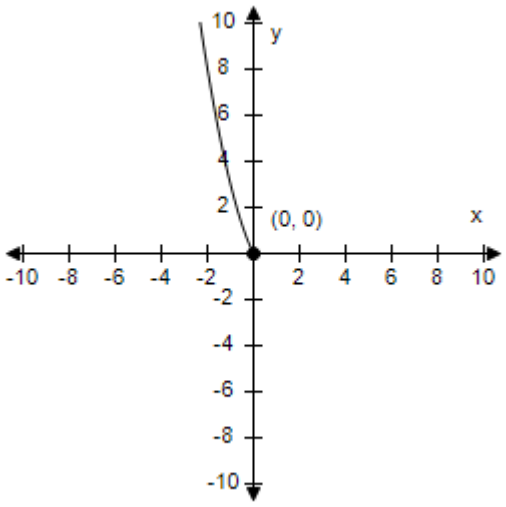
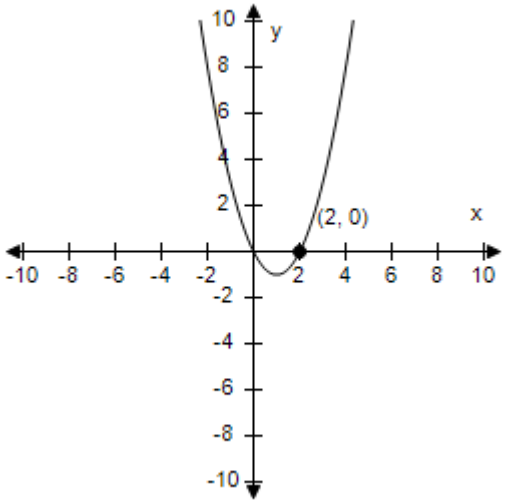


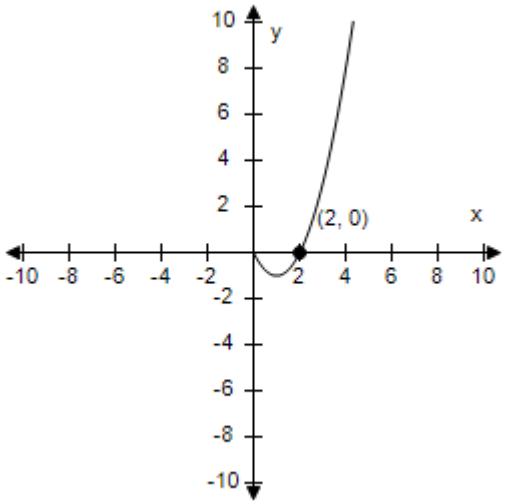
Intercepts: (0, 0)

c.



Intercepts: (0, 0), (2, 0)

d.



Intercepts: (2, 0), (0, 0)

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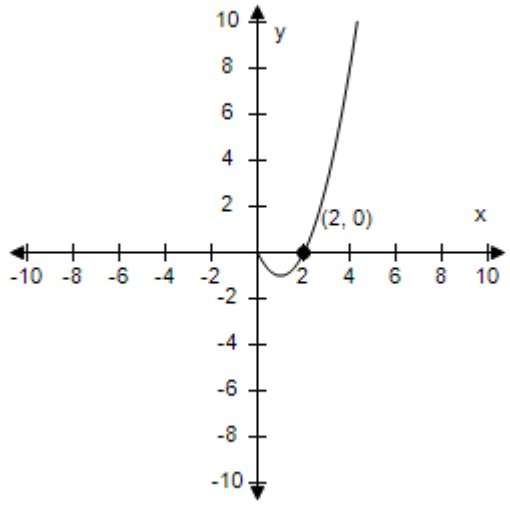
e.



Intercepts: (-2, 0), (0, 0)

ANSWER: c
POINTS: 1
REFERENCES: 1.1.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/9/2015 6:21 AM

35. Determine which point lies on the graph of the equation $y=4x^2+5x+7$.

a. (0, 7)
b. (1, 7)
c. (0, 5)
d. (2, 6)
e. (1, 5)

ANSWER: a
POINTS: 1
REFERENCES: 1.1.9a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:40 AM

36. Determine which point does **not** lie on the graph of the equation $y=-8-|x-5|$.

a. (-2, -15)
b. (-4, -17)

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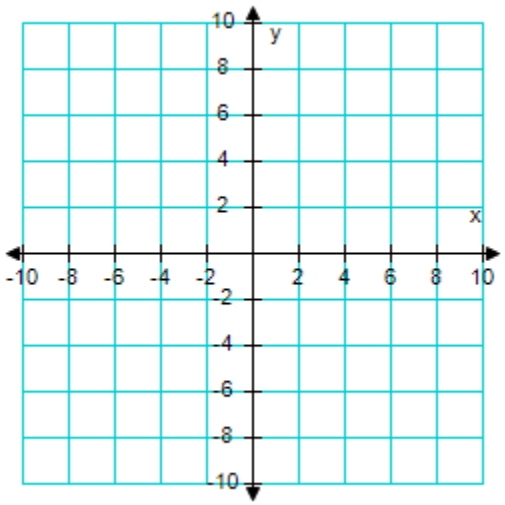
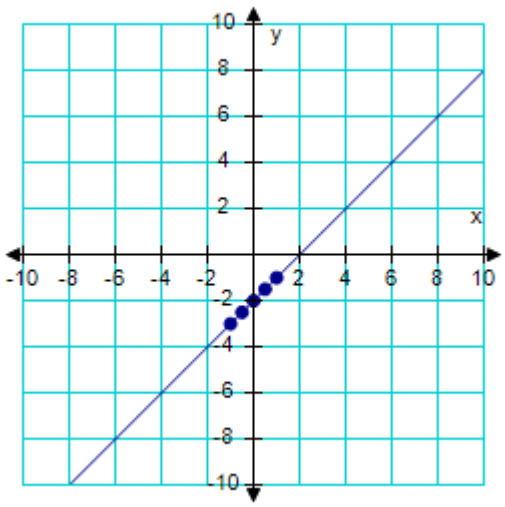
c. (7, -10)
d. (4, -6)
e. (0, -13)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.10a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 3:10 AM

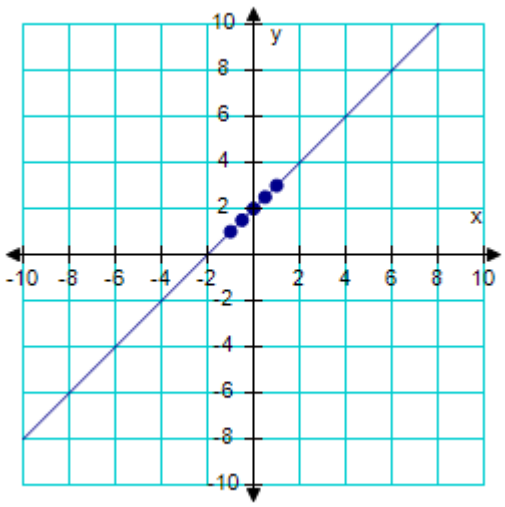
37. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.
$y = x + 2$



a.



b.



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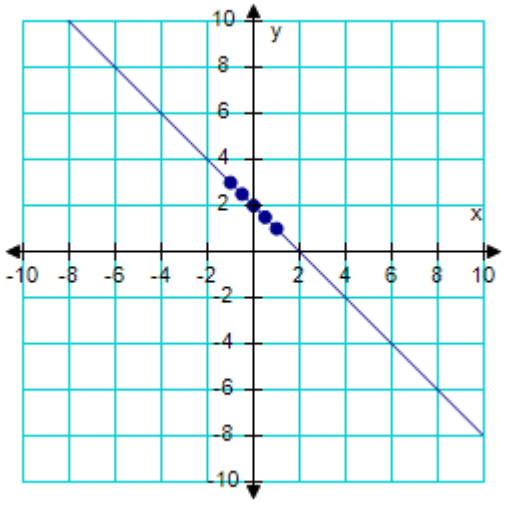
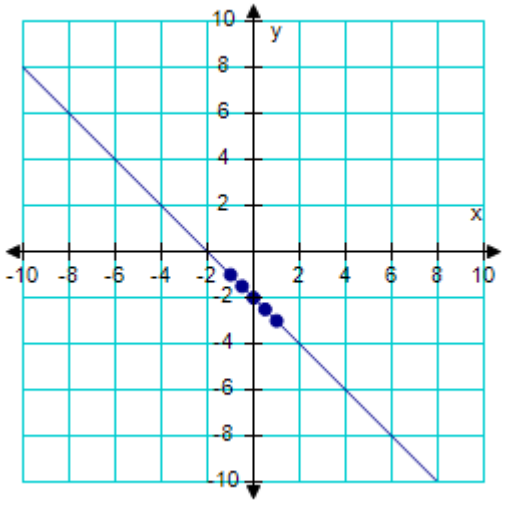
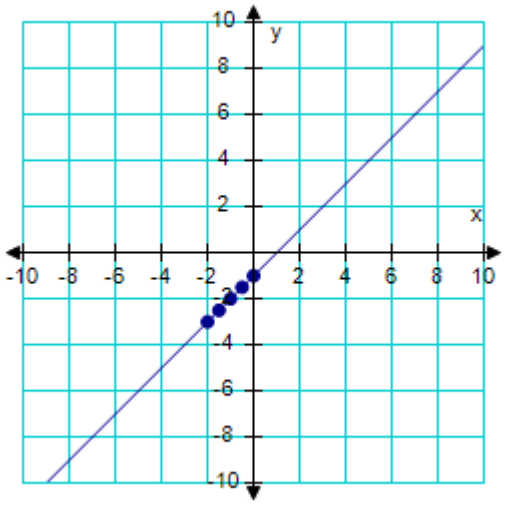
c.



d.



e.



ANSWER: b
POINTS: 1
REFERENCES: 1.1.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 1:33 AM

38. Find the *x*- and *y*-intercepts of the graph of the equation $y = |13x - 7|$.

a. *x*-intercept: $\left(-\frac{7}{13}, 0\right)$

y-intercept: (0, 13)

b.

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x-intercept: $\left(-\frac{13}{7}, 0\right)$

y-intercept: (0, –7)

c. *x*-intercept: (–7, 0)
y-intercept: (0, 13)

d. *x*-intercept: $\left(-\frac{13}{7}, 0\right)$

y-intercept: none

e. *x*-intercept: $\left(\frac{7}{13}, 0\right)$

y-intercept: (0, 7)

ANSWER: e
POINTS: 1
REFERENCES: 1.1.21
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 11/20/2014 2:07 AM
DATE MODIFIED: 11/20/2014 3:05 AM

39. Find the *x*- and *y*-intercepts of the graph of the equation $y^2 = 8x + 5$.

a. *x*-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $\left(0, -\sqrt{5}\right)$

b. *x*-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercepts: $\left(0, \pm\sqrt{5}\right)$

c. *x*-intercept: $\left(0, \frac{5}{8}\right)$

y-intercepts: $\left(0, \pm\sqrt{5}\right)$

d. *x*-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $\left(0, \sqrt{5}\right)$

e. *x*-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $\left(0, \sqrt{5}\right)$

ANSWER: b
POINTS: 1
REFERENCES: 1.1.22

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Section 1.2 - Graphs of Equations

QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 11/20/2014 2:42 AM
DATE MODIFIED: 7/6/2021 10:41 AM

40. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.
$3x + 2y^6 = 0$

a. Symmetric with respect to the origin.
b. No symmetry.
c. Symmetric with respect to the y-axis.
d. Symmetric with respect to the x-axis.

ANSWER: d
POINTS: 1
REFERENCES: 1.1.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:10 AM

41. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.
$y = 4x^{20} - x^{10} - 3$

a. No symmetry.
b. Symmetric with respect to the y-axis.
c. Symmetric with respect to the origin.
d. Symmetric with respect to the x-axis.

ANSWER: b
POINTS: 1
REFERENCES: 1.1.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:12 AM

42. Assume the graph has the indicated type of symmetry. Sketch the complete graph.

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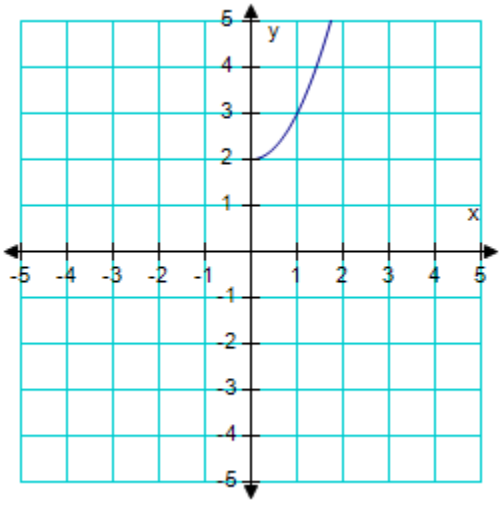
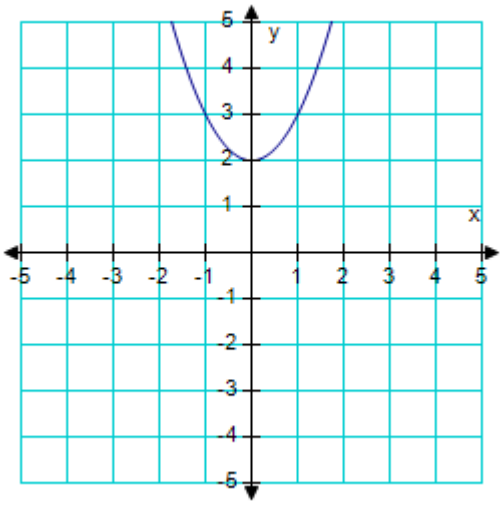
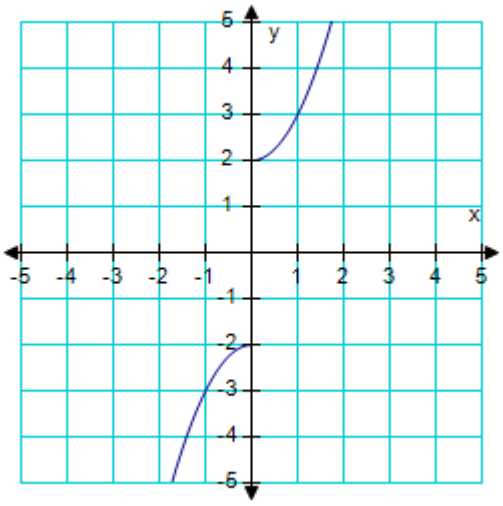


symmetric with respect to the *origin.*

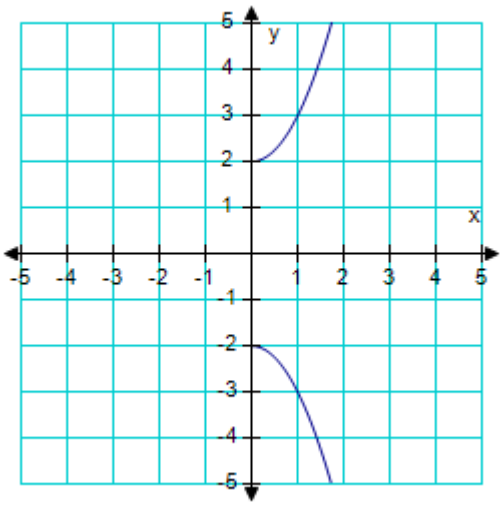
a.



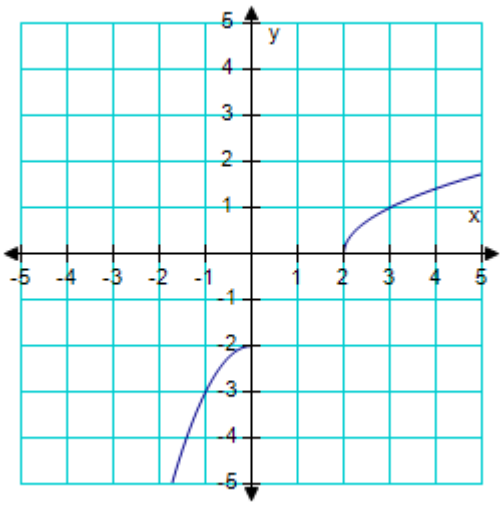
b.



c.



d.



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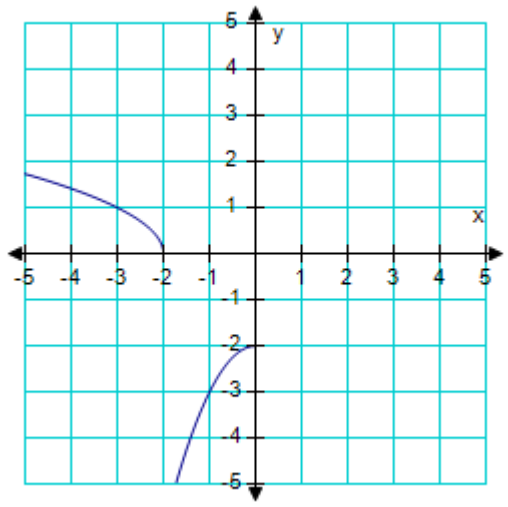
e.



ANSWER: b
POINTS: 1
REFERENCES: 1.1.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:48 AM

43. Find the x- and y-intercepts of the graph of the equation $y = 36 - 6x$.

a. x-intercept: (6, 0)
y-intercept: (0, -6)

b. x-intercept: (36, 0)
y-intercept: (0, 6)

c. x-intercept: (-6, 0)
y-intercept: (0, -36)

d. x-intercept: (36, 0)
y-intercept: (0, 36)

e. x-intercept: (6, 0)
y-intercept: (0, 36)

ANSWER: e
POINTS: 1
REFERENCES: 1.1.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:50 AM

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Section 1.2 - Graphs of Equations

44. Find the x- and y-intercepts of the graph of the equation $y = \sqrt{-8x - 7}$.

a. x-intercept: $\left(-\frac{8}{7}, 0\right)$
y-intercept: none

b. x-intercept: $\left(-\frac{7}{8}, 0\right)$
y-intercept: $(0, -7)$

c. x-intercept: $(7, 0)$
y-intercept: none

d. x-intercept: $(-8, 0)$
y-intercept: $(0, 7)$

e. x-intercept: $\left(-\frac{7}{8}, 0\right)$
y-intercept: none

ANSWER: e
POINTS: 1
REFERENCES: 1.1.19
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 11/20/2014 6:18 AM
DATE MODIFIED: 5/11/2015 5:16 AM

45. Write the standard form of the equation of the circle with the given characteristics.
center: (–1, –5); radius: 6

a. $(x-1)^2+(y-5)^2=36$

b. $(x+5)^2+(y+1)^2=6$

c. $(x+5)^2+(y+1)^2=36$

d. $(x-5)^2+(y-1)^2=6$

e. $(x+1)^2+(y+5)^2=36$

ANSWER: e
POINTS: 1
REFERENCES: 1.1.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 6:58 AM

46. Write the standard form of the equation of the circle with the given characteristics.

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center: (–5, –4); solution point: (–3, –7)

a. $(x+5)^2+(y+4)^2=13$

b. $(x-5)^2+(y+4)^2=1$

c. $(x-5)^2+(y-4)^2=13$

d. $(x-5)^2+(y-4)^2=17$

e. $(x+5)^2+(y-4)^2=17$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.65
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 7:09 AM

47. Write the standard form of the equation of the circle with the given characteristics.
endpoints of a diameter: (3, 4), (7, 8)

a. $(x-5)^2+(y-6)^2=8$

b. $(x-6)^2+(y-5)^2=8$

c. $(x+5)^2+(y+6)^2=8$

d. $(x+5)^2+(y-6)^2=340$

e. $(x-5)^2+(y+6)^2=340$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 7:50 AM

48. Find the center and radius of the circle $x^2+y^2=49$.

a. center: (0, 0), radius: 11

b. center: (-1, 1), radius: 11

c. center: (0, 0), radius: 7

d. center: (-1, -1), radius: 7

e. center: (–7, –11), radius: 7

ANSWER: c

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Section 1.2 - Graphs of Equations

POINTS: 1
REFERENCES: 1.1.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 2:03 AM

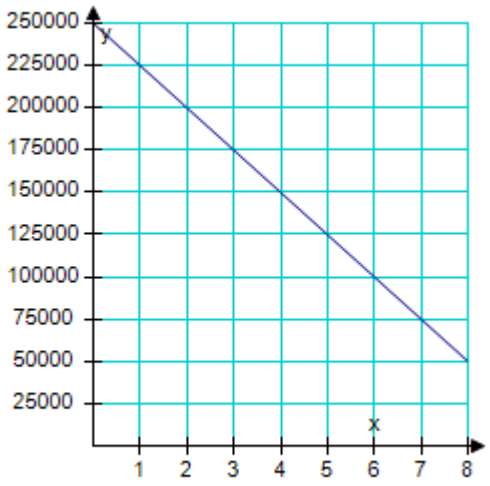
49. Find the center and radius of the circle $(x-5)^2+(y-1)^2=25$.

a. center: (1, 5), radius 5
b. center: (5, 1), radius 25
c. center: (–5, –1), radius 5
d. center: (–5, –1), radius 25
e. center: (5, 1), radius 5

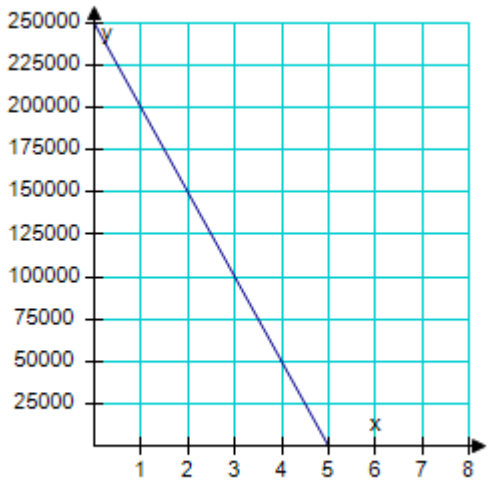
ANSWER: e
POINTS: 1
REFERENCES: 1.1.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 2:06 AM

50. You purchase a house for \$250,000. The depreciated value, y, after x years is given by $y = 250{,}000 - 25{,}000x$. Sketch the graph of the equation given $0 \le x \le 8$.

a.



b.



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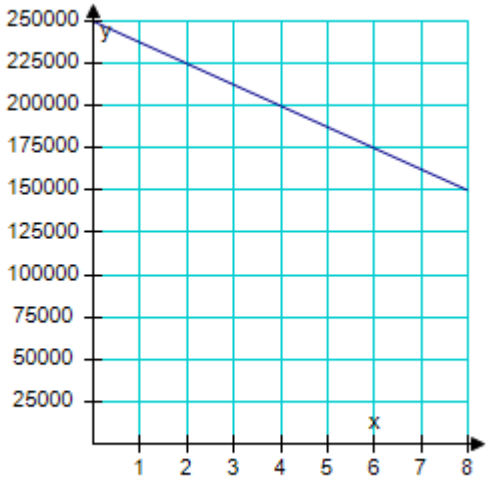
c.



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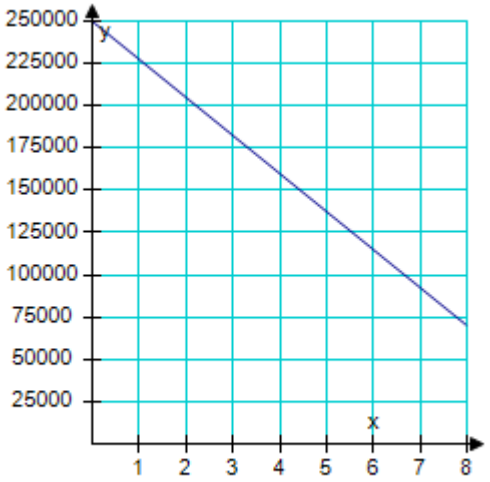
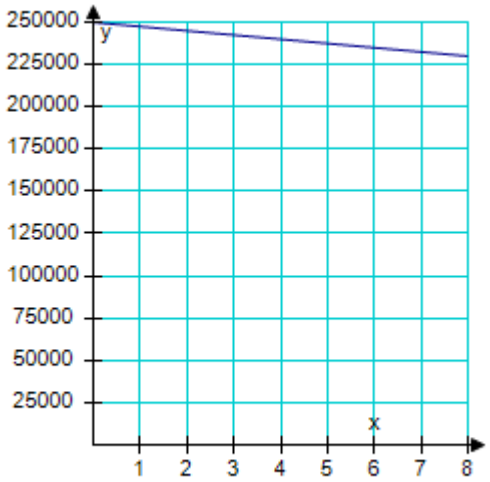


e.



ANSWER: a
POINTS: 1
REFERENCES: 1.1.76
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:51 AM

51. Find the graph of the equation.

$f(x) = |x - 2|$

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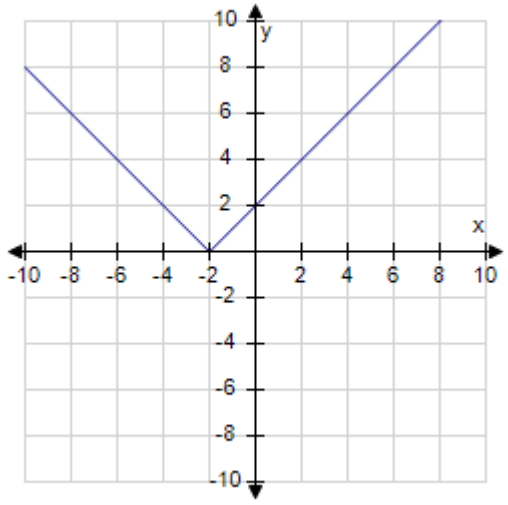
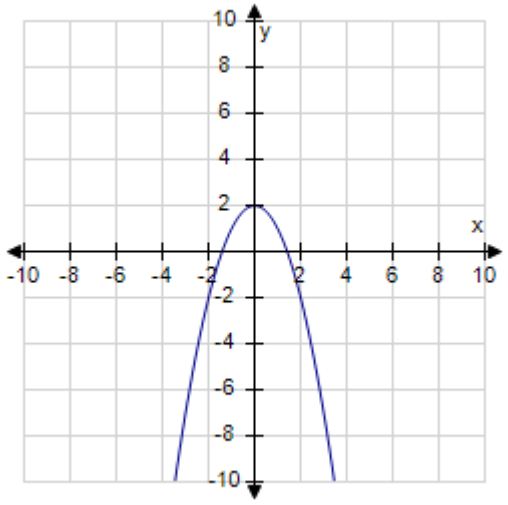
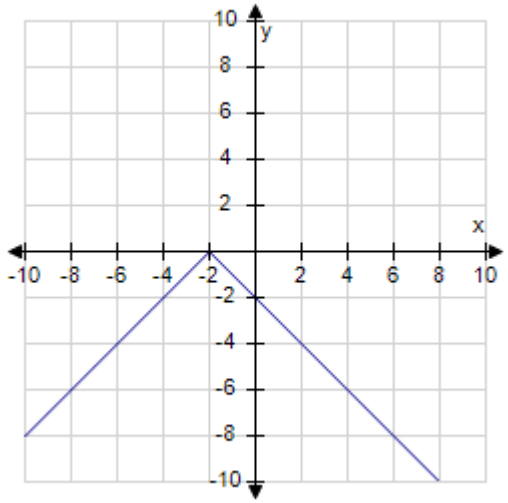
a.



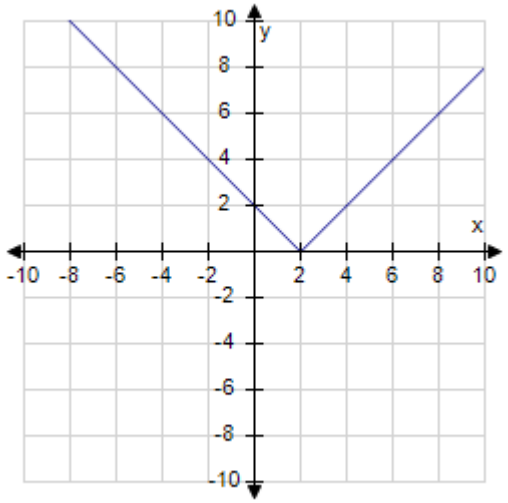
b.



c.



d.



ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/11/2015 5:18 AM

52. Find the graph of the equation.

$f(x) = \sqrt{3x - 4}$

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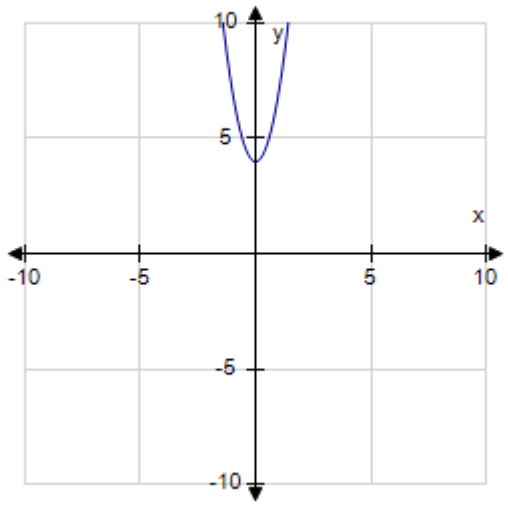
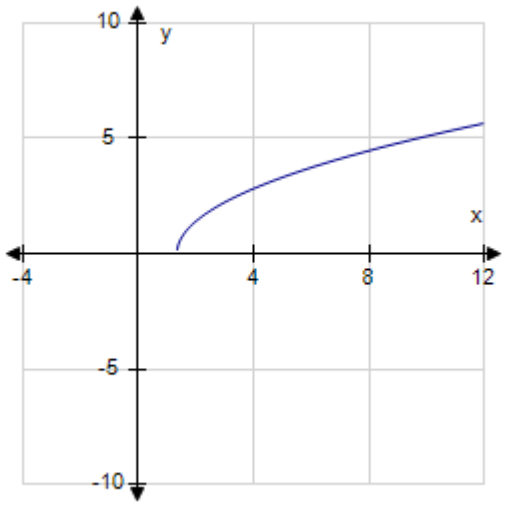
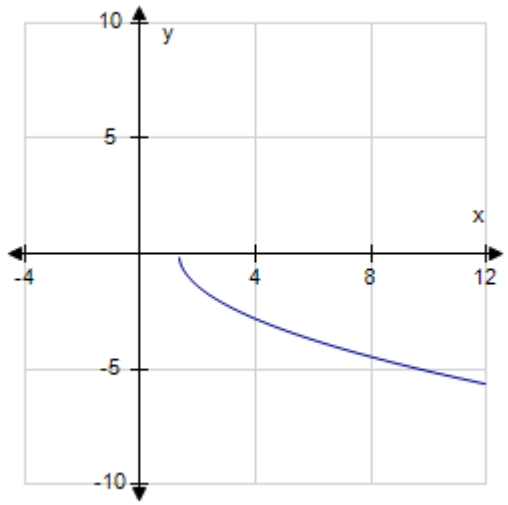
a.



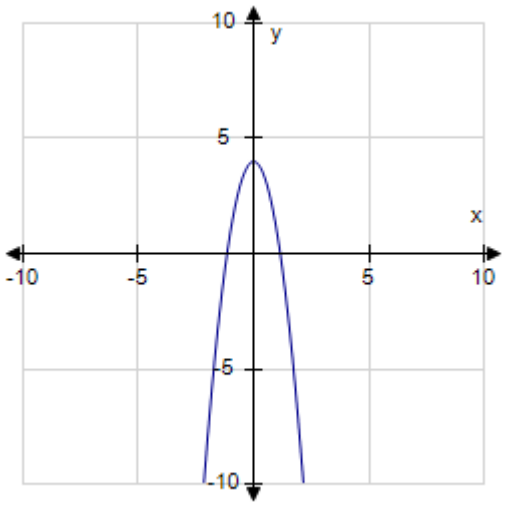
b.



c.



d.



ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/11/2015 5:43 AM

53. Find the value of y that corresponds to $x = -4$ in the graph of the equation $2x + 3y = 13$.

a. 9
b. –7
c. –9
d. 21
e. 7

ANSWER: e

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Section 1.2 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:02 AM

54. Find the value of x that corresponds to $y = 7$ in the graph of the equation $4x - 3y = -37$.

a. 4
b. –16
c. –3
d. 3
e. –4

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:10 AM

55. Find the y-intercept of the graph of the equation $y = 3x + 18$.

a. (0, 3)
b. (18, 0)
c. (-6, 0)
d. (0, 18)
e. (0, -6)

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:14 AM

56. Find the x-intercept of the graph of the equation $y = 3x + 15$.

a. (0, -5)
b. (0, 15)
c. (15, 0)
d. (0, 3)
e. (-5, 0)

ANSWER: e

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Section 1.2 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:16 AM

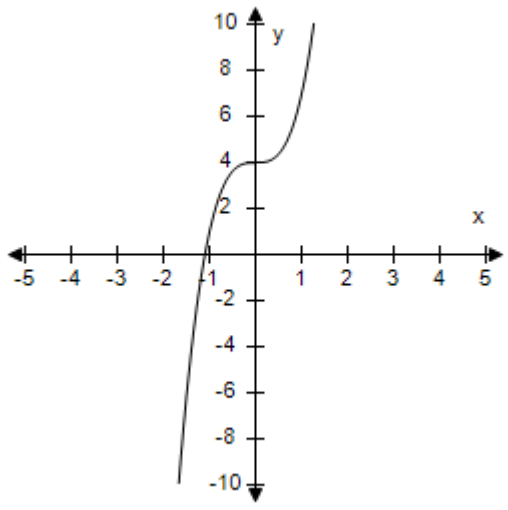
57. Find the y-intercept of the graph of the equation $4y = 3x + 12$.

a. (0, -3)
b. (-4, 0)
c. (0, 3)
d. (0, -4)
e. (0, 12)

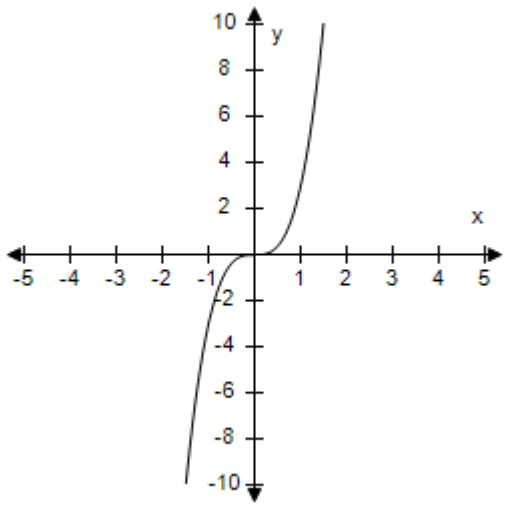
ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:17 AM

58. Sketch the graph of the equation $y=3x^3+2$.

a.



b.



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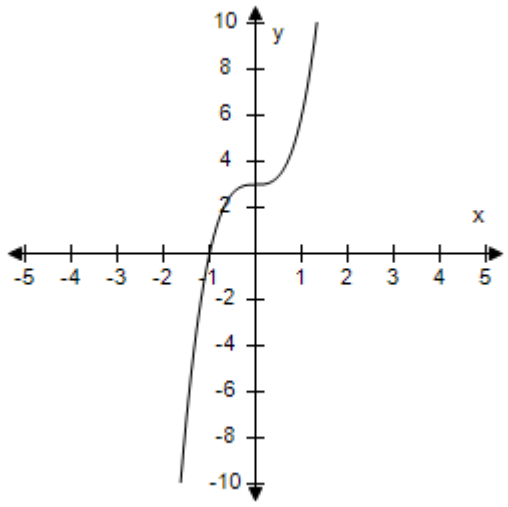
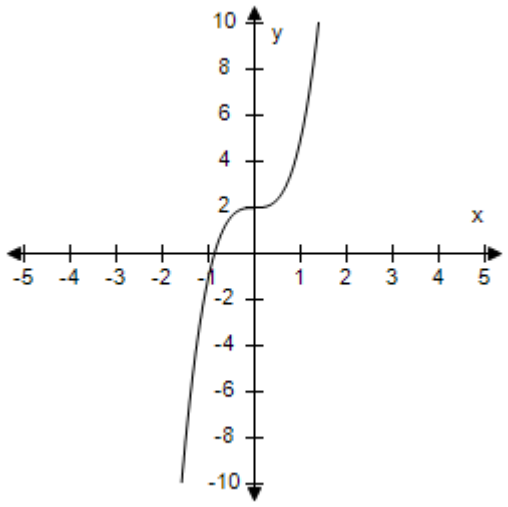
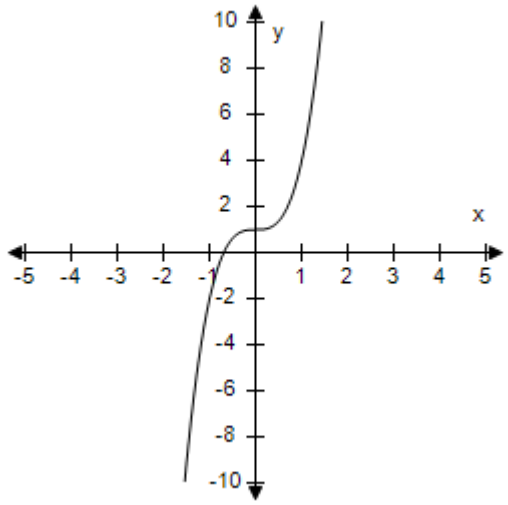
c.



d.



e.



ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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59. Sketch the graph of the equation $y = 4|x - 4| + 2$.

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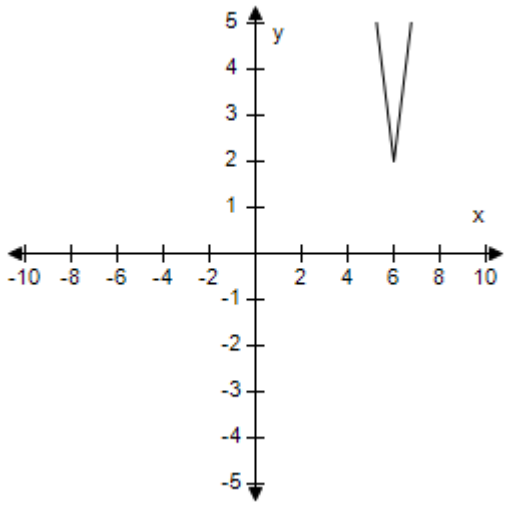
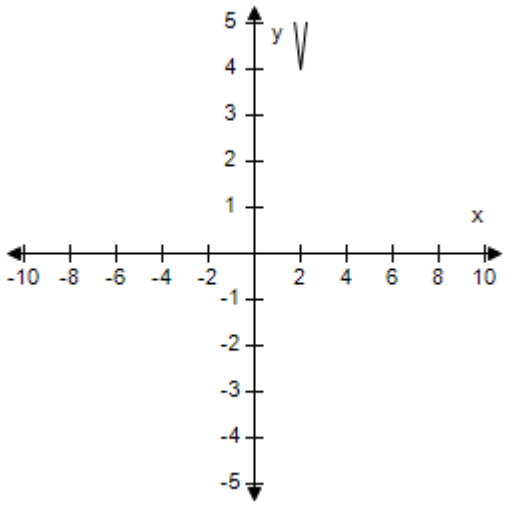
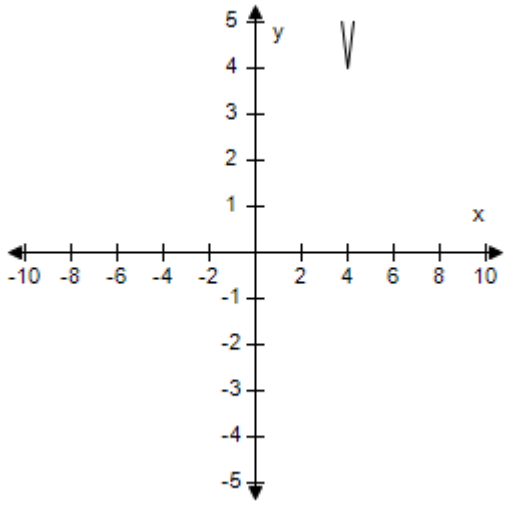
a.



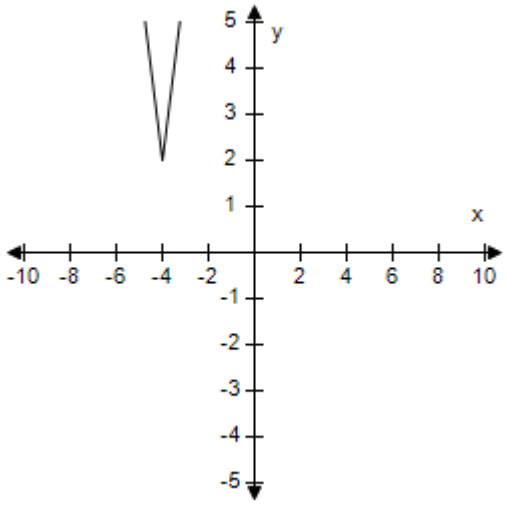
b.



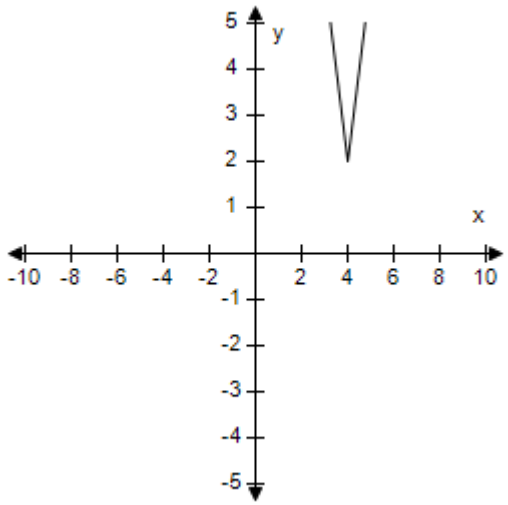
c.



d.



e.



ANSWER: e

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Section 1.2 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:56 AM

60. Find the x-intercept of the graph of the equation $y = 3\sqrt{x-6}$.

a. (0, -6)
b. (0, 6)
c. (6, 0)
d. (-6, 0)
e. (0, -18)

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 4:02 AM

61. Find any x- or y-intercepts for the graph of the equation $y = x^2 - 8x + 12$.

a. x-intercept: (0, 12)
y-intercepts: (2, 0), (6, 0)
b. x-intercepts: (-2, 0), (-6, 0)
y-intercept: (0, 12)
c. x-intercepts: (2, 0), (6, 0)
y-intercepts: none
d. x-intercepts: (0, 2), (0, 6)
y-intercept: (12, 0)
e. x-intercepts: (2, 0), (6, 0)
y-intercept: (0, 12)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 11:00 AM

62. Graph the circle $(x-2)^2 + (y-8)^2 = 25$.

a. b.

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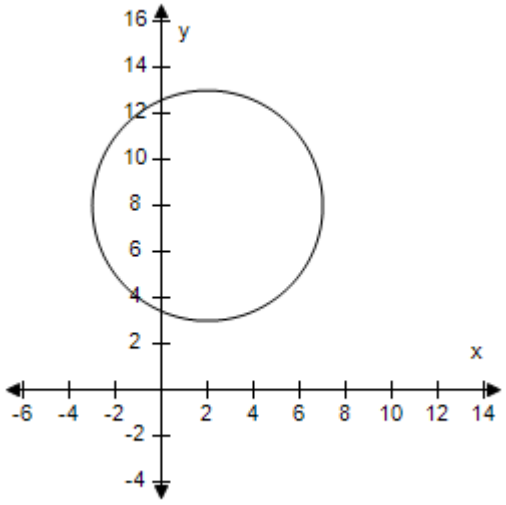
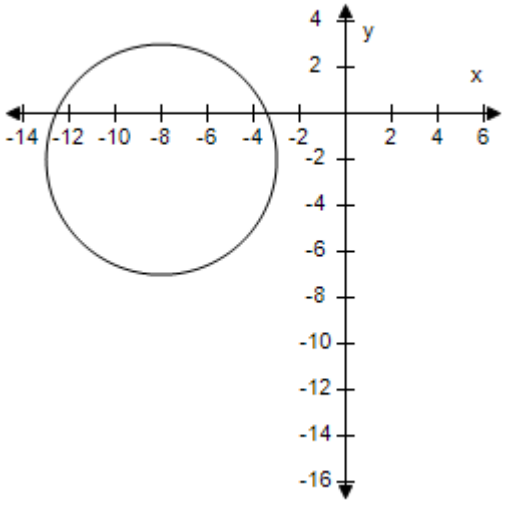
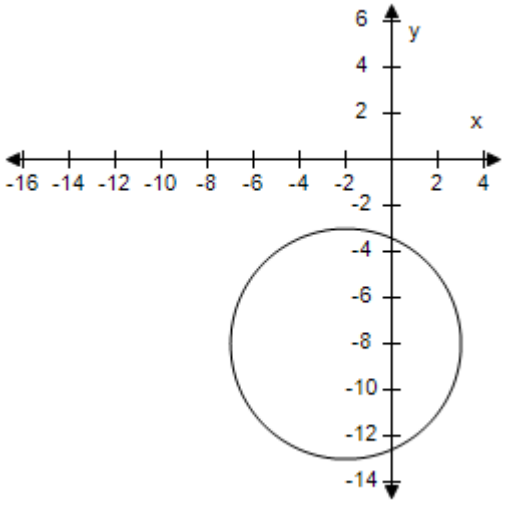
Section 1.2 - Graphs of Equations

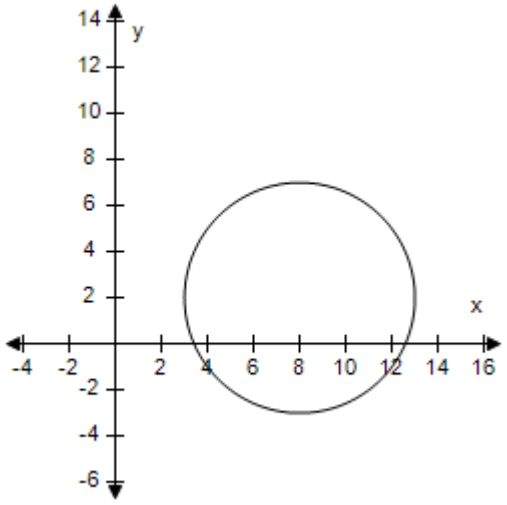


c.



d.





e. None of the above.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 4:21 AM

63. Graph the circle $(x+2)^2+(y-5)^2=9$.

a.

b.

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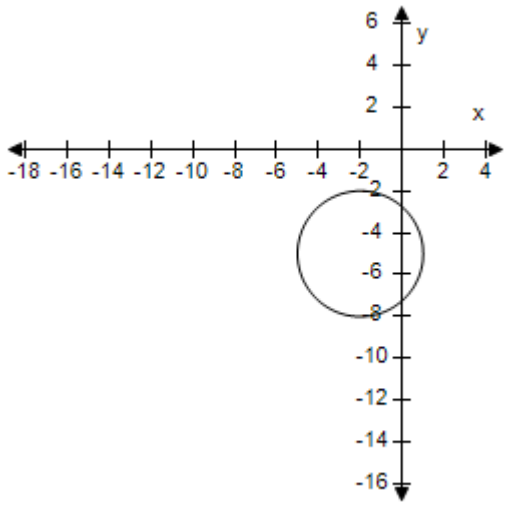
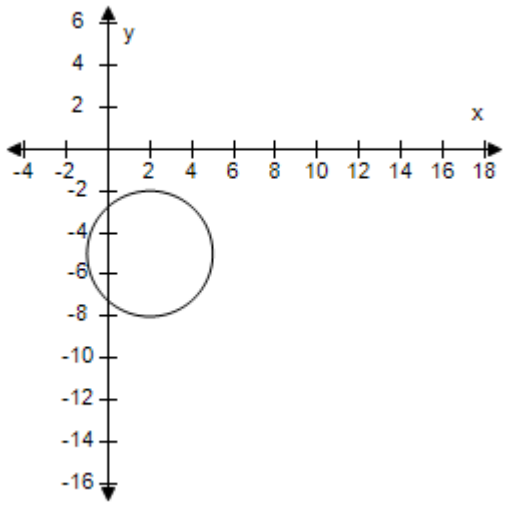
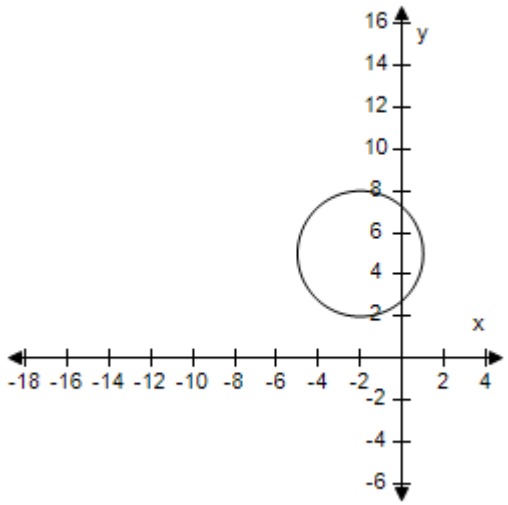
c.

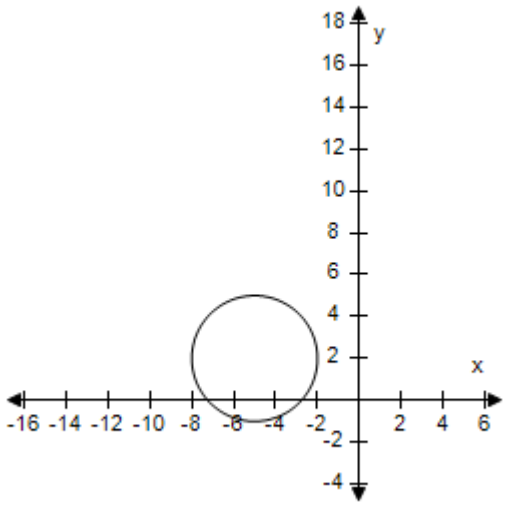


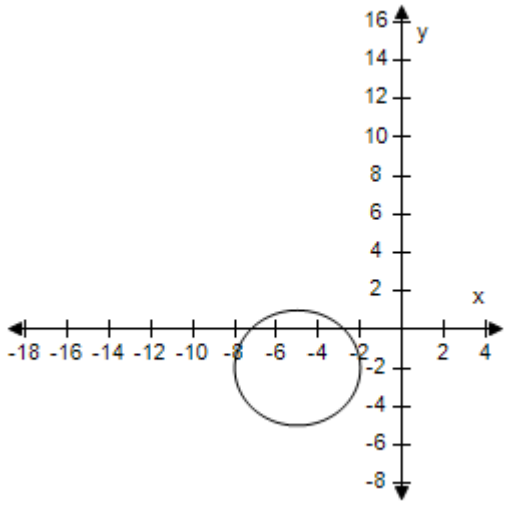
d.



e.







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Section 1.2 - Graphs of Equations

ANSWER:	c
POINTS:	1
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
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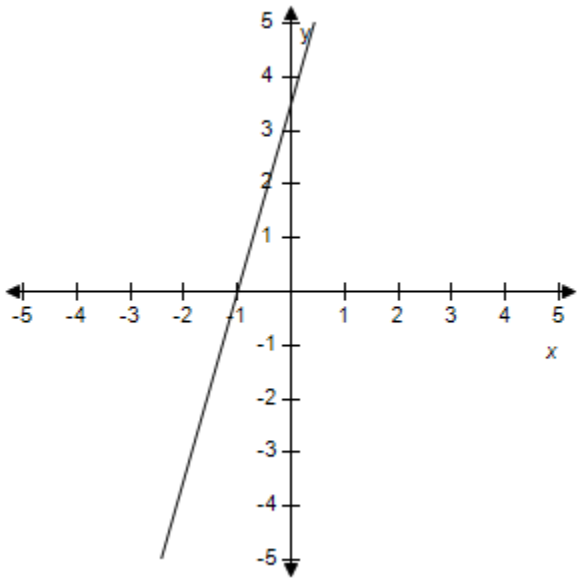
Section 1.3 - Linear Equations in Two Variables

1. Estimate the slope of the line.



a. 5.5
b. 3.5
c. 4.5
d. 6.5
e. Undefined

ANSWER: b
POINTS: 1
REFERENCES: 2.1.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 10/6/2020 3:04 PM

2. Find the slope and y-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$y = 8x + 1$

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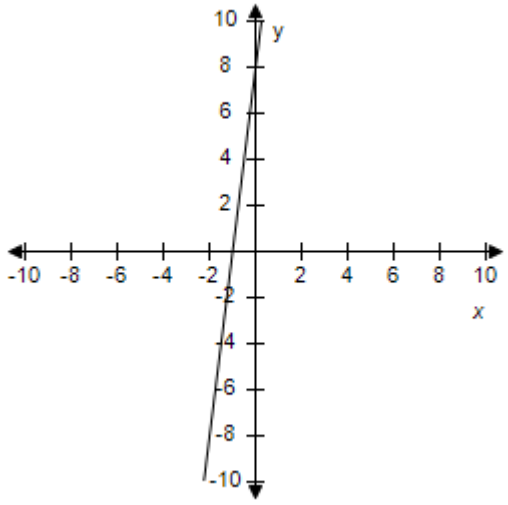
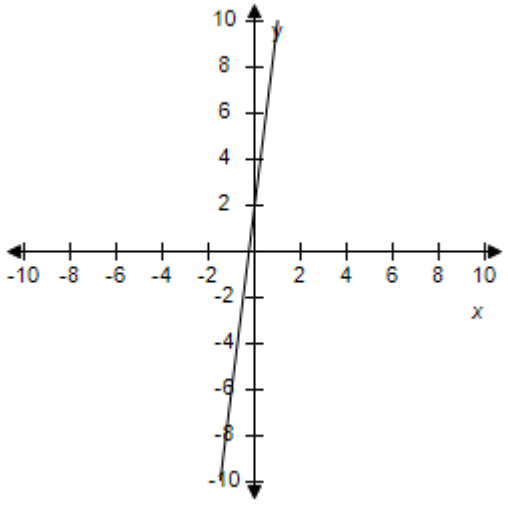
a.



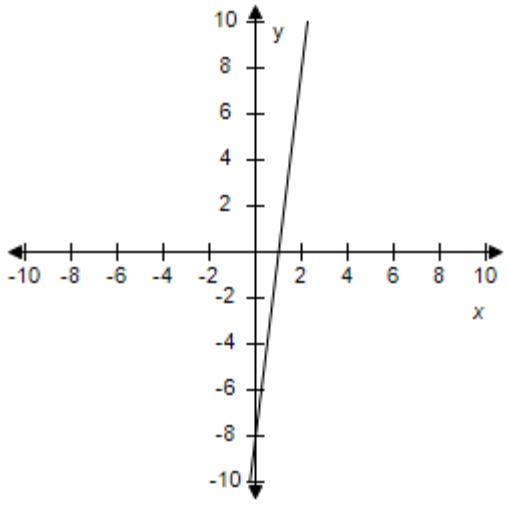
$m = -8$
y-intercept: (0, 1)

b.



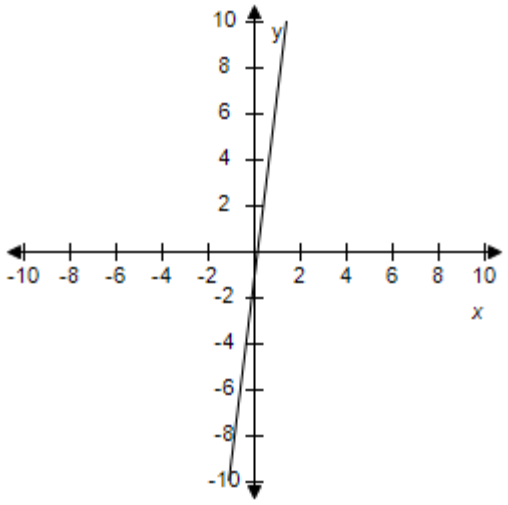
$m = -1$
y-intercept: (0, 1)

c.



m is undefined.
y-intercept: (0, 1)

d.



$m = 1$
y-intercept: (0, 1)

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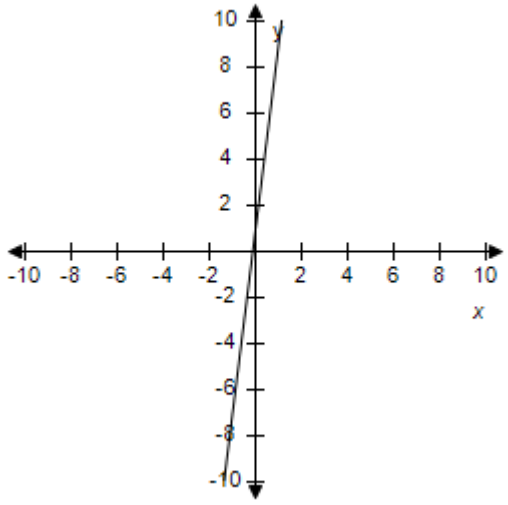
e.



$m = 8$
y-intercept: (0, 1)

ANSWER: e
POINTS: 1
REFERENCES: 2.1.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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3. Find the slope and y-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$y = x - 3$

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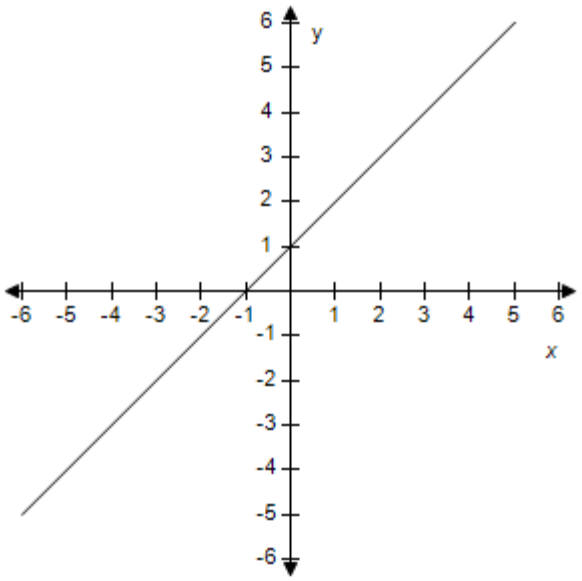
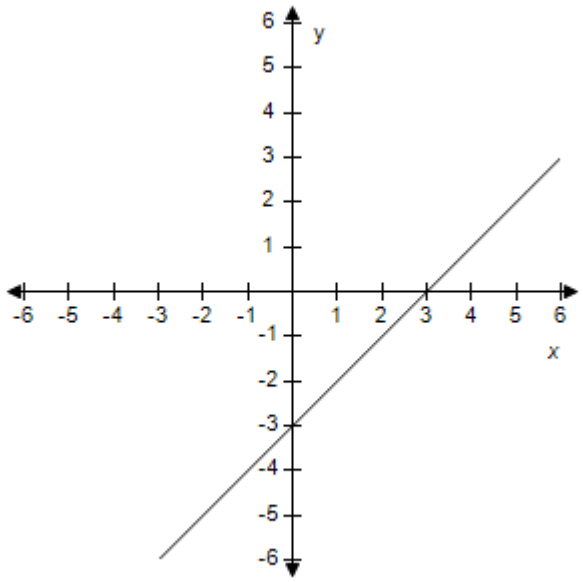
a.



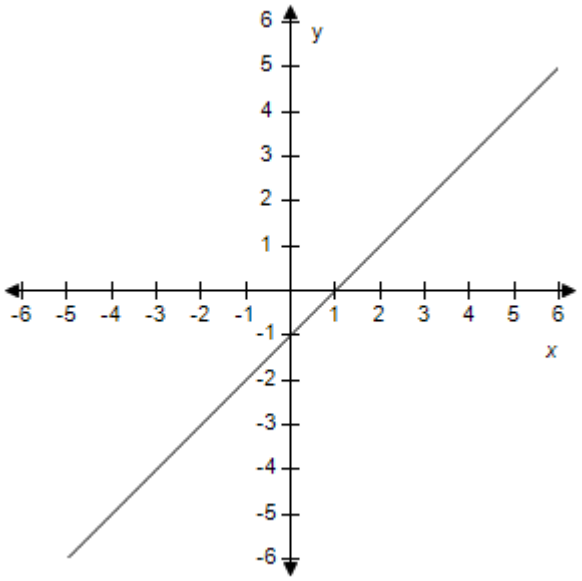
$m = -1$
y-intercept: $(0, 3)$

b.



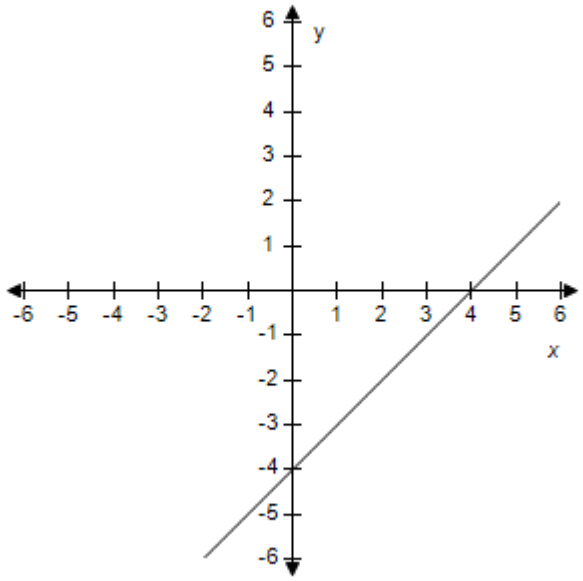
$m = 1$
y-intercept: $(0, -3)$

c.



m is undefined.
y-intercept: $(0, 3)$

d.



$m = 3$
y-intercept: $(0, 3)$

e.

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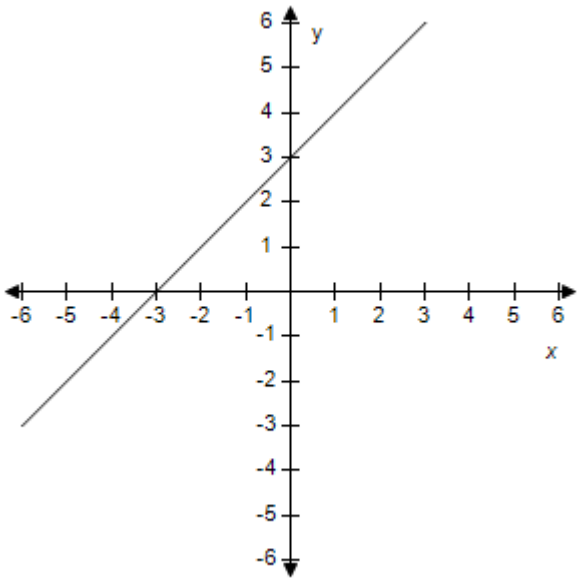

$m = -3$
y-intercept: $(0, -3)$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.18
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 5:46 AM

4. Find the slope and y-intercept (if possible) of the equation of the line. Select the line.

$$y = -\frac{1}{6}x + 6$$

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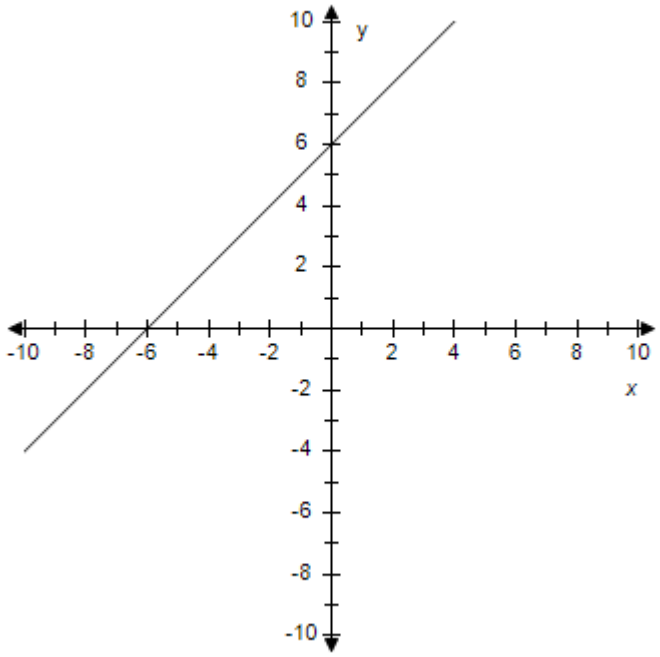
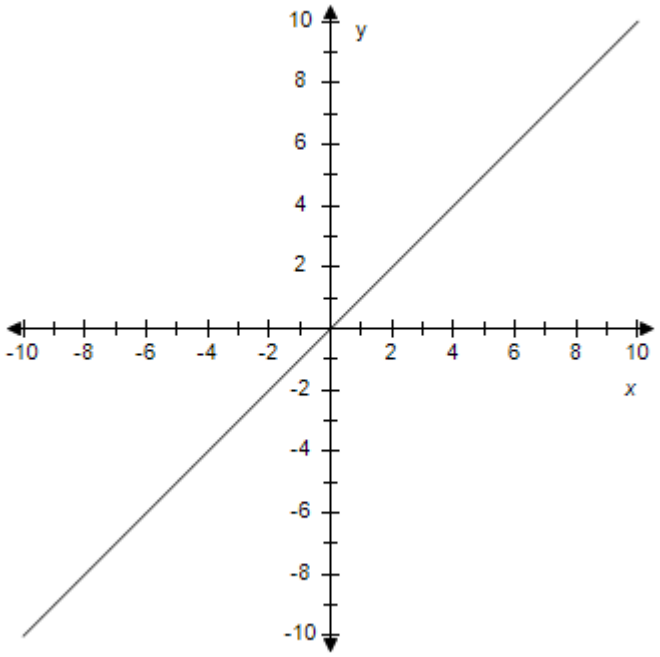
a.



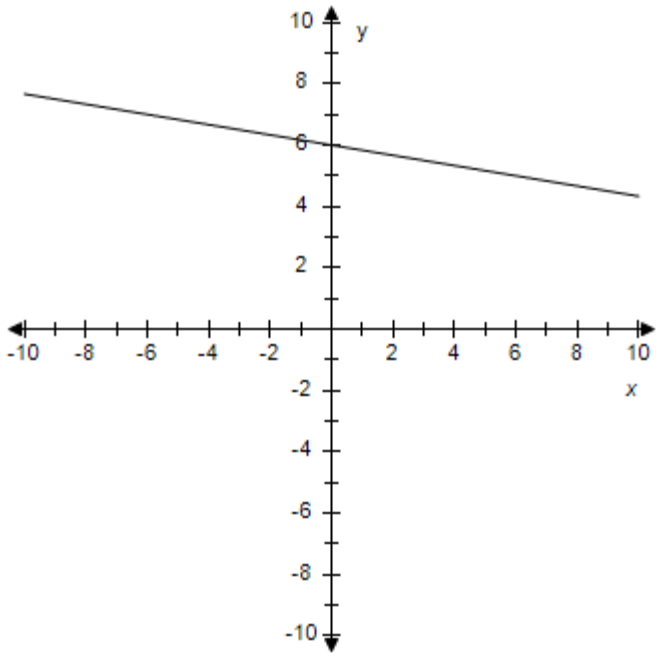
$m = -6$
y-intercept: (0, 6)

b.



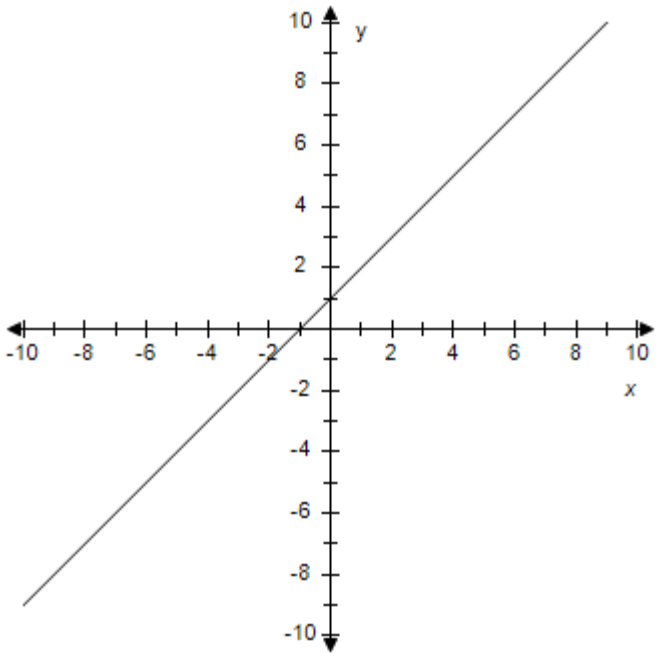
m is undefined.
y-intercept: (0, 6)

c.



$m = -\frac{1}{6}$
y-intercept: (0, 6)

d.



$m = -1$
y-intercept: (0, 6)

e.

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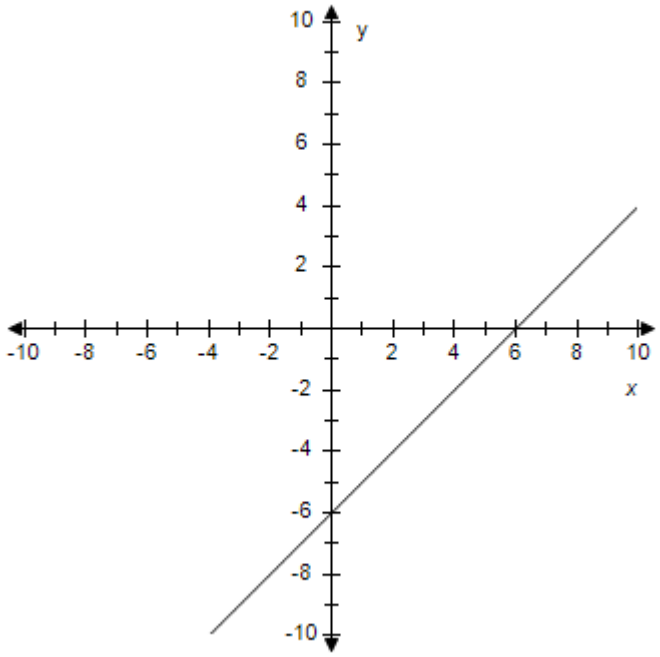

$m = 6$
y-intercept: $(0, 6)$

ANSWER:	c
POINTS:	1
REFERENCES:	2.1.19
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	5/20/2021 5:46 AM

5. Find the slope and y-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$5x - 4 = 0$

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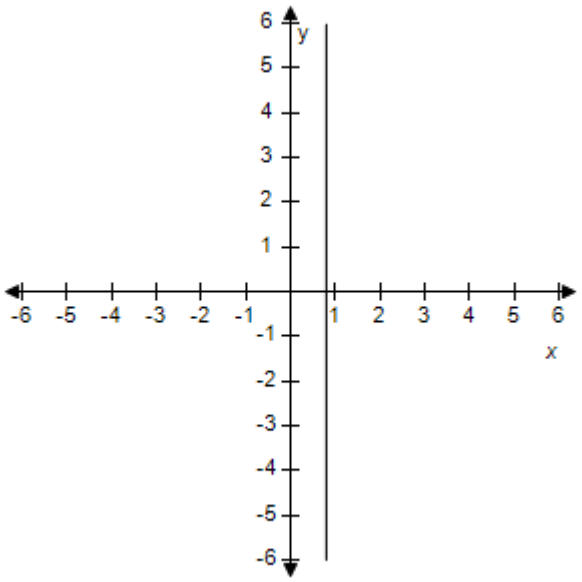
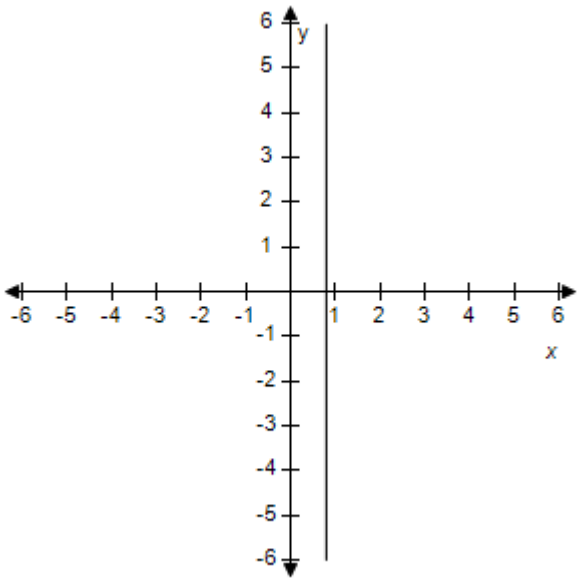
a.



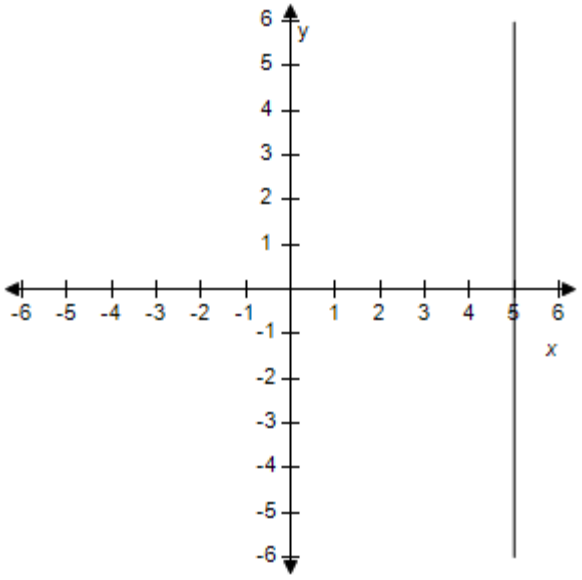
m is undefined.
There is no *y*-intercept.

b.



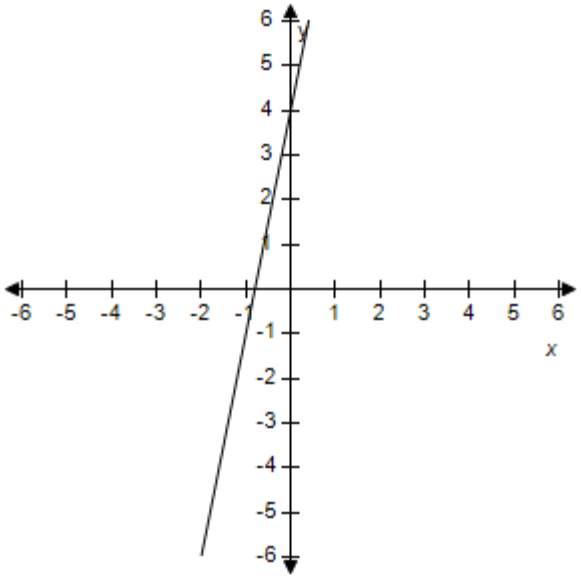
$m = -5$
y-intercept: (0, 4)

c.



m is undefined.
There is no *y*-intercept.

d.



$m = -4$
y-intercept: (0, 5)

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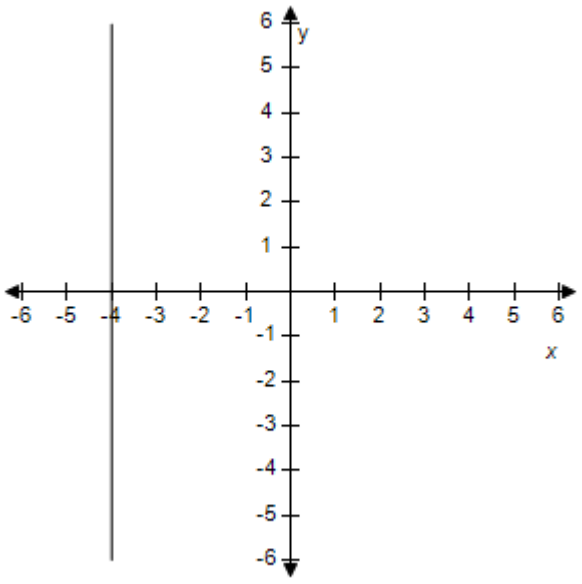
e.



m is undefined.
There is no *y*-intercept.

ANSWER: a
POINTS: 1
REFERENCES: 2.1.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 5:50 AM

6. Find the slope and *y*-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$3y + 6 = 0$

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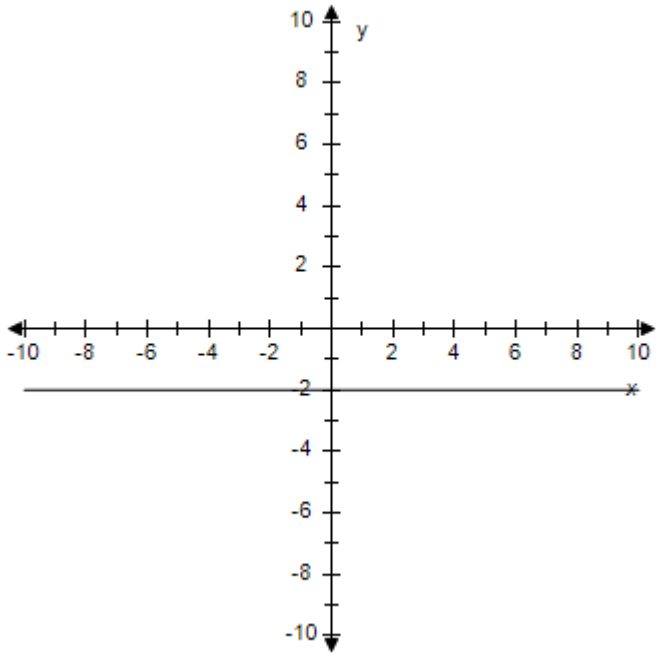
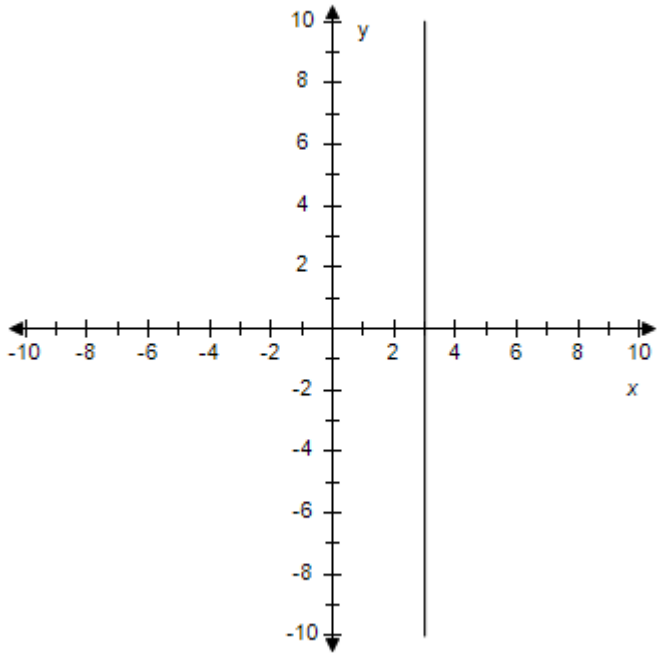
a.



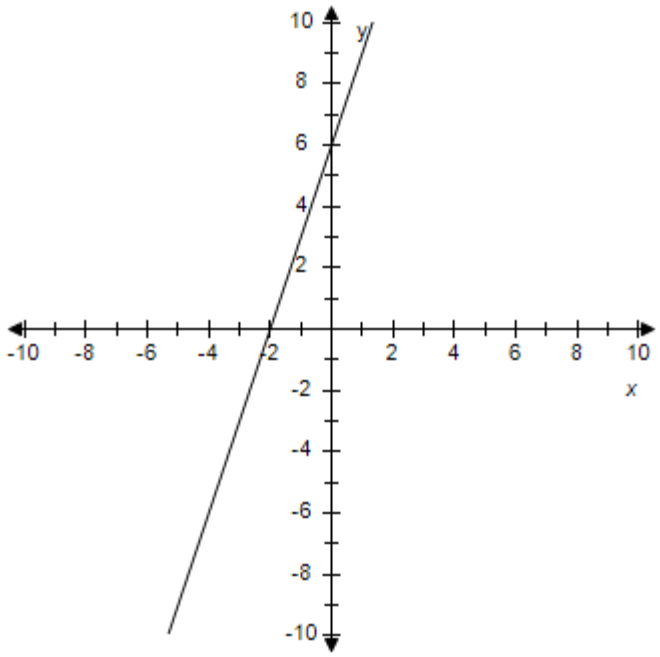
$m = 0$
y-intercept: $(0, -2)$

b.



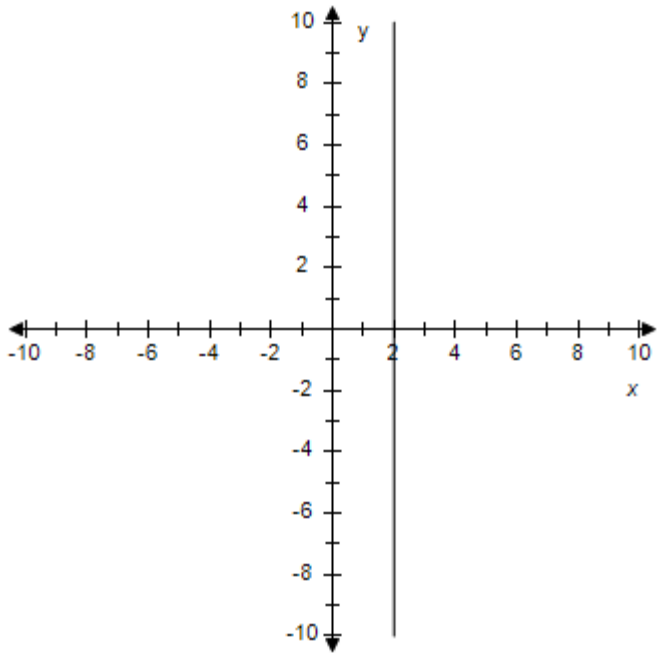
$m = 0$
There is no y-intercept.

c.



$m = -6$
y-intercept: $(0, 3)$

d.



$m = -3$
y-intercept: $(0, 6)$

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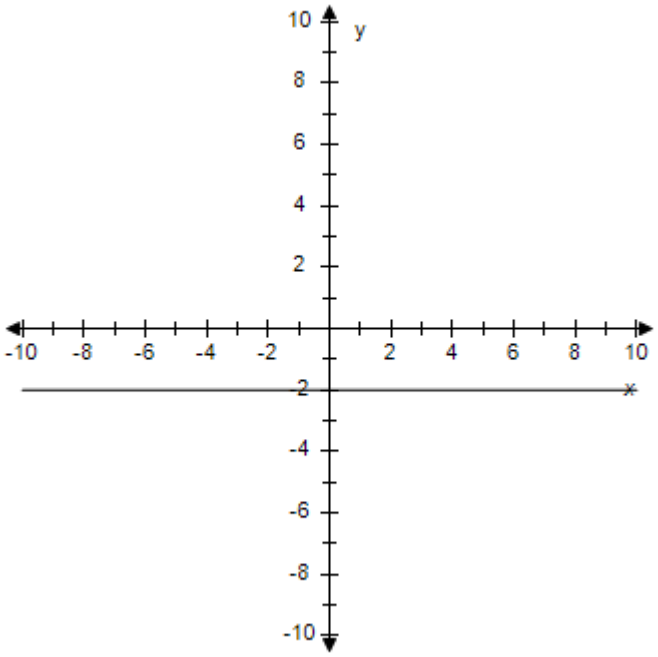
e.



m is undefined.
y-intercept: (0, –2)

ANSWER: a
POINTS: 1
REFERENCES: 2.1.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 10/7/2020 6:45 AM

7. Find the slope and *y*-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$y - 3 = 0$

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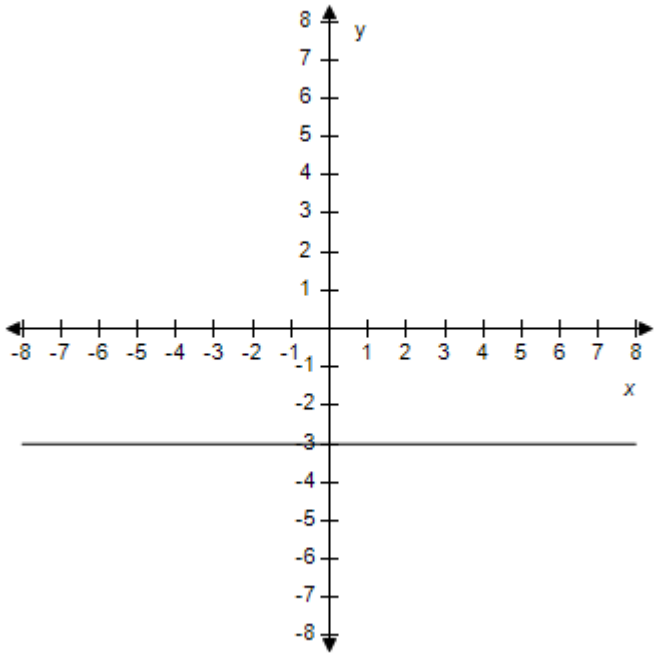
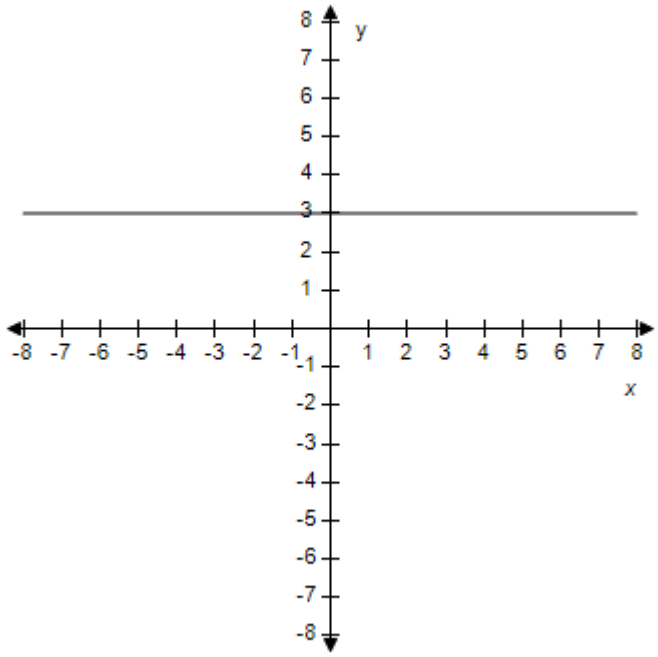
a.



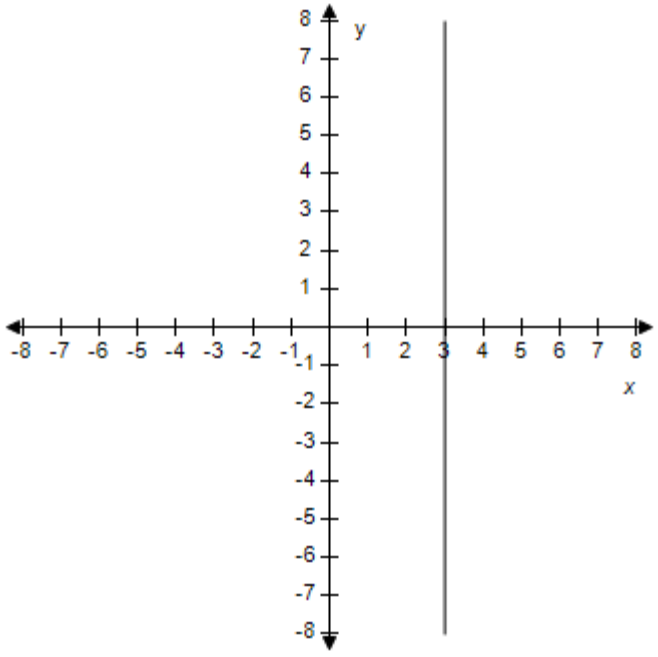
$m = -3$
y-intercept: $(0, -3)$

b.



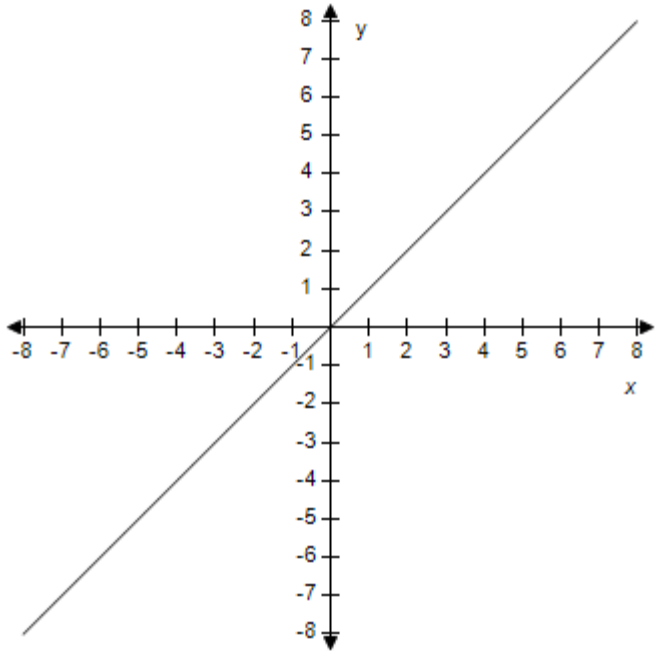
$m = 0$
y-intercept: $(0, 3)$

c.



m is undefined.
There is no y-intercept.

d.



$m = 0$
There is no y-intercept.

e.

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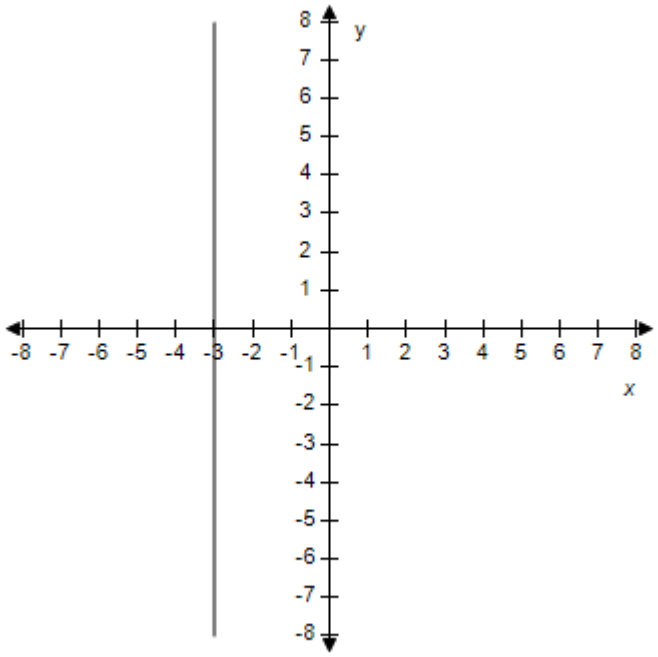

$m = 0$

There is no y-intercept.

ANSWER: b
POINTS: 1
REFERENCES: 2.1.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 5:57 AM

8. Find the slope and y-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$y + 4 = 0$

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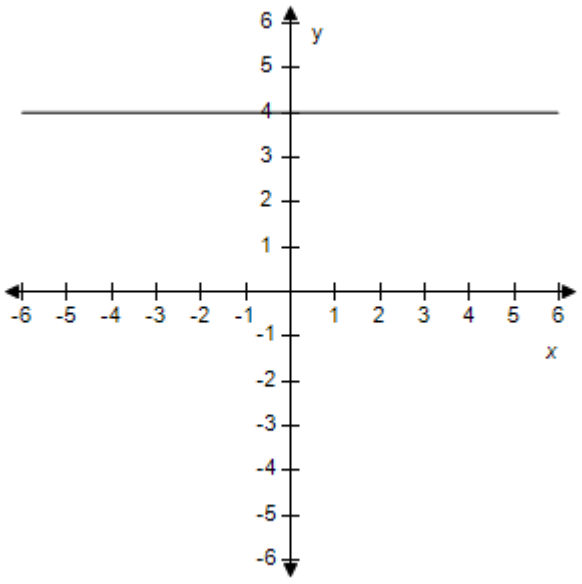
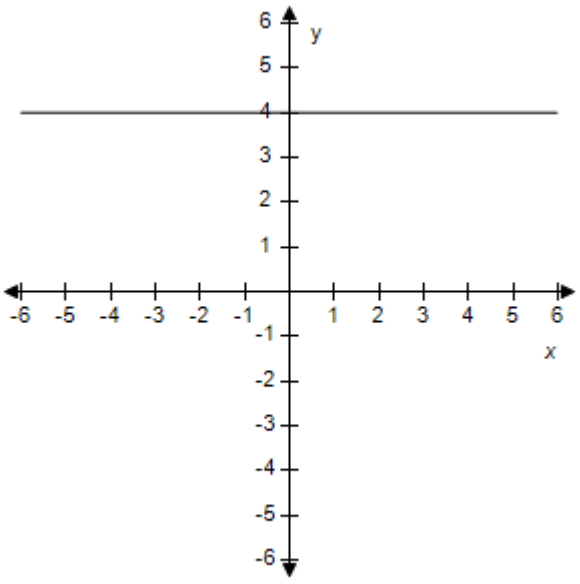
a.



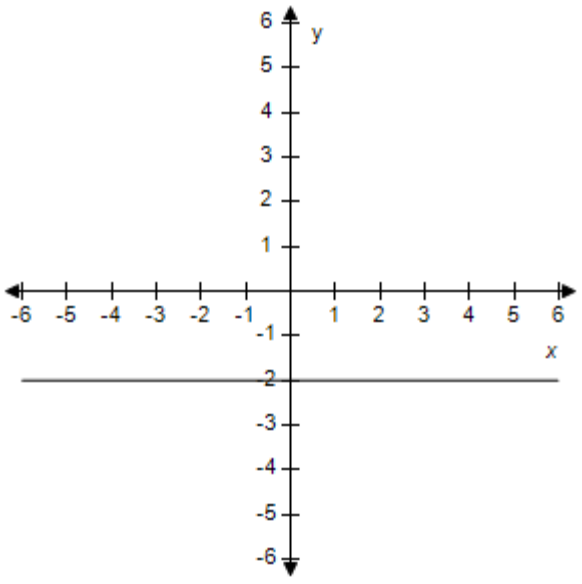
$m = 0$
y-intercept: (0,4)

b.



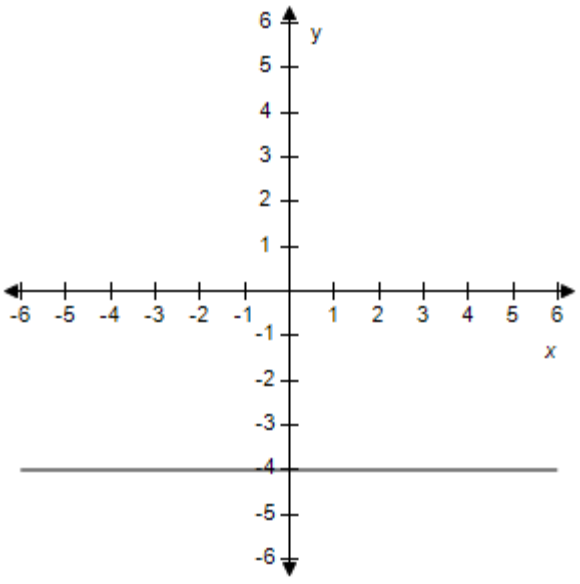
$m = 0$
y-intercept: (0,–4)

c.



m is undefined.
There is no y-intercept.

d.



$m = 0$
y-intercept: (0,–4)

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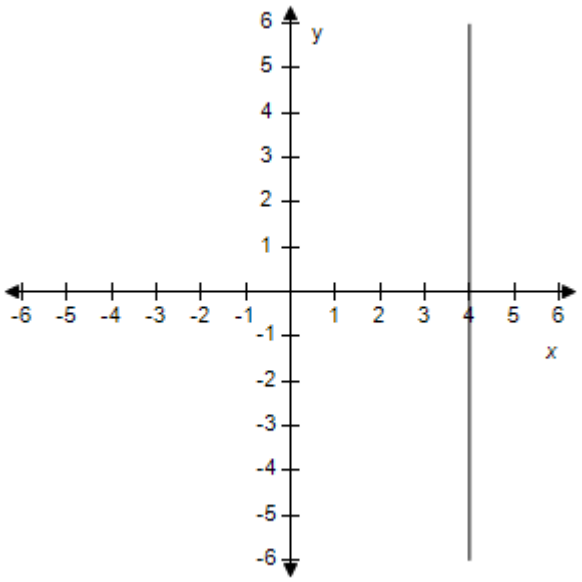
e.



$m = 0$
There is no y-intercept.

ANSWER: d
POINTS: 1
REFERENCES: 2.1.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 5:59 AM

9. Find the slope and y-intercept (if possible) of the equation of the line. Select the correct answer for the line.

$x + 3 = 0$

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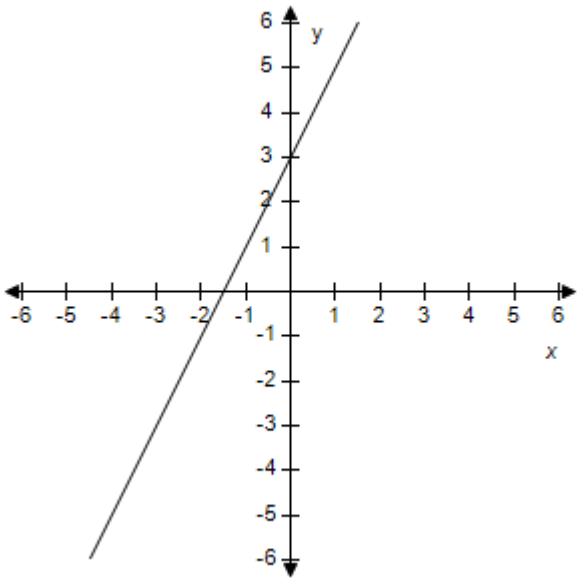
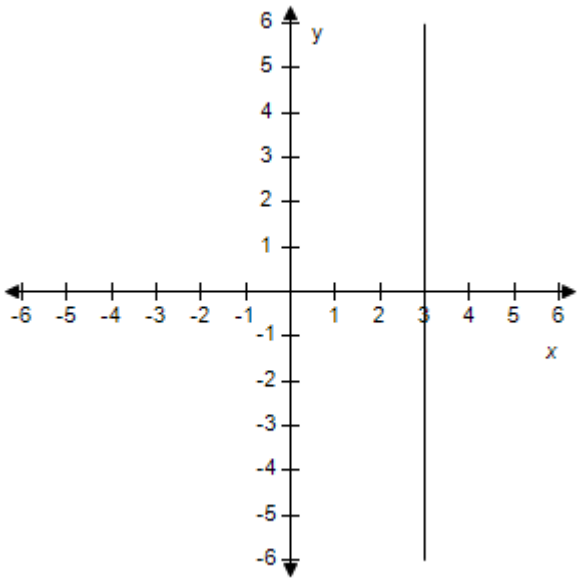
a.



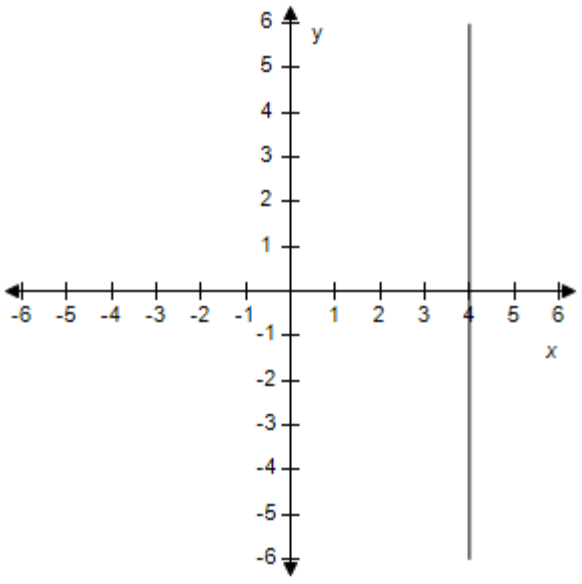
$m = -3$
y-intercept: (0,2)

b.



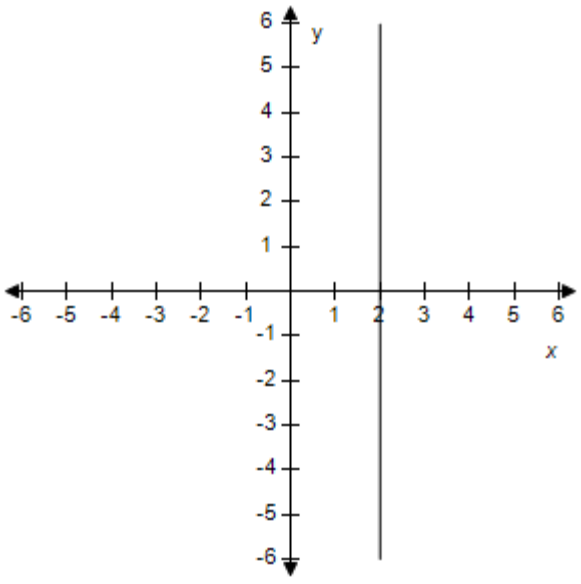
m is undefined.
There is no y-intercept.

c.



$m = -2$
y-intercept: (0,3)

d.



m is undefined.
There is no y-intercept.

e.

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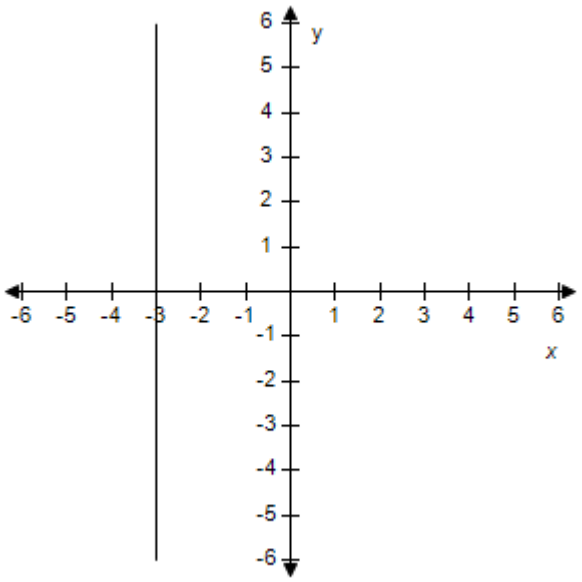

m is undefined.
There is no *y*-intercept.

ANSWER: e
POINTS: 1
REFERENCES: 2.1.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 6:02 AM

10. Find the slope of the line passing through the given pair of points.

(0, 6), (2, 0)

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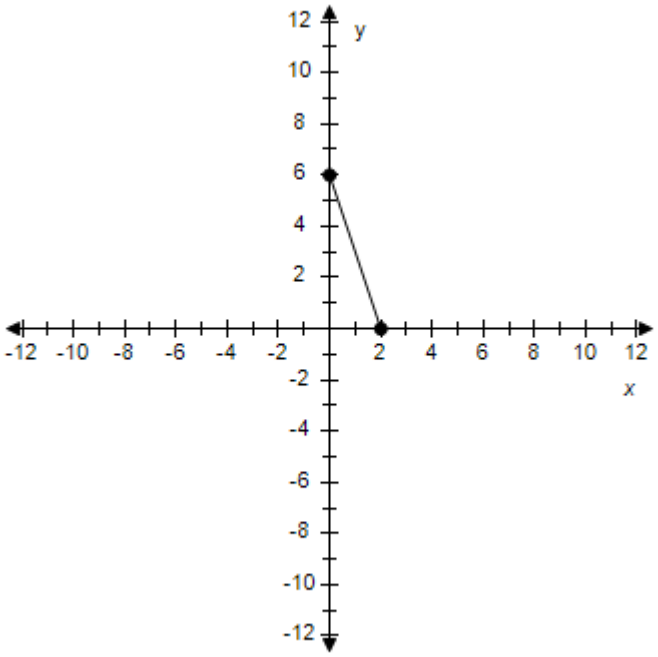
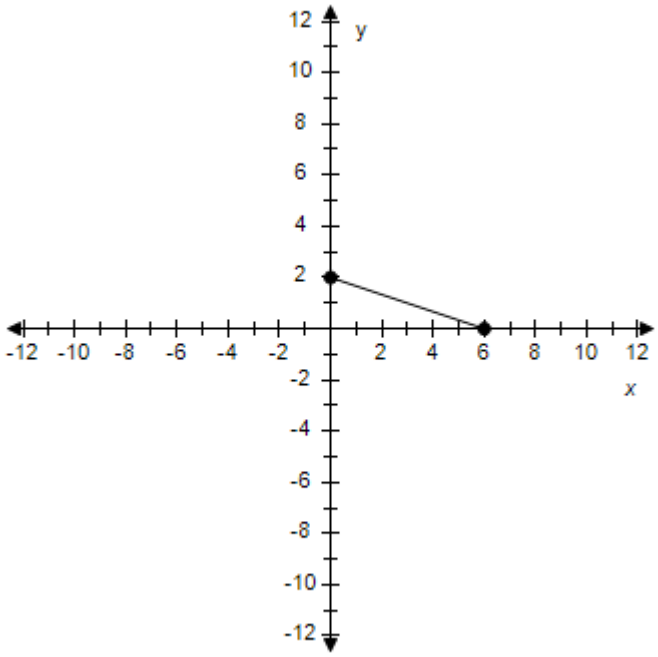
a.



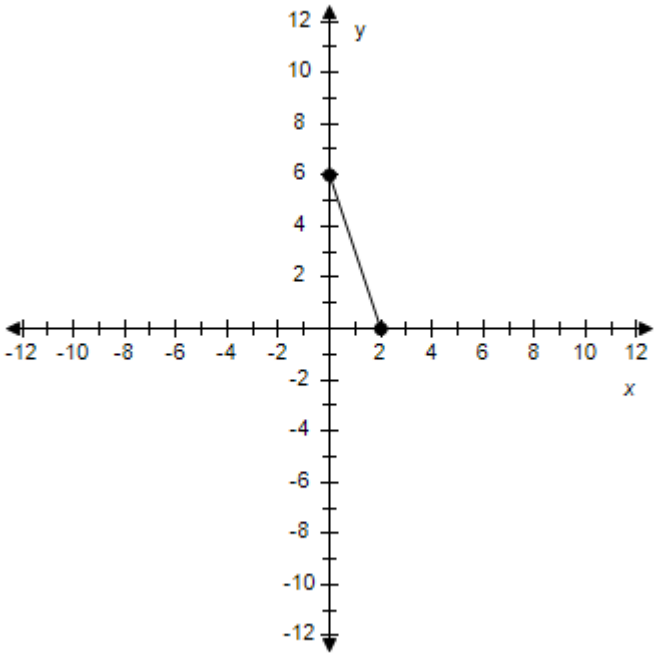
$m = -\frac{1}{3}$

b.



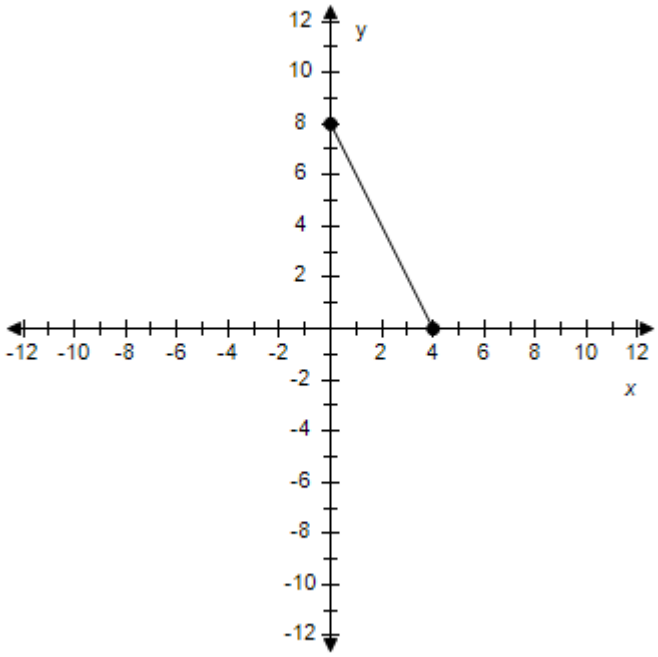
$m = 3$

c.



$m = -3$

d.



$m = \frac{1}{2}$

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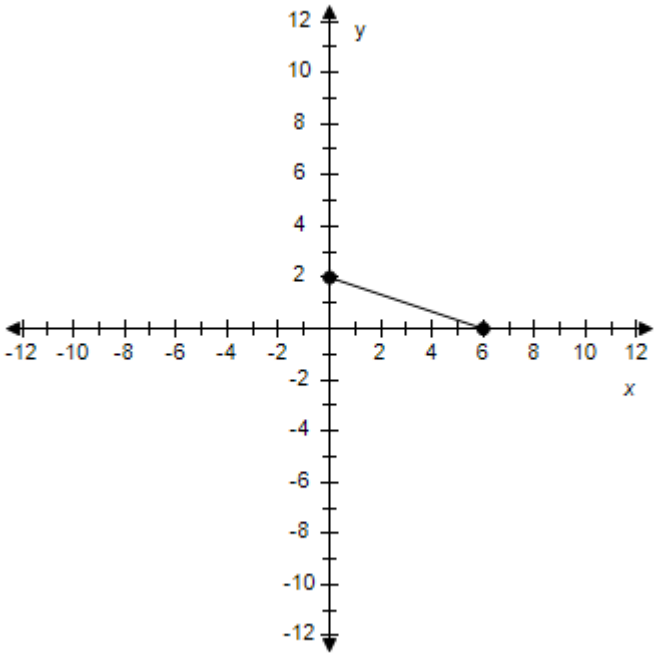
e.



$m = -3$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:00 AM

11. Find the slope of the line passing through the pair of points.

(11, 0), (0, –9)

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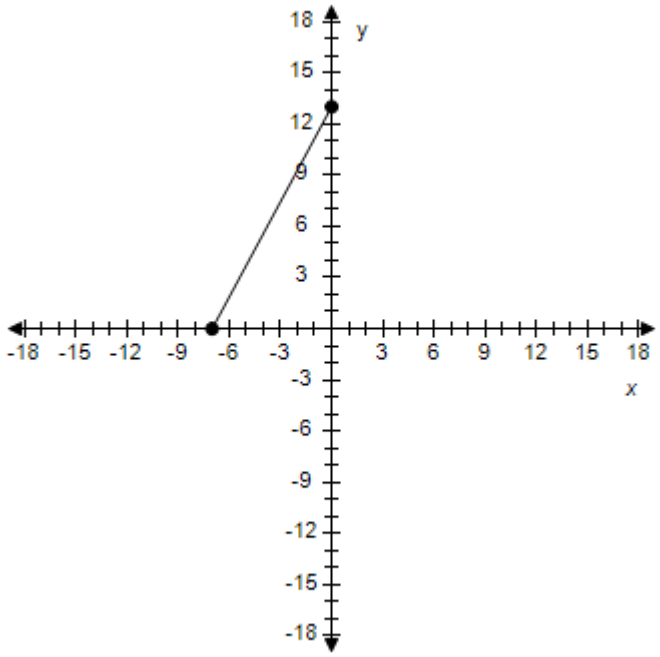
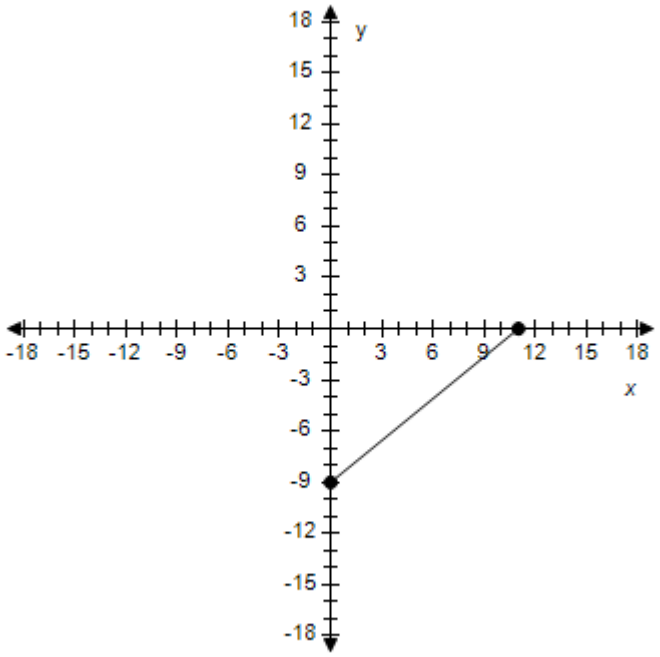
a.



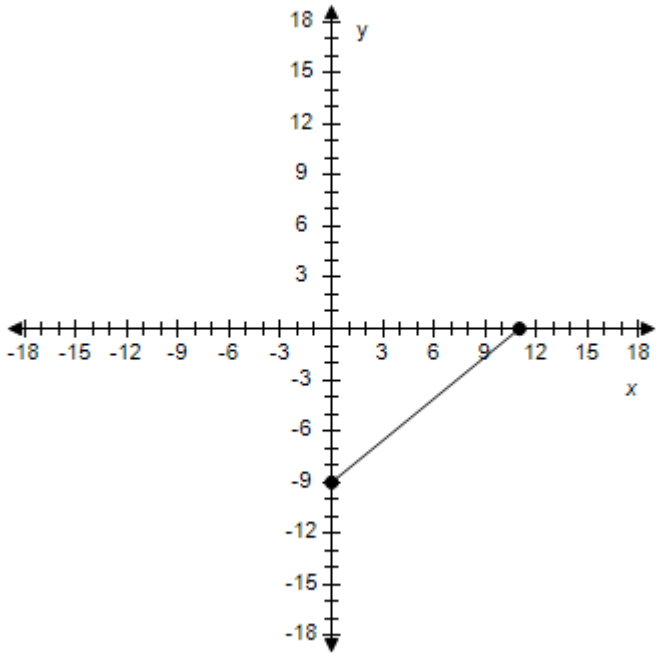
$m = -\frac{7}{13}$

b.



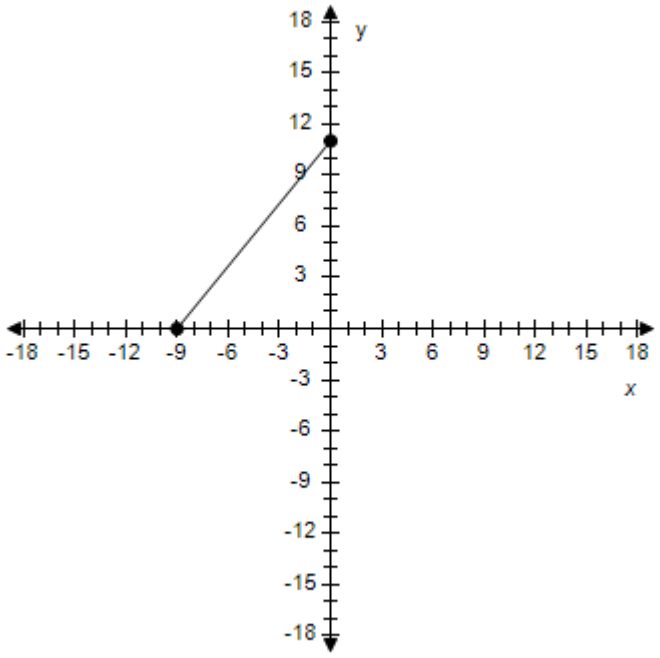
$m = \frac{11}{9}$

c.



$m = \frac{9}{11}$

d.



$m = -\frac{9}{11}$

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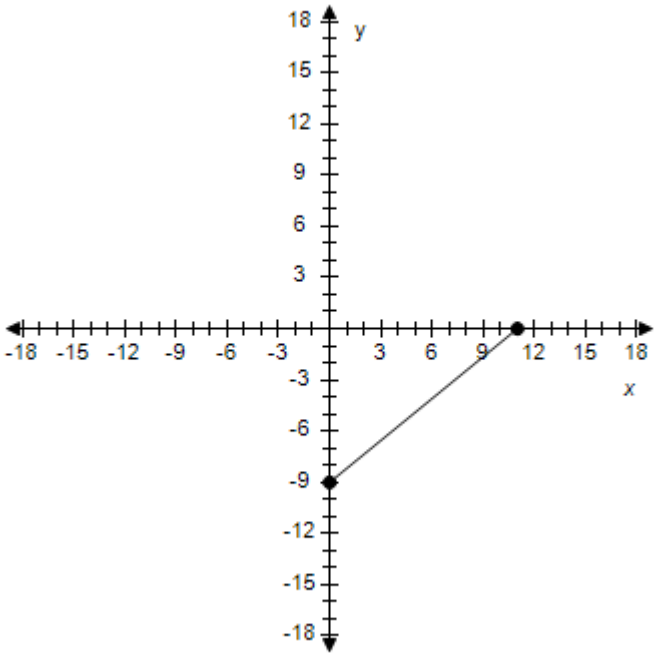
e.



$m = -\frac{11}{9}$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:09 AM

12. Find the slope of the line passing through the pair of points.

(–8, –6), (1, 9)

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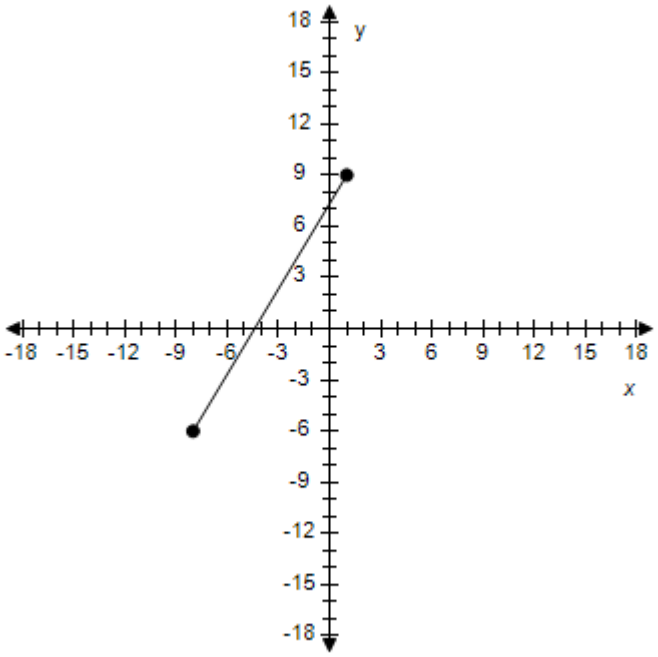
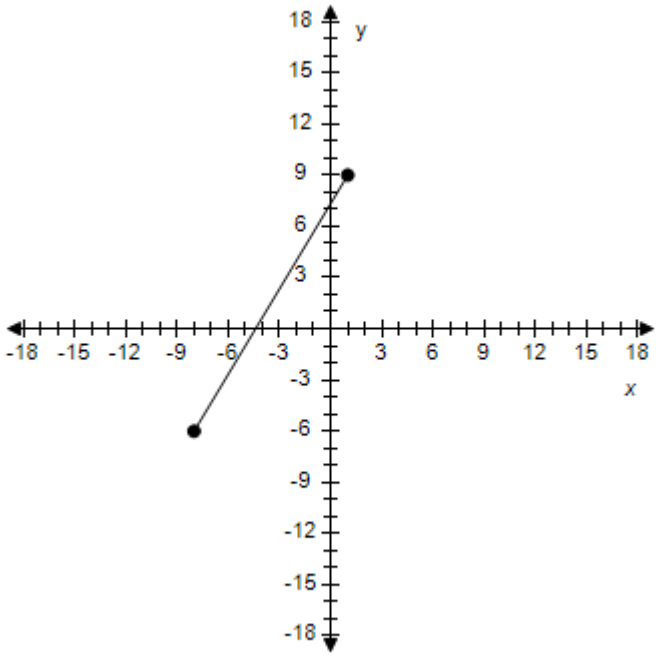
a.



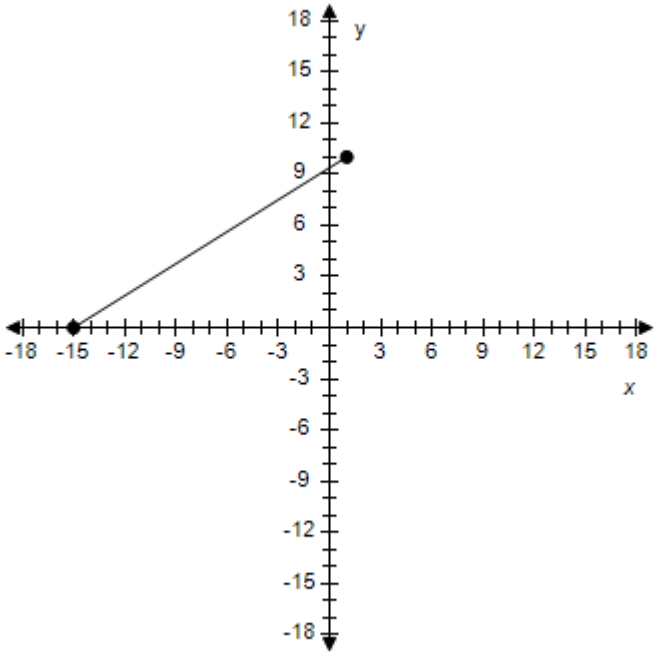
$m = -\frac{3}{7}$

b.



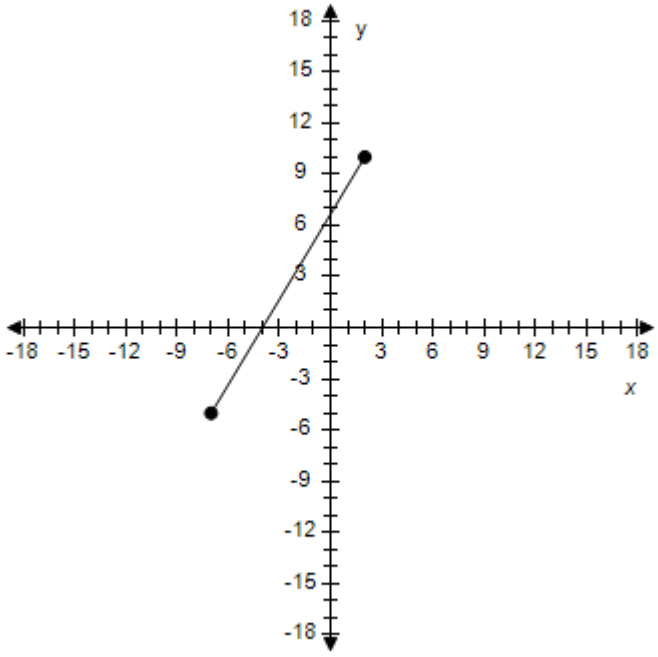
$m = \frac{5}{3}$

c.



$m = -\frac{3}{5}$

d.



$m = -\frac{5}{3}$

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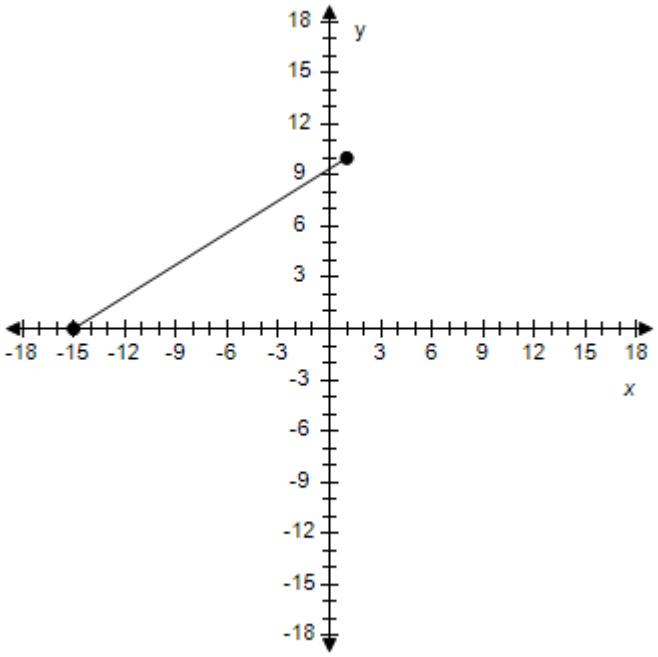
e.



$m = \frac{3}{5}$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:14 AM

13. Find the slope of the line passing through the pair of points.

(9, –8), (1, –8)

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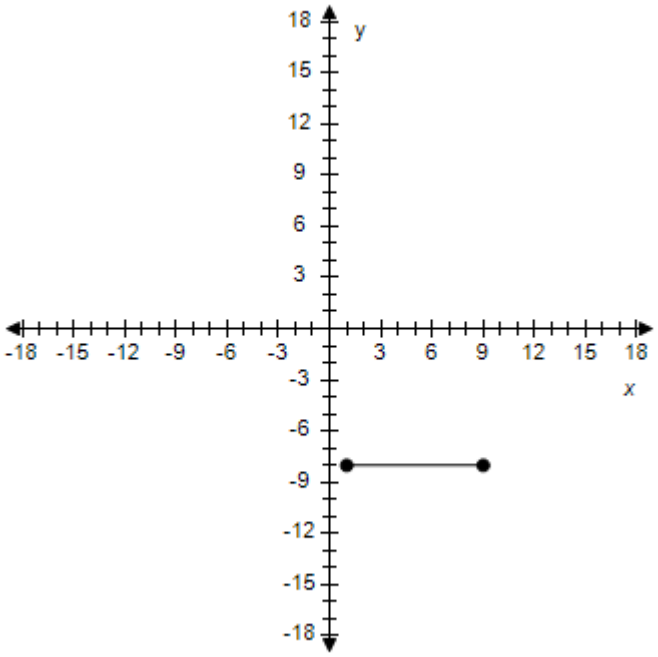
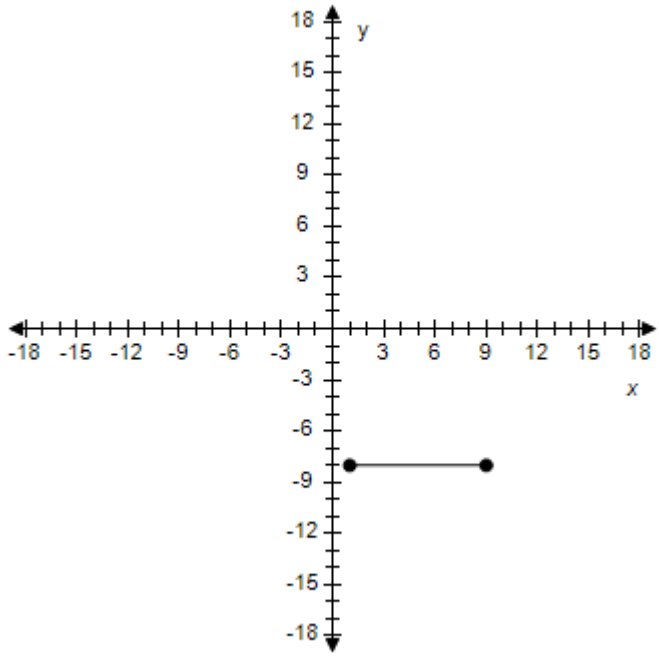
a.



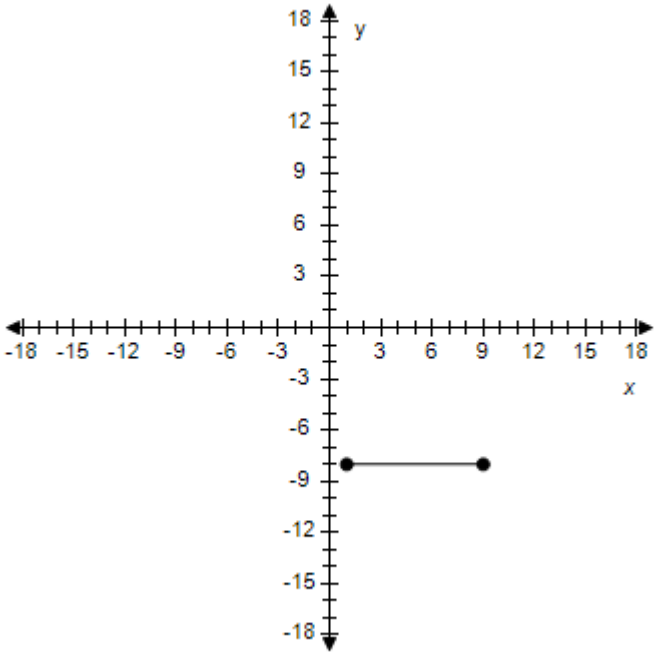
$m = 0$

b.



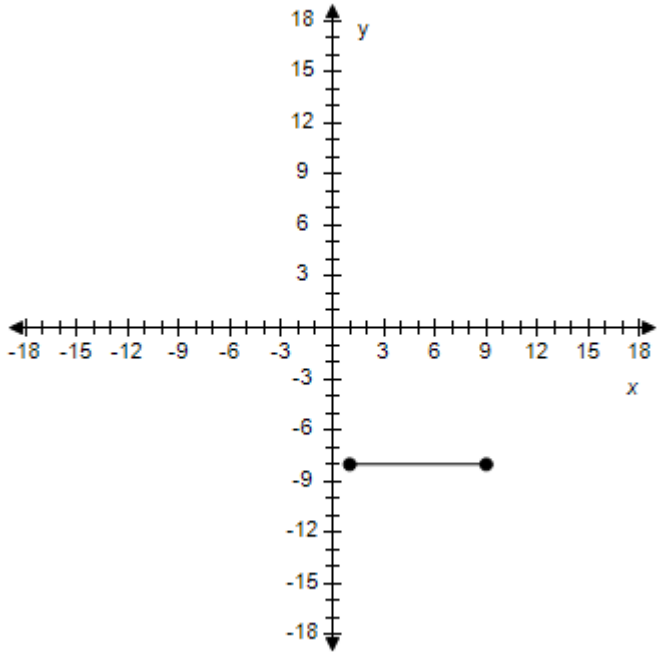
$m = -\frac{1}{9}$

c.



$m = -\frac{8}{5}$

d.



m is undefined

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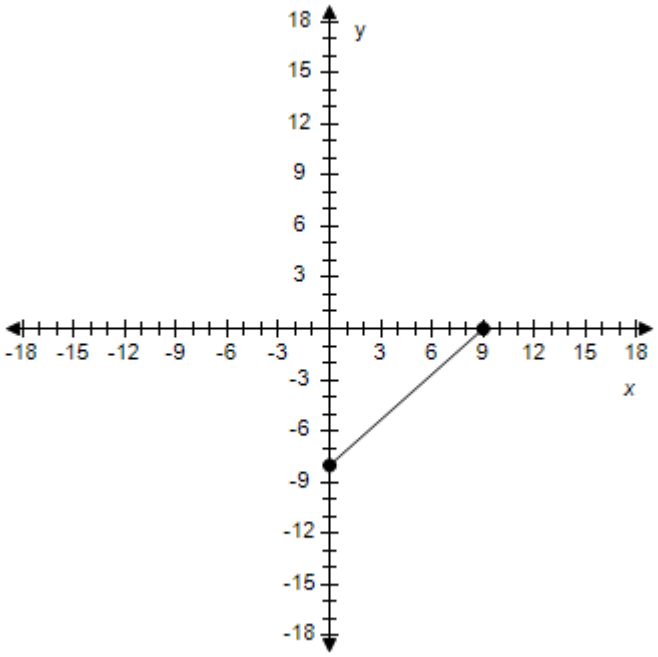
e.



$m = \frac{1}{9}$

ANSWER: a
POINTS: 1
REFERENCES: 2.1.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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14. Find the slope of the line passing through the pair of points.

(4, 8), (8, –8)

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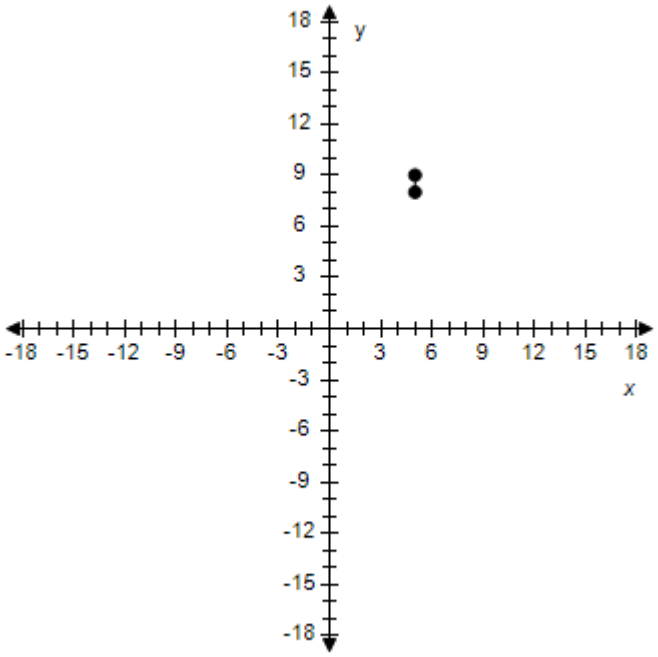
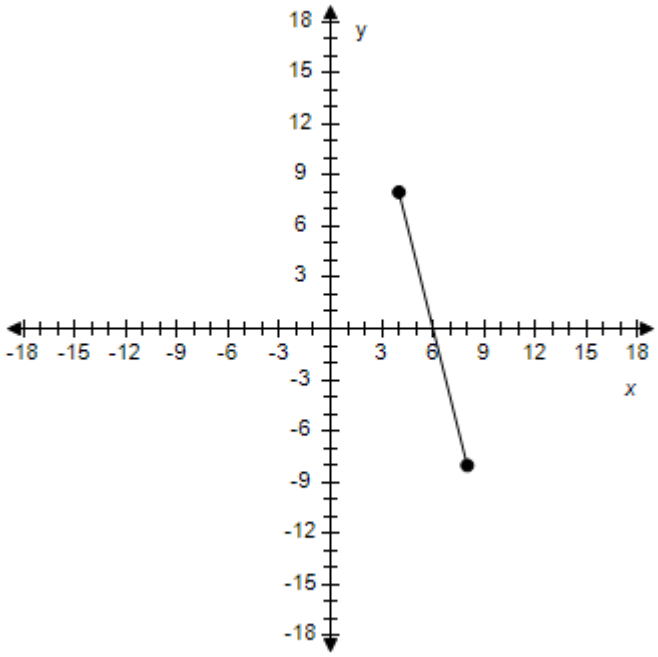
a.



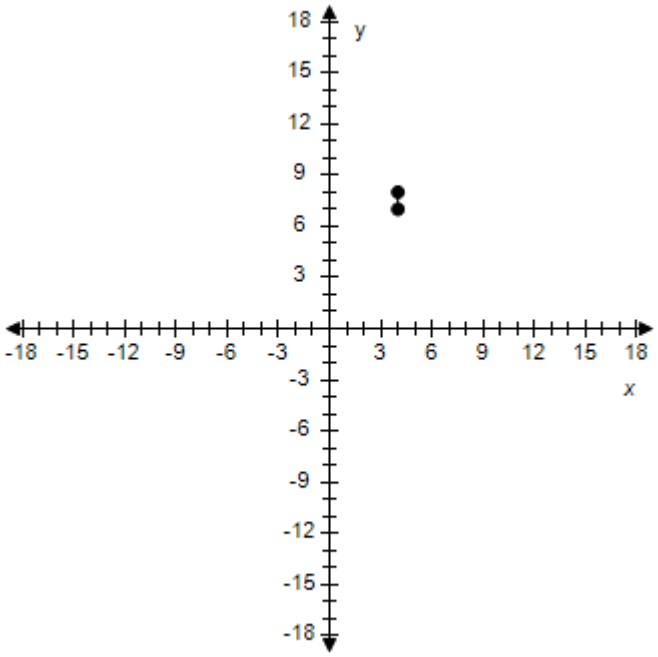
$m = -4$

b.



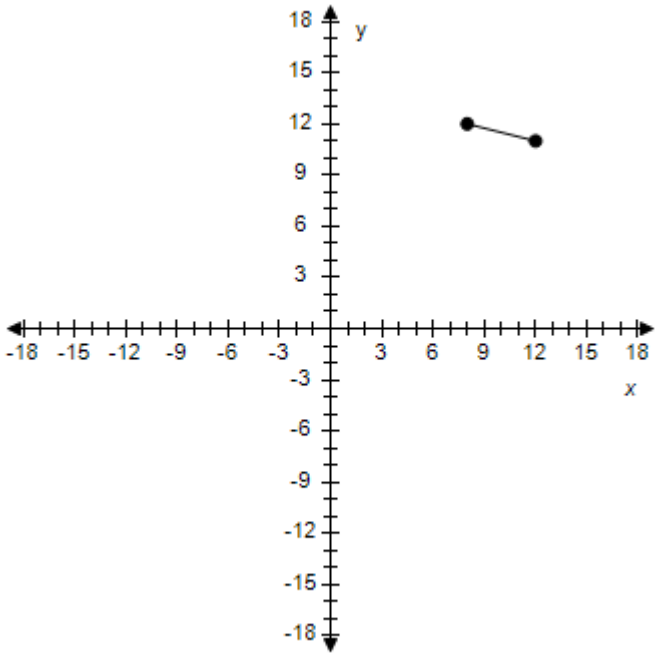
$m = -4$

c.



$m = \frac{15}{8}$

d.



$m = \frac{15}{8}$

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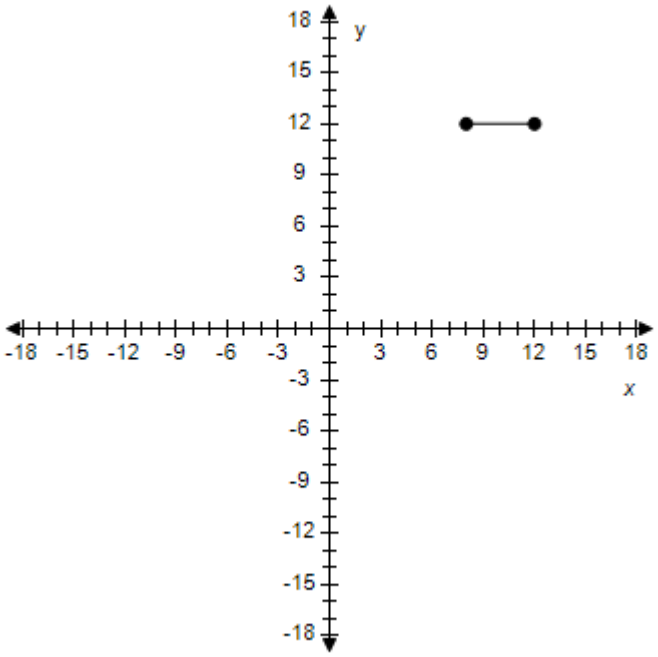
e.



$m = 0$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:27 AM

15. Find the slope of the line passing through the pair of points.

(0, –8), (–6, 0)

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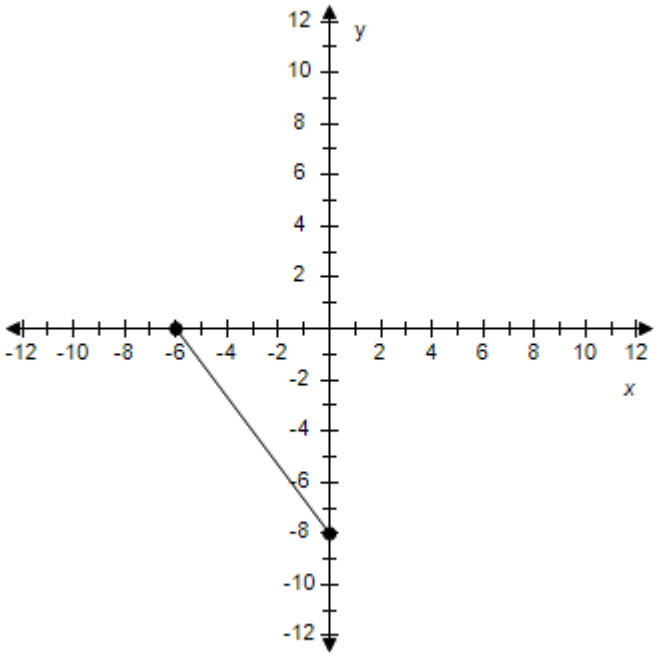
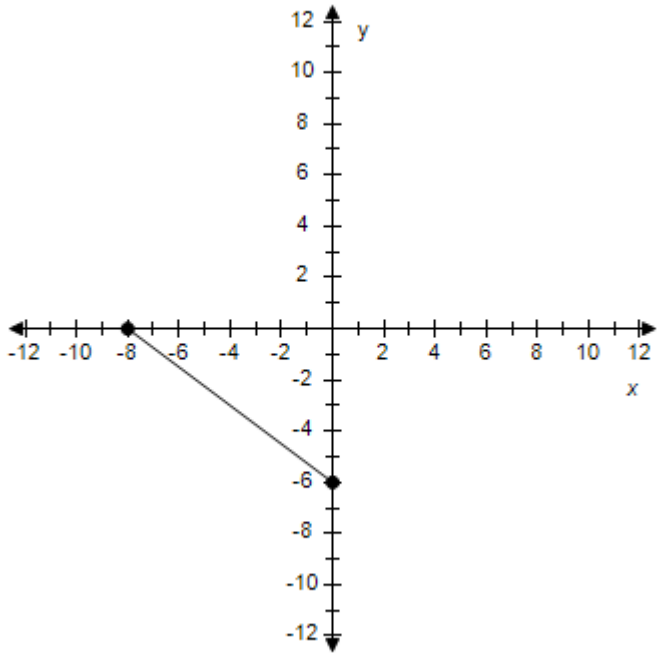
a.



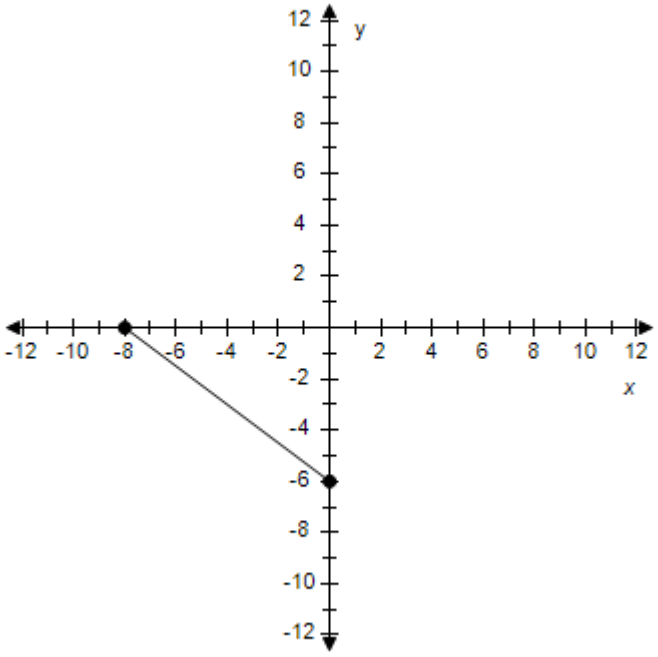
$m = \frac{4}{3}$

b.



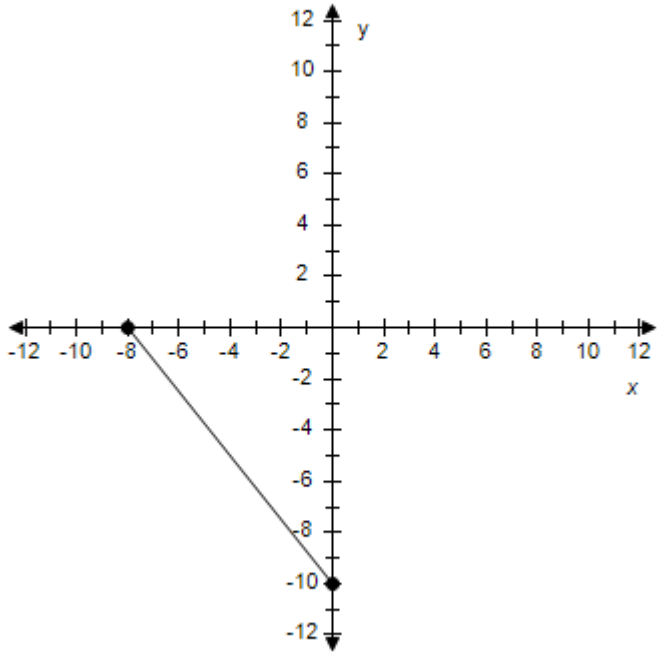
$m = \frac{4}{3}$

c.



$m = -\frac{4}{3}$

d.



$m = \frac{2}{3}$

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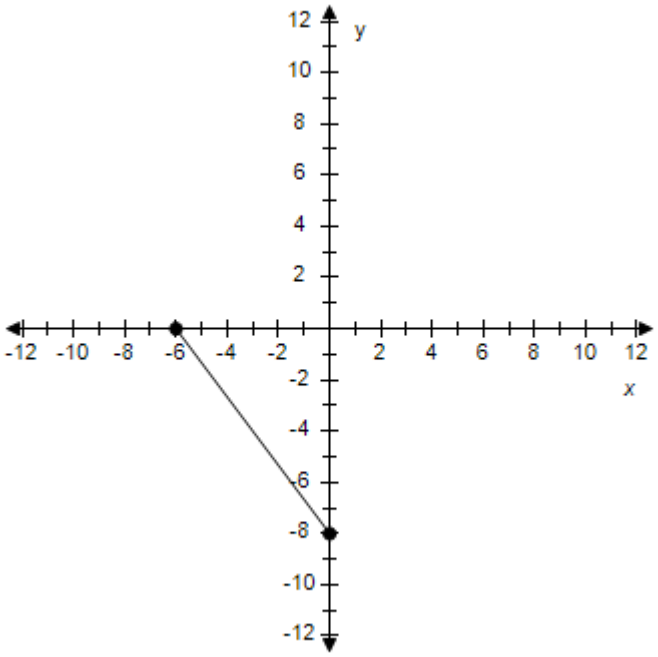
e.



$m = -\frac{4}{3}$

ANSWER:	e
POINTS:	1
REFERENCES:	2.1.36
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	10/7/2020 7:47 AM

16. Find the slope of the line passing through the pair of points.

(4.1, 3.1), (–3.8, 3.1)

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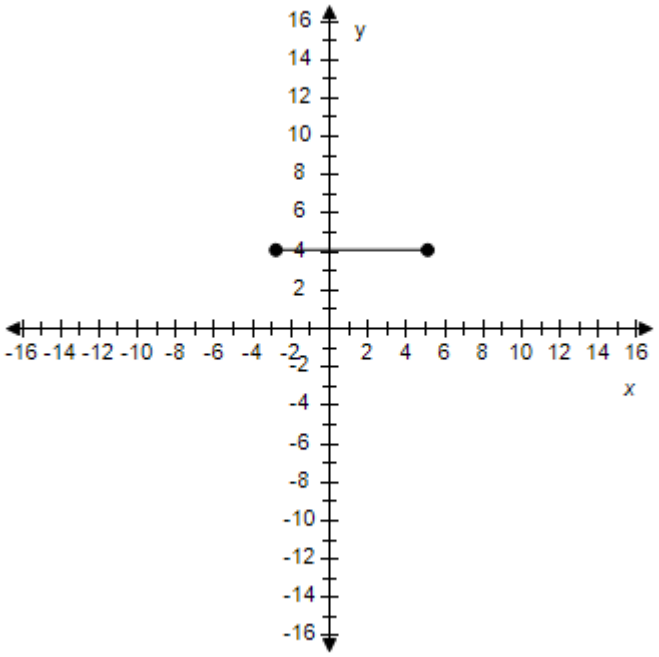
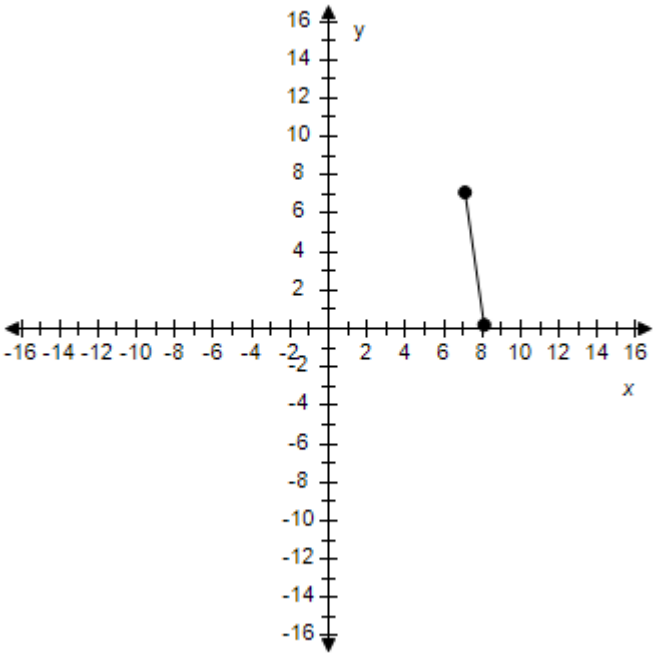
a.



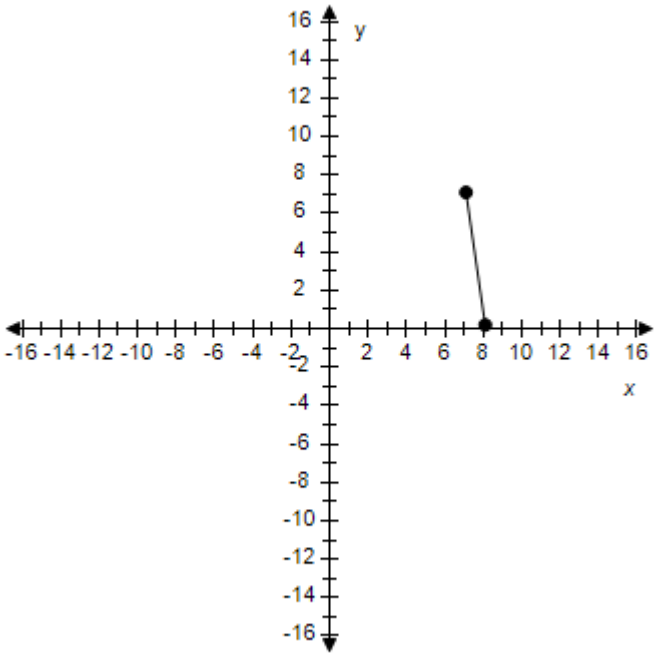
$m = 0.40$

b.



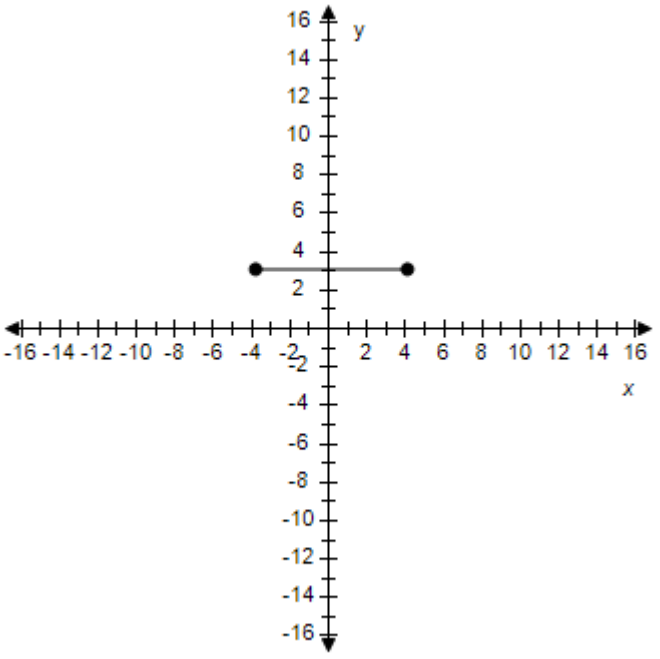
$m =$ –Infinity

c.



$m = 0.80$

d.



$m = 0.00$

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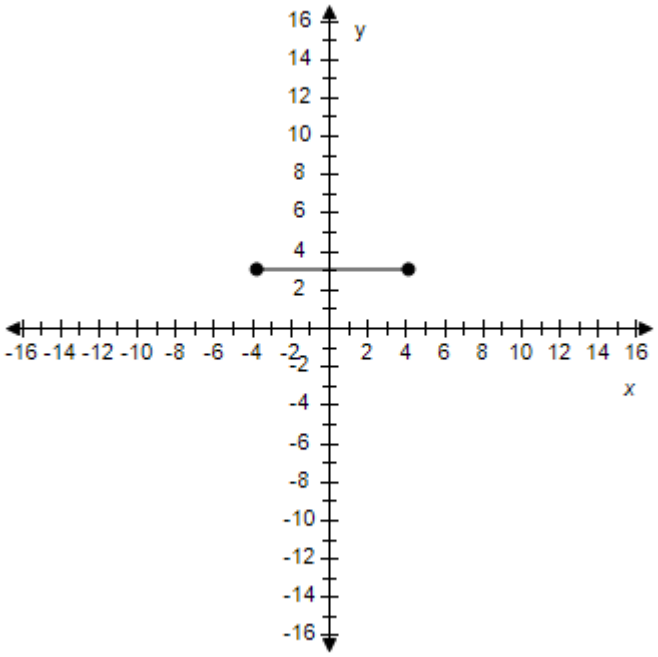
e.



$m = 20.67$

ANSWER:	d
POINTS:	1
REFERENCES:	2.1.39
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	10/7/2020 7:44 AM

17. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope m. Select the correct answer for the line.

P(0, –6), $m = 9$

a. $y = -9x + 9$

b. $y = -6x - 6$

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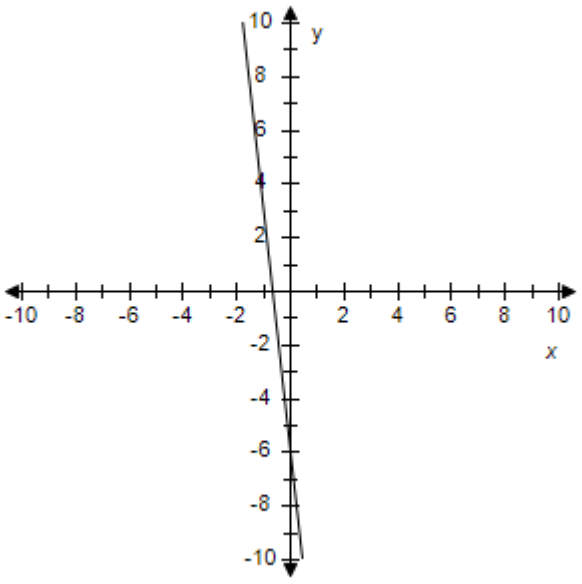
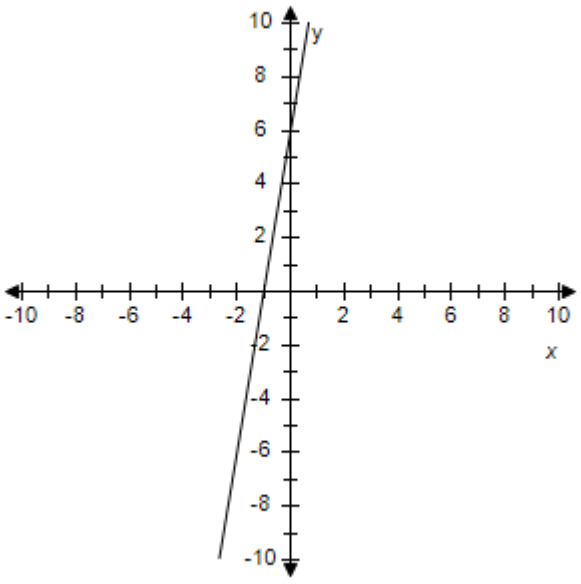
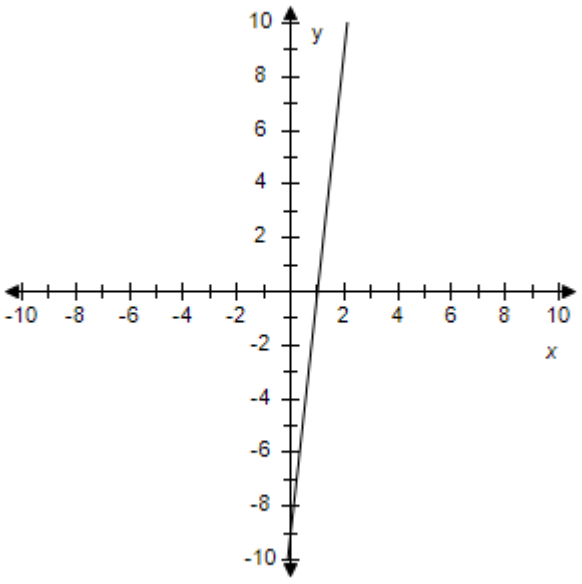


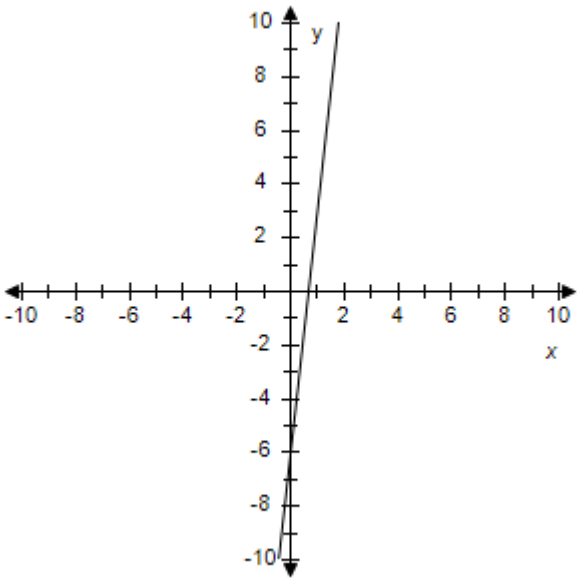
c. $y = 9x - 9$



d. $y = 9x - 6$



e. $y = 9x + 9$



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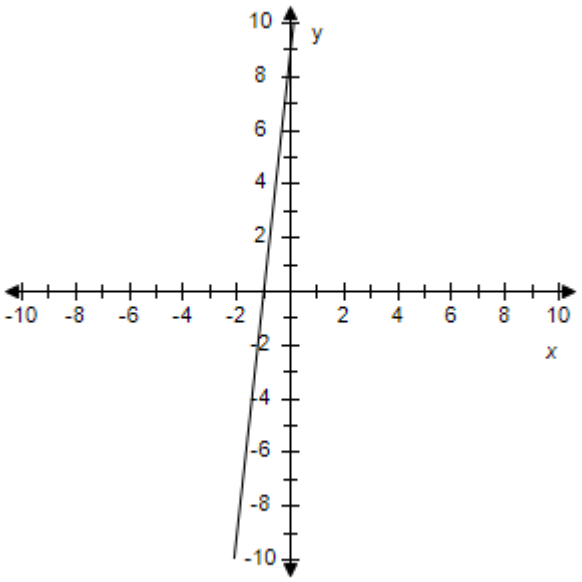

ANSWER: d
POINTS: 1
REFERENCES: 2.1.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:41 AM

18. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope m. Select the correct answer for the line.

$P(-7, 6), m = -3$

a. $y = 6x + 6$

b. $y = 6x - 6$

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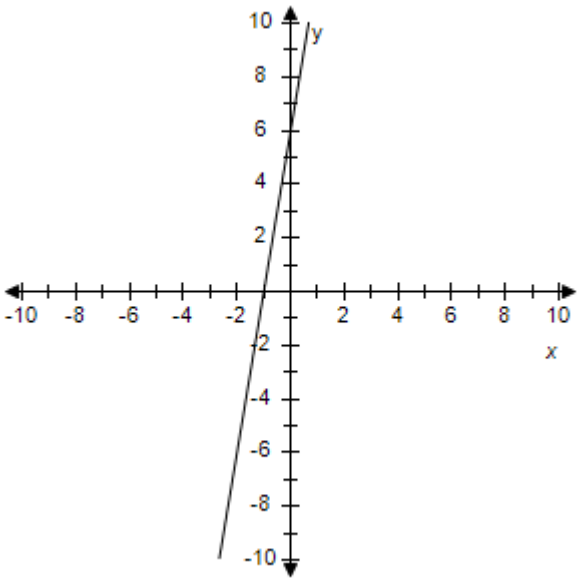
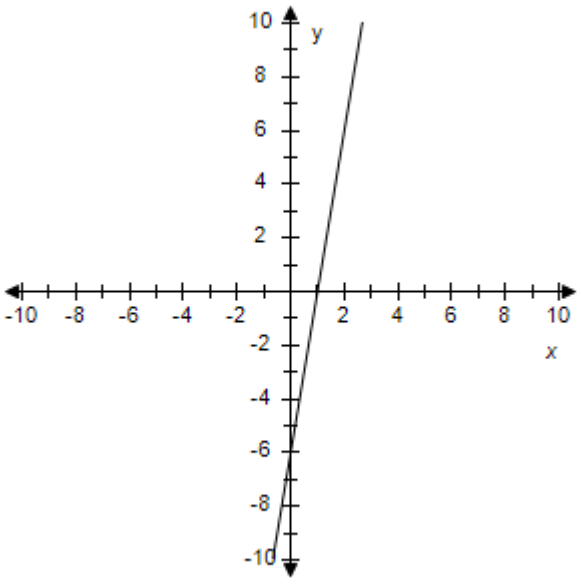
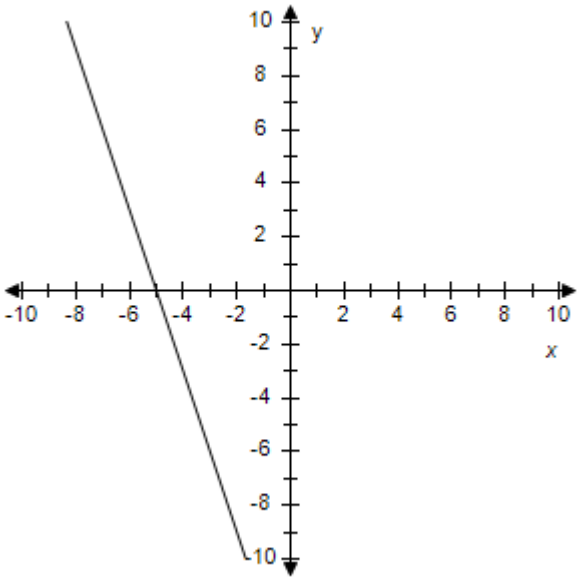
Section 1.3 - Linear Equations in Two Variables



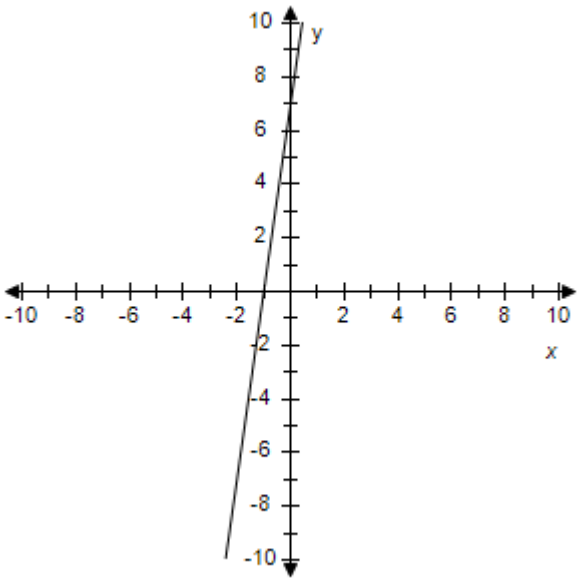
c. $y = -3x - 15$



d. $y = -7x - 7$



e. $y = 6x + 6$



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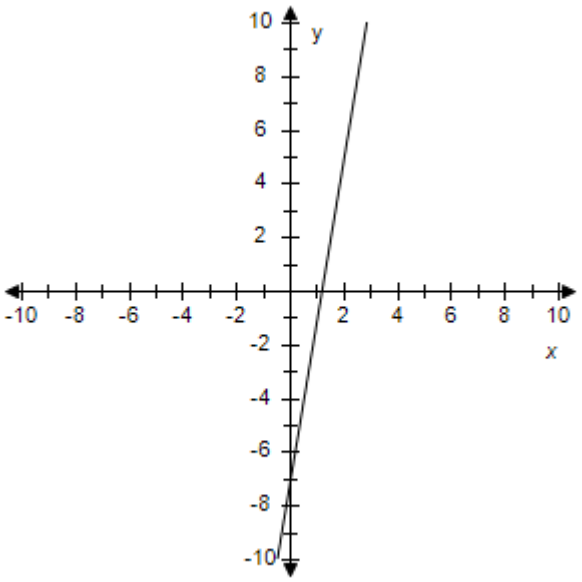

ANSWER: c
POINTS: 1
REFERENCES: 2.1.53
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:44 AM

19. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope m. Select the correct answer for the line.

$P(0, 0), m = 2$

a. $y = 2x - 2$

b. $y = 2x + 2$

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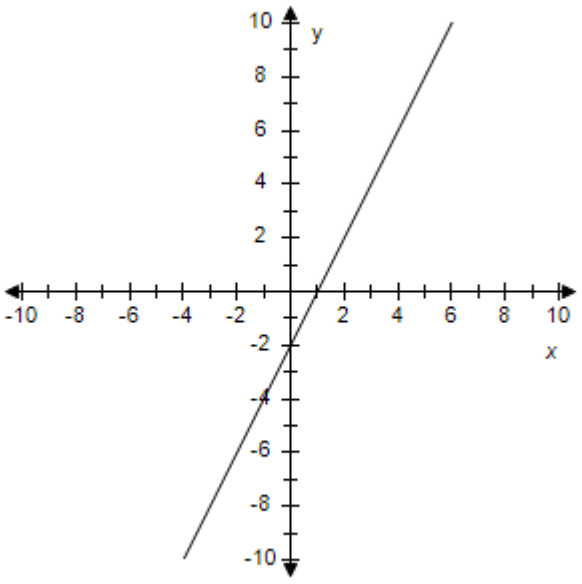
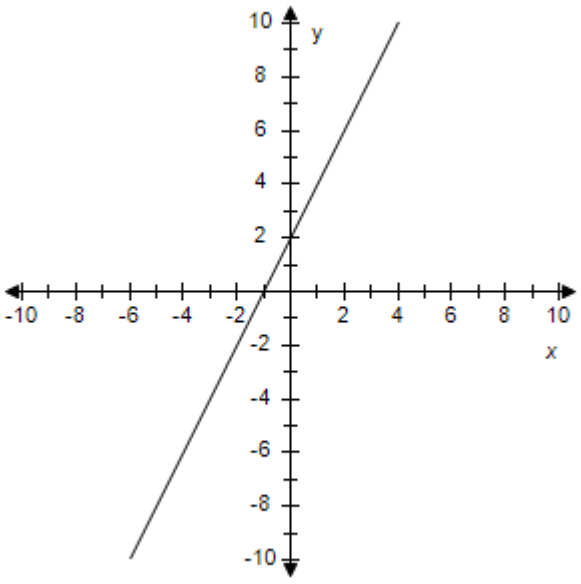
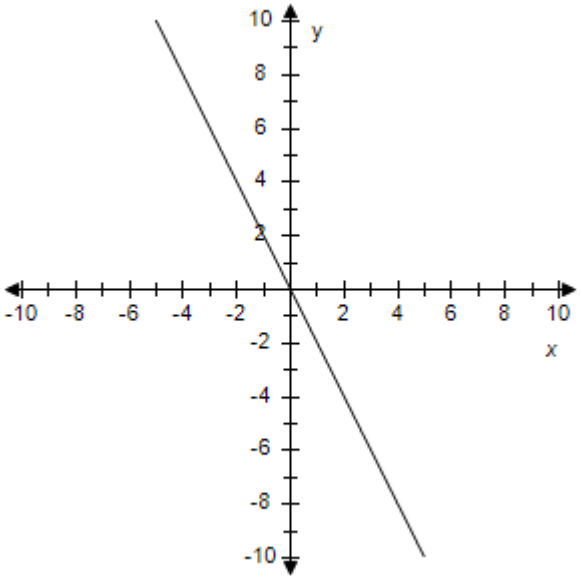


c. $y = -2x$



d. $y = -2x - 2$



e. $y = 2x$

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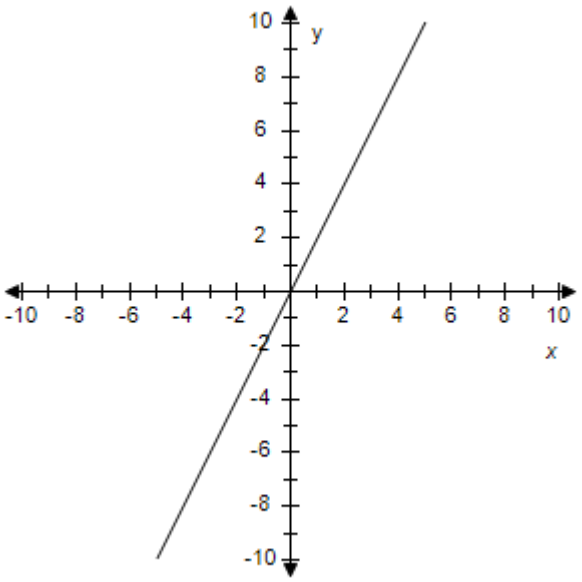

ANSWER:	e
POINTS:	1
REFERENCES:	2.1.54
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	5/20/2021 6:45 AM

20. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope *m*. Select the correct answer for the line.

P(3, –7), *m* is undefined.

a. $x = 3y - 7$

b. $y = 3$

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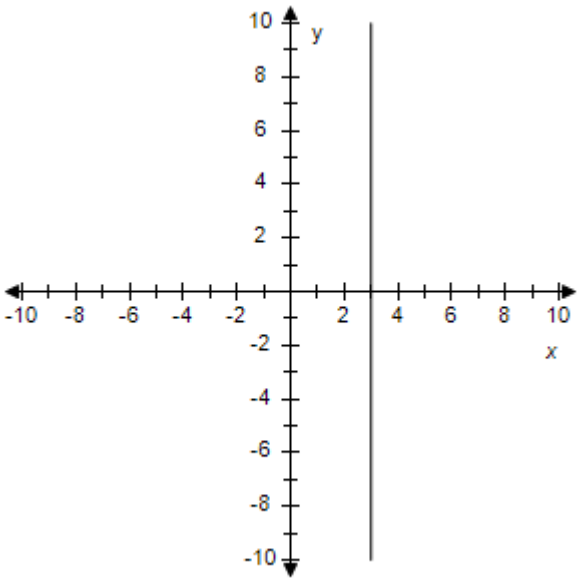
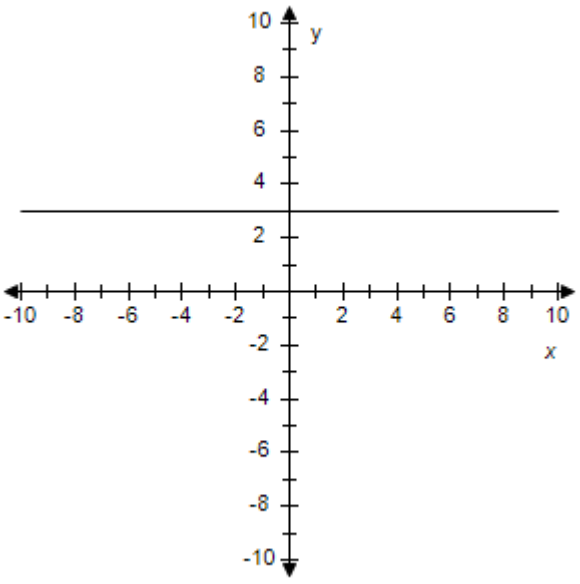
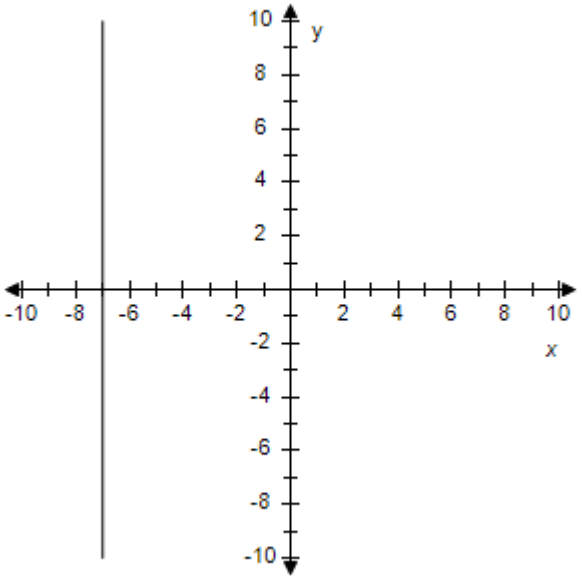


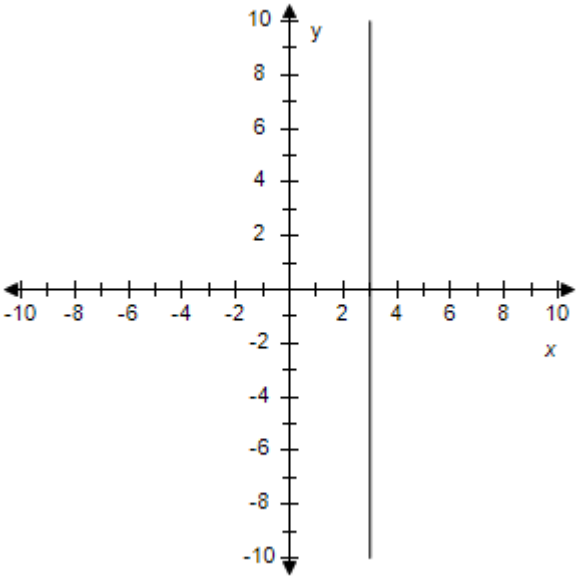
c. $x = -7$



d. $x = 3$



e. $y = 3x - 7$



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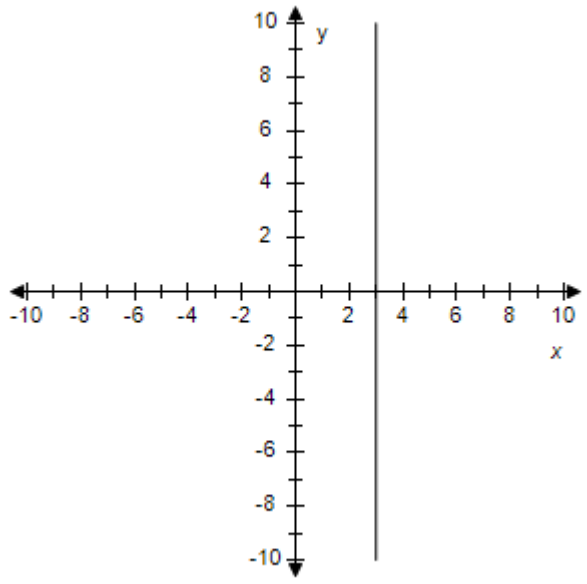

ANSWER:	d
POINTS:	1
REFERENCES:	2.1.59
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	5/16/2015 7:02 AM

21. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope m. Select the correct answer for the line.

$P(6, \frac{4}{7}), m = 0$

a. $y = 6$

b. $y = 6x + \frac{4}{7}$

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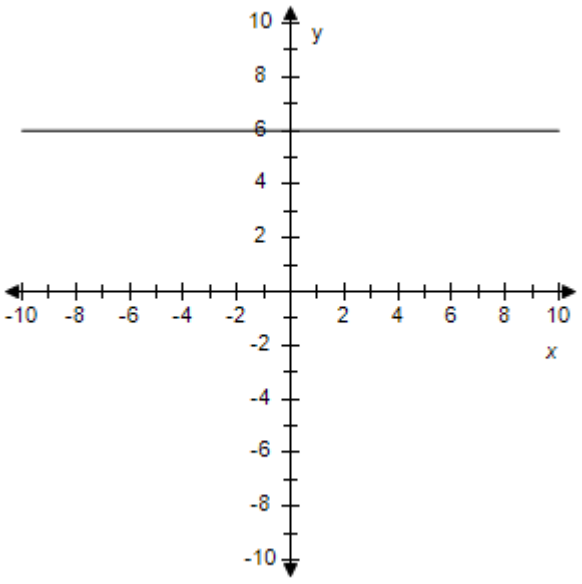
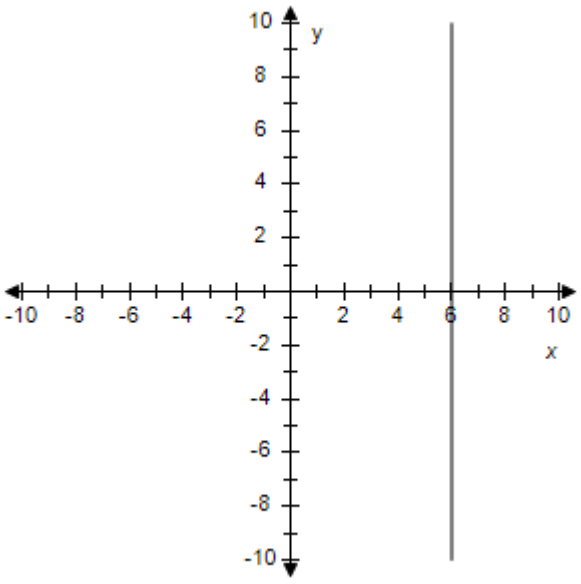
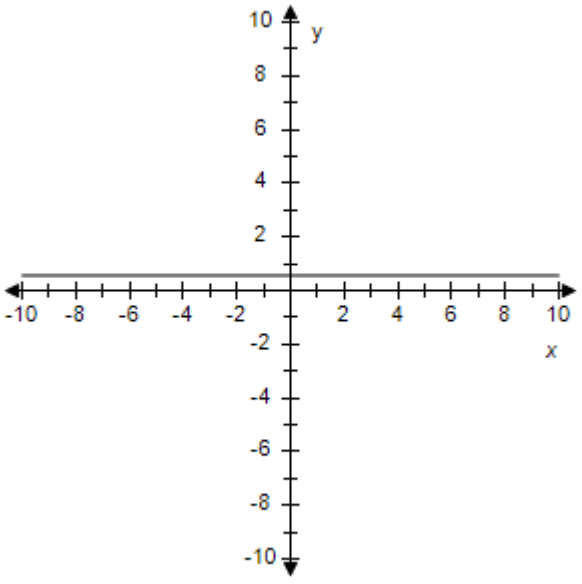
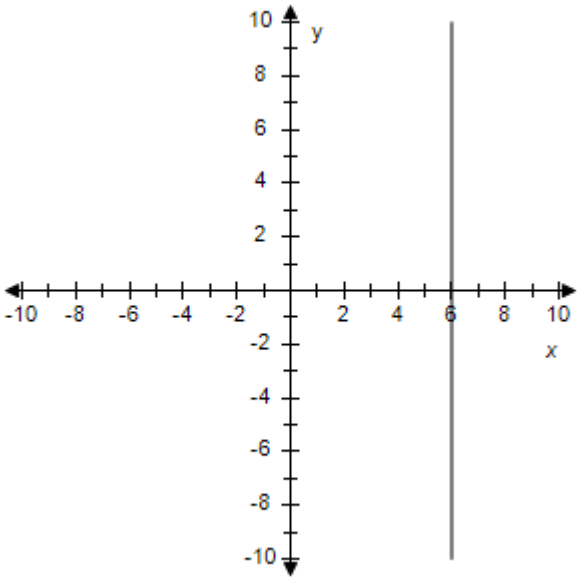




c. $y = \frac{4}{7}$

d. $x = 6y + \frac{4}{7}$





e. $x = 6$

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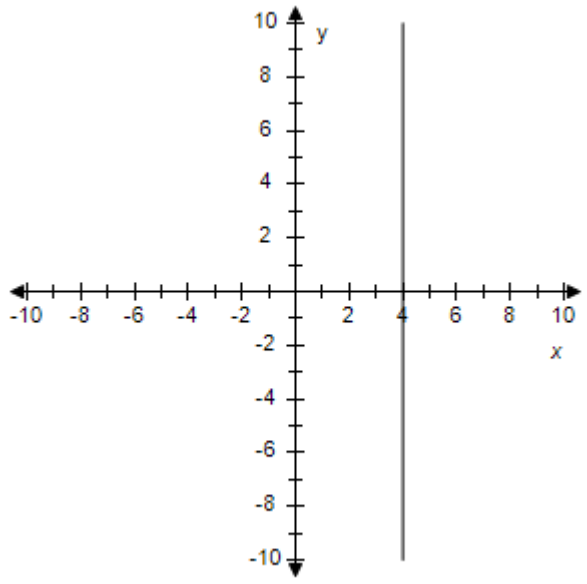

ANSWER: c
POINTS: 1
REFERENCES: 2.1.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 6:52 AM

22. Find the slope-intercept form of the equation of the line that passes through the given point and has the indicated slope m. Select the correct answer for the line.

P(2.4, –8.7), $m = -4$

a. $x = 2.4y + 0.9$

b. $x = 2.4$

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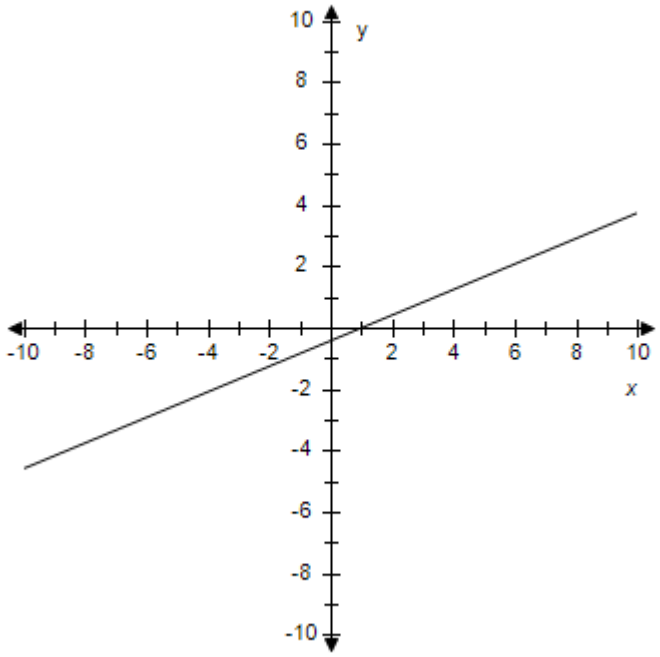
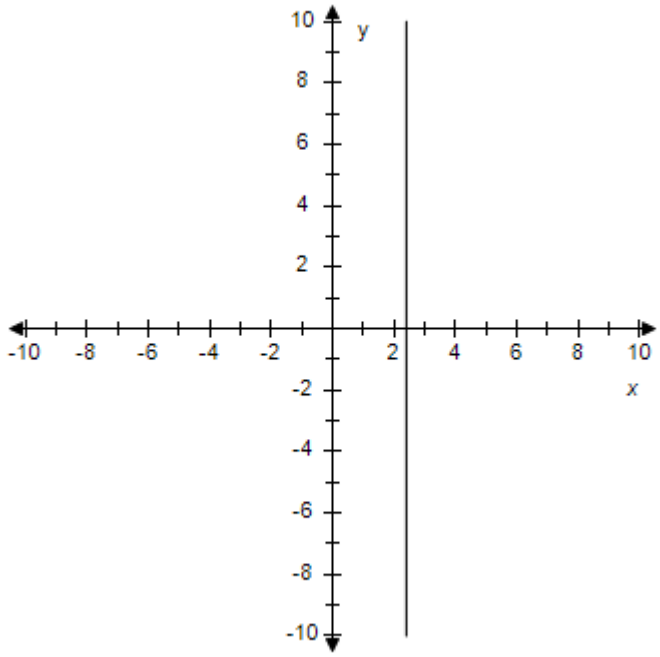
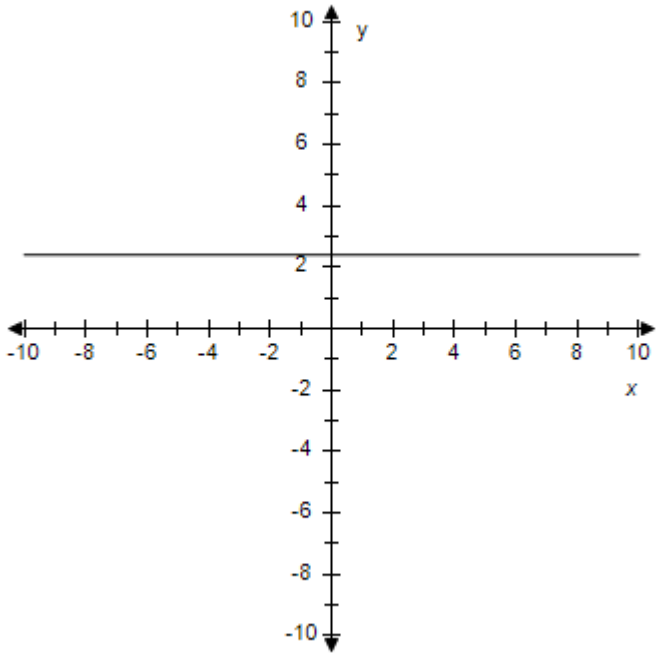
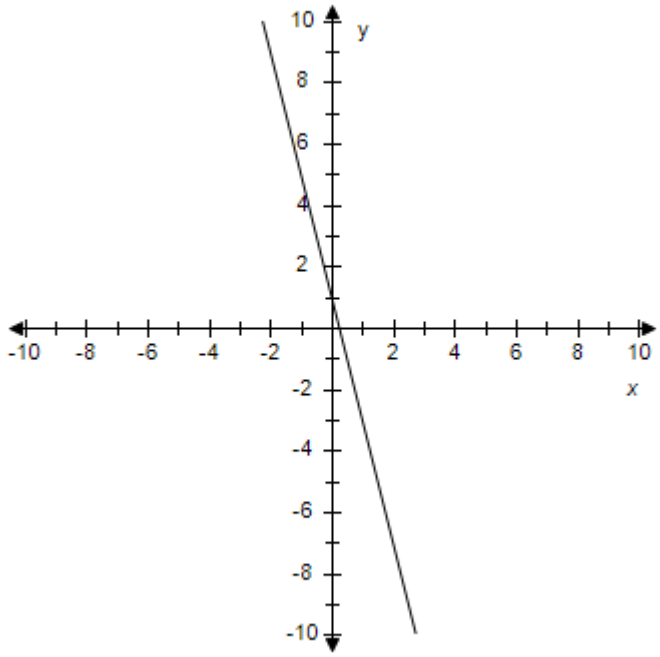




c. $y = 2.4$

d. $y = -4x + 0.9$





e. $y = 2.4x + 0.9$

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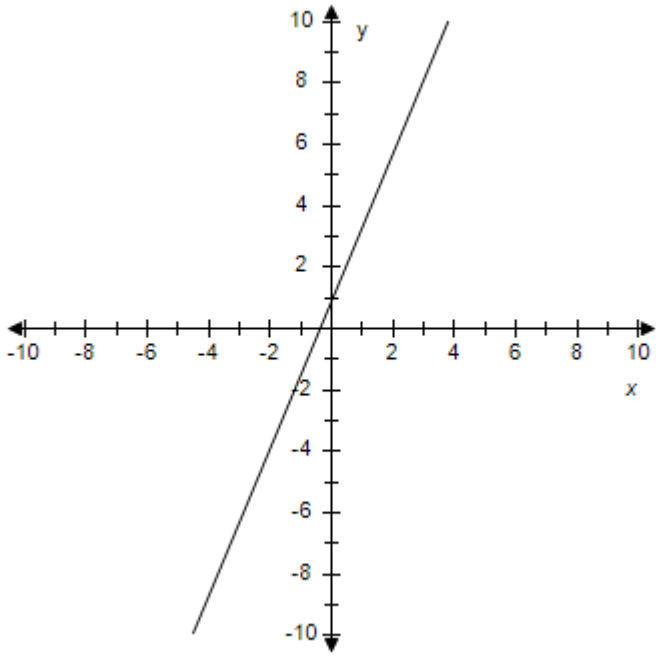

ANSWER:	d
POINTS:	1
REFERENCES:	2.1.64
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	5/20/2021 6:58 AM

23. Find the slope-intercept form of the equation of the line passing through the points. Select the correct answer for the line.

$P(6, -2), Q(-6, 6)$

a. $y = -\frac{2}{3}x - 2$

b. $y = -\frac{3}{2}x - 6$

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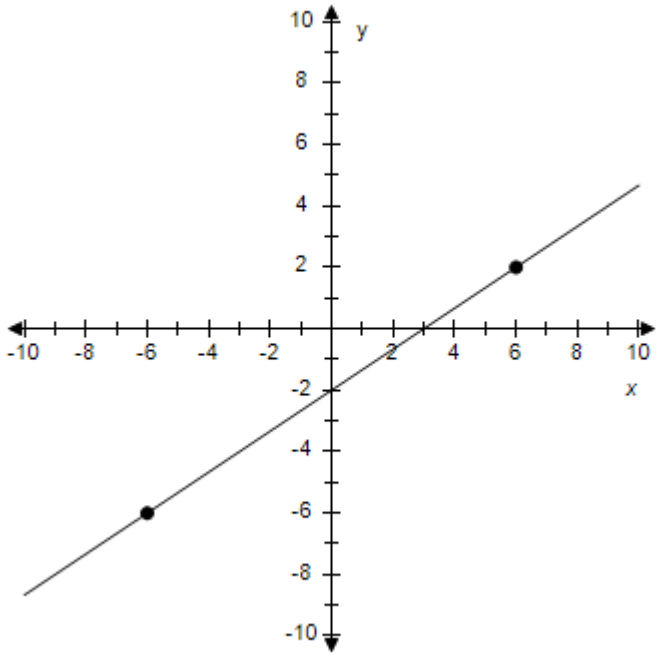
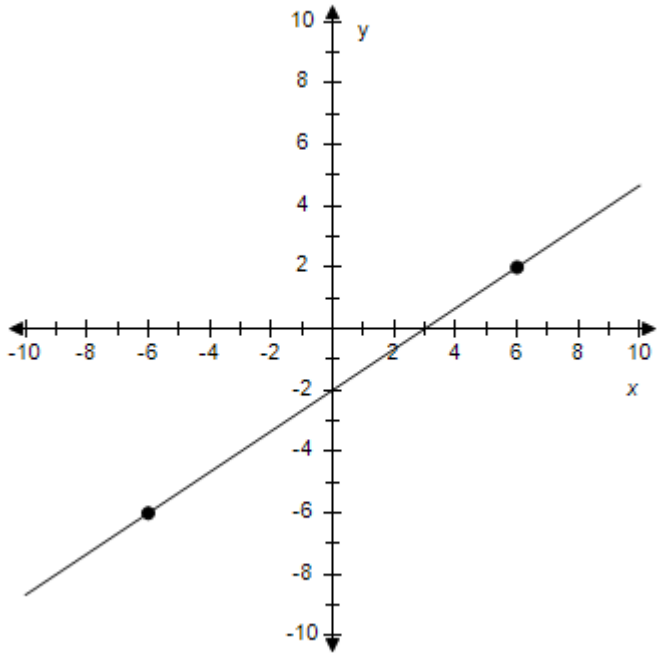
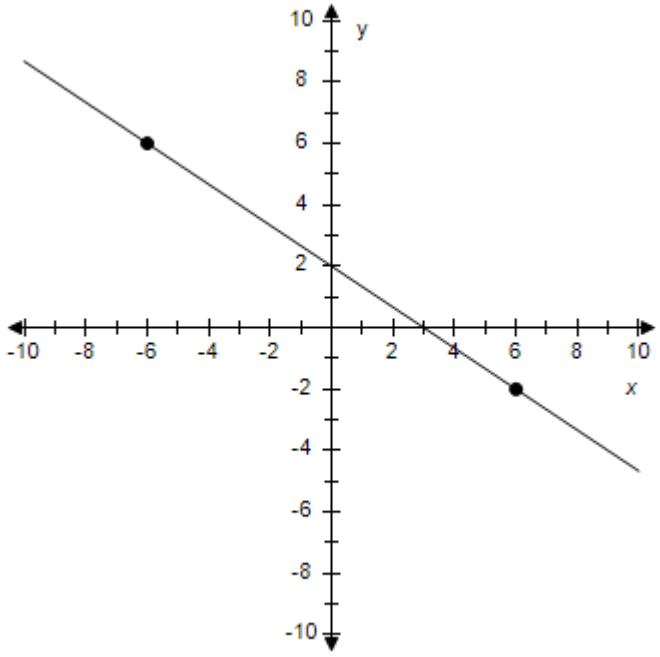


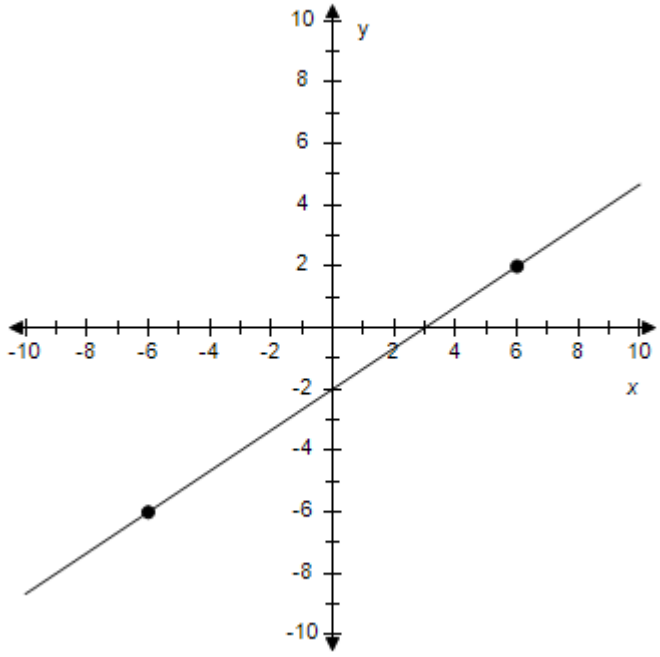
c. $y = -\frac{2}{3}x + 2$



d. $y = -\frac{2}{3}x - 4$



e. $y = -\frac{2}{3}x + 6$



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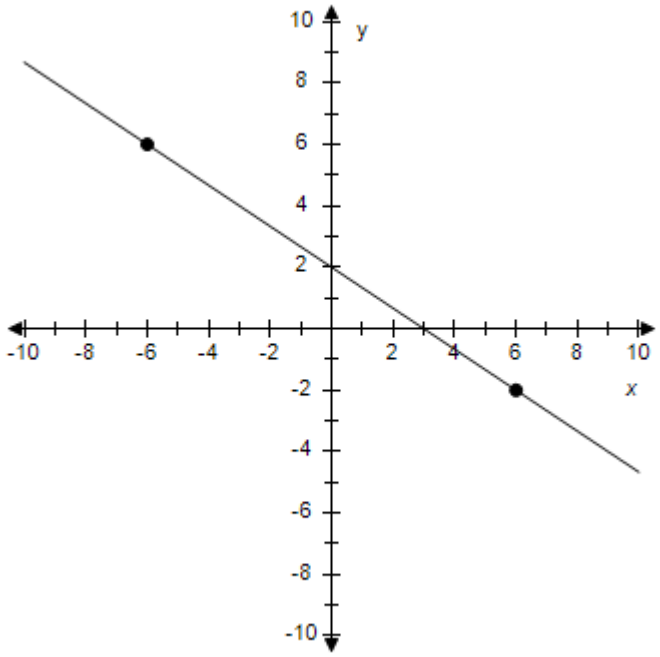

ANSWER: c
POINTS: 1
REFERENCES: 2.1.65
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:11 AM

24. Find the slope-intercept form of the equation of the line passing through the points. Select the correct answer for the line.

$P(6, 2), Q(-6, -6)$

a. $y = \frac{2}{3}x + 2$

b. $y = \frac{2}{3}x - 6$

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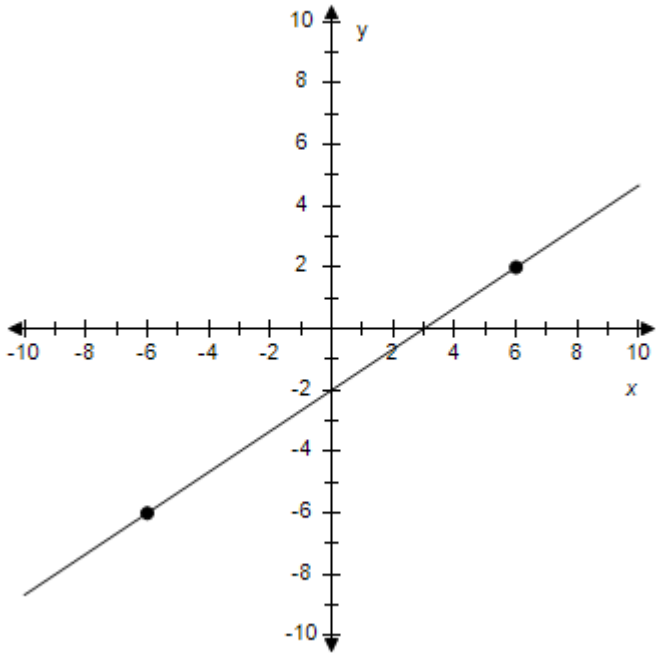
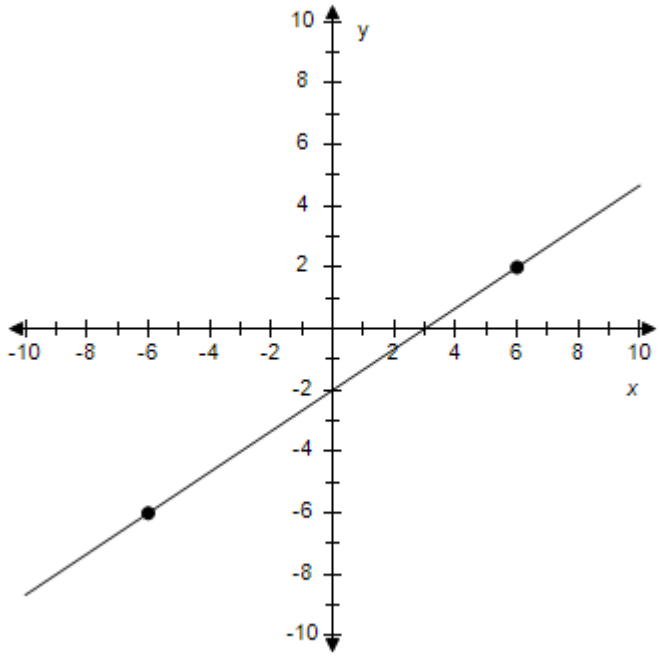
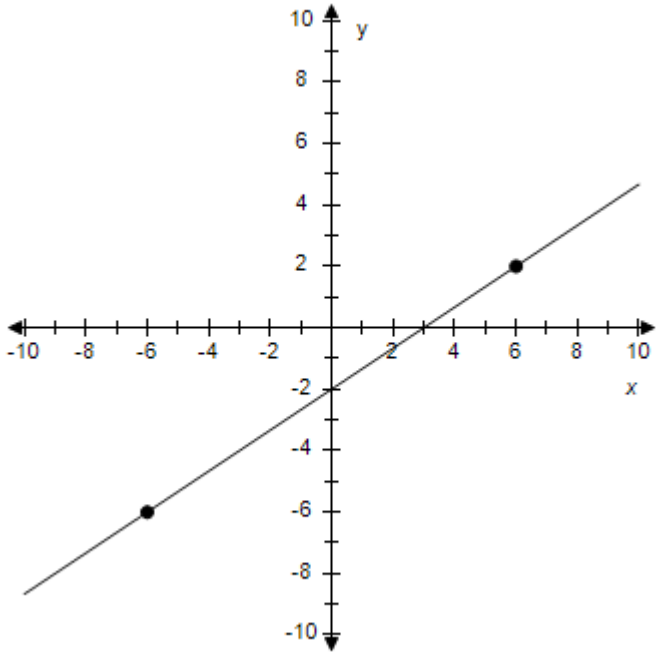


c. $y = \frac{3}{2}x - 2$



d. $y = \frac{2}{3}x - 2$



e. $y = -\frac{2}{3}x - 2$

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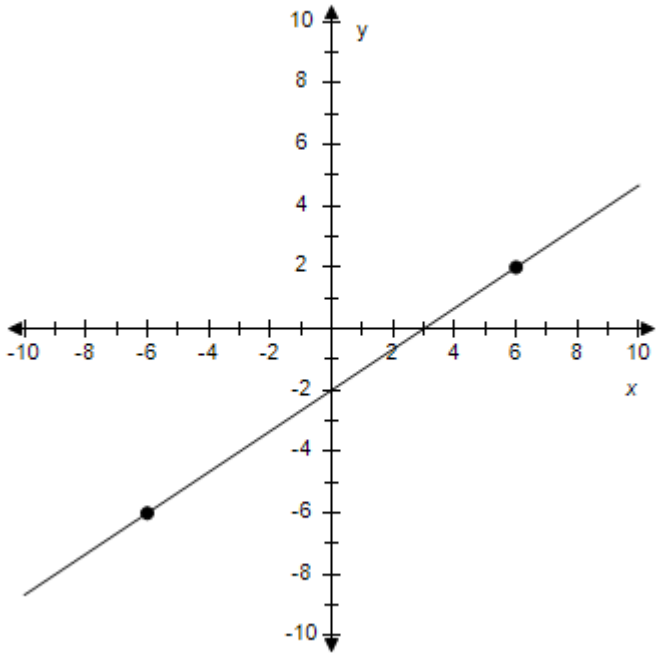

ANSWER: d
POINTS: 1
REFERENCES: 2.1.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 5/20/2021 7:12 AM

25. Determine whether the lines are parallel, perpendicular, or neither.

L1: $y = \frac{1}{3}x - 7$

L2: $y = \frac{1}{3}x - 3$

a. Perpendicular
b. Parallel
c. Neither

ANSWER: b
POINTS: 1
REFERENCES: 2.1.79
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Determine whether the lines are parallel, perpendicular, or neither.

L1: $y = \frac{1}{2}x - 4$

L2: $y = -\frac{1}{2}x - 2$

a. Parallel
b. Perpendicular
c. Neither

ANSWER: c
POINTS: 1
REFERENCES: 2.1.81
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:01 AM

27. Determine whether the lines are parallel, perpendicular, or neither.

L1: $y = \frac{9}{2}x - 9$

L2: $y = -\frac{2}{9}x - 2$

a. Perpendicular
b. Neither
c. Parallel

ANSWER: a
POINTS: 1
REFERENCES: 2.1.82
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:08 AM

28. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

x-intercept: (3, 0)
y-intercept: (0, 9)

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a. $3x + 9y - 27 = 0$
b. $9x + 3y - 27 = 0$
c. $3x + 9y + 27 = 0$
d. $9x + 3y + 27 = 0$
e. $9x - 3y - 27 = 0$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.97
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 11/11/2014 8:03 AM

29. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

x-intercept: $(-3, 0)$
y-intercept: $(0, 8)$

a. $-3x + 8y + 24 = 0$
b. $8x + 3y + 24 = 0$
c. $8x - 3y + 24 = 0$
d. $8x - 3y - 24 = 0$
e. $-3x + 8y - 24 = 0$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.98
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 11/11/2014 8:15 AM

30. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

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x-intercept: $\left(-\frac{1}{6}, 0\right)$

y-intercept: $\left(0, -\frac{2}{7}\right)$

a. $12x - 7y + 2 = 0$
b. $-12x + 7y + 2 = 0$
c. $12x + 7y + 2 = 0$
d. $-7x - 12y - 2 = 0$
e. $12x + 7y - 2 = 0$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.99
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:17 AM

31. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

x-intercept: $(-\frac{2}{7}, 0)$
y-intercept: $(0, -3)$

a. $-21x - 7y - 2 = 0$
b. $21x + 7y - 2 = 0$
c. $-21x + 7y + 2 = 0$
d. $21x + 2y + 6 = 0$
e. $21x - 7y + 2 = 0$

ANSWER: d
POINTS: 1
REFERENCES: 2.1.100
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

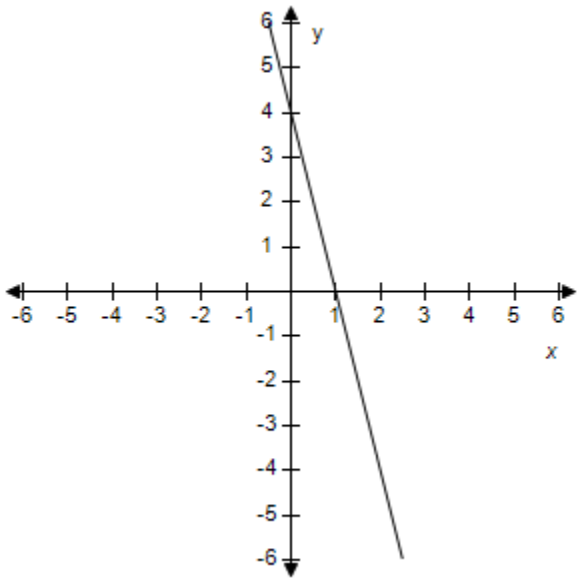
$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

Point on line: (1, 6)
x-intercept: $(c, 0)$
y-intercept: $(0, c)$, $c \neq 0$

a. $x + y + 7 = 0$
b. $x + y - 7 = 0$
c. $-x + y - 7 = 0$
d. $-x - y + 6 = 0$
e. $x + y + 6 = 0$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.101
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 8:07 AM

33. Estimate the slope of the line.



a. –2
b. –3

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c. –4
d. –1
e. Undefined

ANSWER: c
POINTS: 1
REFERENCES: 2.1.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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34. The following is the slope of the line representing annual sales y in terms of time x in years. Use the slope to interpret any change in annual sales for a one-year increase in time.

The line has a slope of $m = 134$.

a. No change in sales
b. Sales decreasing by 134 units/yr
c. Sales increasing by 134 units/yr
d. None of the above

ANSWER: c
POINTS: 1
REFERENCES: 2.1.111a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 8:18 AM

35. The following is the slope of the line representing annual sales y in terms of time x in years. Use the slope to interpret any change in annual sales for a one-year increase in time.

The line has a slope of $m = -20$.

a. Sales increasing by 20 units/yr
b. Sales decreasing by 20 units/yr
c. No change in sales
d. None of the above

ANSWER: b
POINTS: 1
REFERENCES: 2.1.111c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.3 - Linear Equations in Two Variables

DATE CREATED: 6/10/2014 4:17 PM
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36. The following is the slope of the line representing daily revenues y in terms of time x in days. Use the slope to interpret any change in daily revenues for a one-day increase in time.

The line has a slope of $m = 500$.

a. Revenues increasing by 500 units/day
b. No change in revenues
c. Revenues decreasing by 500 units/day
d. None of the above

ANSWER: a
POINTS: 1
REFERENCES: 2.1.112a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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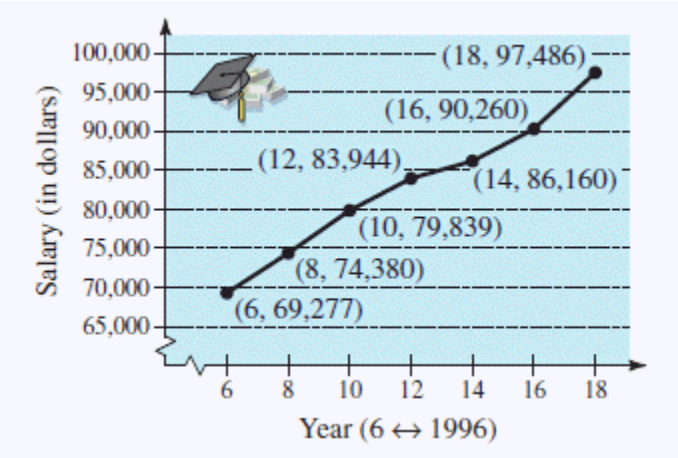
37. The graph shows the average salaries for senior high school principals from 1996 through 2008.



Find the slope of the line segment connecting the points for the years 1998 and 2002. Round the answer to two decimal places.

a. –2394
b. 2391
c. –2391
d. 2396
e. 2392

ANSWER: b
POINTS: 1

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Section 1.3 - Linear Equations in Two Variables

REFERENCES: 2.1.113b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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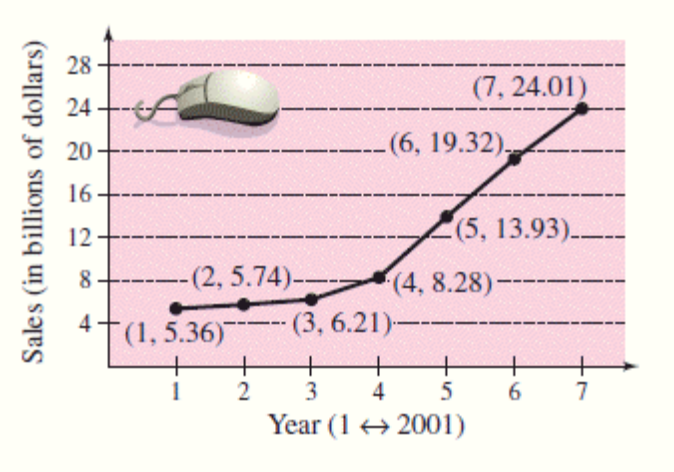
DATE MODIFIED: 5/20/2021 8:25 AM

38. The graph shows the sales (in billions of dollars) for Apple Inc. for the years 2001 through 2007.



Find the slope of the line segment connecting the points for the years 2003 and 2004. Round the answer to two decimal places.

a. –5.07
b. 2.07
c. 7.07
d. 3.07
e. –2.07

ANSWER: b
POINTS: 1
REFERENCES: 2.1.114b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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39. You are driving on a road that has a 5% uphill grade. This means that the slope of the road is $\frac{5}{100}$.

Approximate the amount of vertical change in your position if you drive 400 feet.

a. 18 ft
b. 21 ft
c. 22 ft

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d. 19 ft

e. 20 ft

ANSWER: e
POINTS: 1
REFERENCES: 2.1.115
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:21 AM

40. A sub shop purchases a used pizza oven for $885. After 5 years, the oven will have to be replaced. Select the linear equation giving the value V of the equipment during the 5 years it will be in use.

a. $V = -177 + 885t$
b. $V = -177t - 885$
c. $V = 177t - 885$
d. $V = 177t + 885$
e. $V = -177t + 885$

ANSWER: e
POINTS: 1
REFERENCES: 2.1.121
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:22 AM

41. A school district purchases a high-volume printer, copier, and scanner for $20,000.
After 10 years, the equipment will have to be replaced. Its value at that time is expected to be $2,600. Select a linear equation giving the value of the equipment during the 10 years it will be in use.

a. $V = 1740t - 20{,}000$
b. $V = -1740t - 20{,}000$
c. $V = 1740t + 20{,}000$
d. $V = -1740t + 20{,}000$
e. $V = -1740 + 20{,}000t$

ANSWER: d
POINTS: 1
REFERENCES: 2.1.122
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.3 - Linear Equations in Two Variables

STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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42. A discount outlet is offering a 70% discount on all items. Select a linear equation giving the sale price S for an item with a list price L.

a. $L = 0.3S$
b. $L = 0.7S$
c. $S = 0.7L$
d. $S = 70L$
e. $S = 0.3L$

ANSWER: e
POINTS: 1
REFERENCES: 2.1.123
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 11/12/2014 12:12 AM

43. A microchip manufacturer pays its assembly line workers $12.25 per hour. In addition, workers receive a piecework rate of $0.3 per unit produced. Select a linear equation for the hourly wage W in terms of the number of units x produced per hour.

a. $W = 0.3x + 12.25$
b. $W = 0.3x - 12.25$
c. $W = 12.25x + 0.3$
d. $W = 12.25x - 0.3$
e. $W = 12.55x$

ANSWER: a
POINTS: 1
REFERENCES: 2.1.124
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:23 AM

44. A pharmaceutical salesperson receives a monthly salary of $2600 plus a commission of 2% of sales. Select a linear equation for the sales-person's monthly wage W in terms of monthly sales S.

a. $W = -0.02S + 2600$
b. $W = -0.02S - 2600$

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c. $W = 0.02S + 2600$
d. $S = 0.02W - 2600$
e. $S = 0.02W + 2600$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.125
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 8:33 AM

45. A sales representative of a company using a personal car receives $160 per day for lodging and meals plus $0.53 per mile driven. Select a linear equation giving the daily cost C to the company in terms of x, the number of miles driven.

a. $C = 0.53 + 160x$
b. $C = 0.53x + 160$
c. $C = -0.53x - 160$
d. $C = 0.53x - 160$
e. $C = -0.53x + 160$

ANSWER: b
POINTS: 1
REFERENCES: 2.1.126
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 1:39 AM

46. A real estate office handles an apartment complex with 60 units. When the rent per unit is $98 per month, all 60 units are occupied. However, when the rent is $630 per month, the average number of occupied units drops to 46. Assume that the relationship between the monthly rent p and the demand x is linear.
Select the equation of the line giving the demand x in terms of the rent p.

a. $x = 532p + 62.58$
b. $x = -38p - 62.58$
c. $x = -\frac{1}{38}p + 62.58$
d. $x = -38p + 62.58$
e. $x = 14p + 62.58$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.132a

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Section 1.3 - Linear Equations in Two Variables

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 11/12/2014 12:55 AM

47. The length and width of a rectangular garden are 16 meters and 11 meters, respectively. A walkway of width x surrounds the garden.
Write the equation for the perimeter y of the walkway in terms of x.

a. $y = 8x + 54$
b. $y = 8x - 54$
c. $y = 8x + 27$
d. $y = 4x + 54$
e. $y = 4x + 27$

ANSWER: a
POINTS: 1
REFERENCES: 2.1.133b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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48. Determine whether the statement is true or false. Justify your answer.

A line with a slope of $-\frac{5}{7}$ is steeper than a line with a slope of $-\frac{6}{7}$.

a. True. The slope with the smallest magnitude corresponds to the steepest line.
b. False. The slope with the greatest magnitude corresponds to the steepest line.

ANSWER: b
POINTS: 1
REFERENCES: 2.1.137
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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49. Write the slope-intercept form of the equation of the line through the given point perpendicular to the given line.

point: (–4, 9) line: $6x - 30y = 6$

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Section 1.3 - Linear Equations in Two Variables

a. $y = -\frac{1}{6}x + \frac{1}{3}$

b. $y = -5x - \frac{4}{5}$

c. $y = -5x - 11$

d. $y = 6x - 15$

e. $y = \frac{1}{5}x + \frac{4}{5}$

ANSWER: c
POINTS: 1
REFERENCES: 2.1.87
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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50. Luigi's Pizza Parlor purchases a mixer for $835. The machine has a useful life of 5 years after which time another one will have to be purchased. Assume depreciation of the machine is linear. Write a linear equation giving the value V of the mixer during the 5 years it will be in use.

a. $V = -\frac{1}{167}t - 835$

b. $V = 167t - 835$

c. $V = -\frac{1}{167}t + 5$

d. $V = \frac{1}{167}t + 5$

e. $V = -167t + 835$

ANSWER: e
POINTS: 1
REFERENCES: 2.1.121
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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51. Find the slope of the line passing through the pair of points.

P(–4, 3); Q(2, –9).

a. $m = 1$

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b. $m = -7$
c. $m = 4$
d. $m = -2$
e. $m = -1$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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52. Find the slope of the line passing through the pair of points.

P(5, 4); Q(9, 20).

a. $m = 5$
b. $m = 4$
c. $m = 2$
d. $m = 3$
e. $m = 6$

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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53. Find the slope of the line passing through the pair of points.

P (–9, 14); Q (–18, –2)

a. $m = \frac{16}{9}$
b. $m = -\frac{9}{16}$
c. $m = -\frac{16}{9}$
d. $m = \frac{9}{16}$
e. none of these

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.3 - Linear Equations in Two Variables

STUDENT ENTRY MODE: Basic
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54. Find the slope of the line passing through the pair of points.

$P(19, \sqrt{2}); Q(\sqrt{2}, 19)$

a. $m = 19$
b. $m = 1$
c. $m = 2$
d. $m = -1$
e. none of these

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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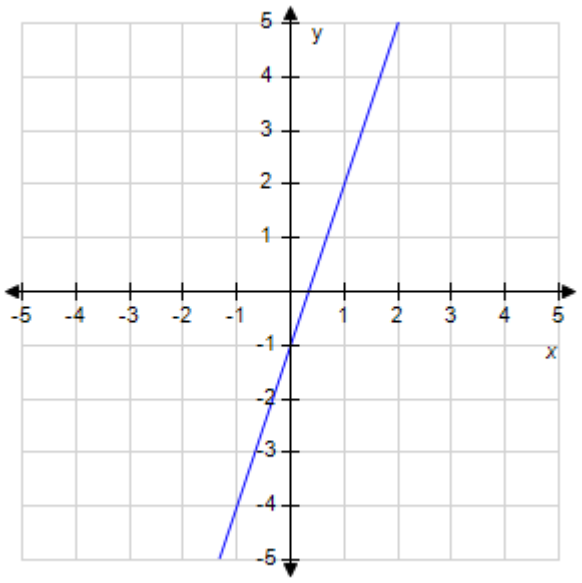
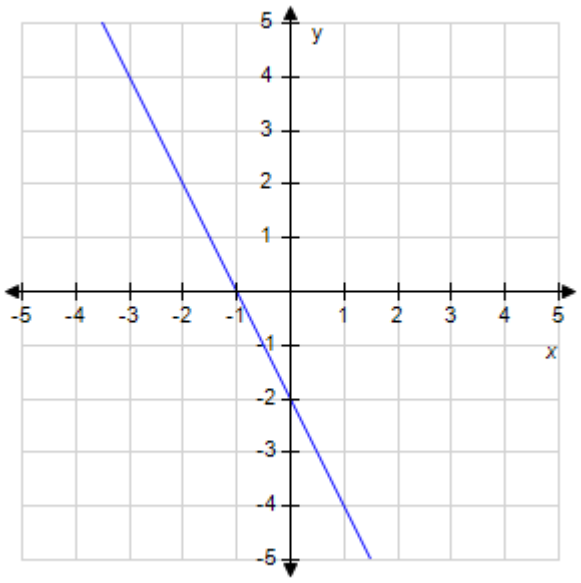
55. Draw the line using the slope and y-intercept.

$y + 1 = 2x$

a.



b.



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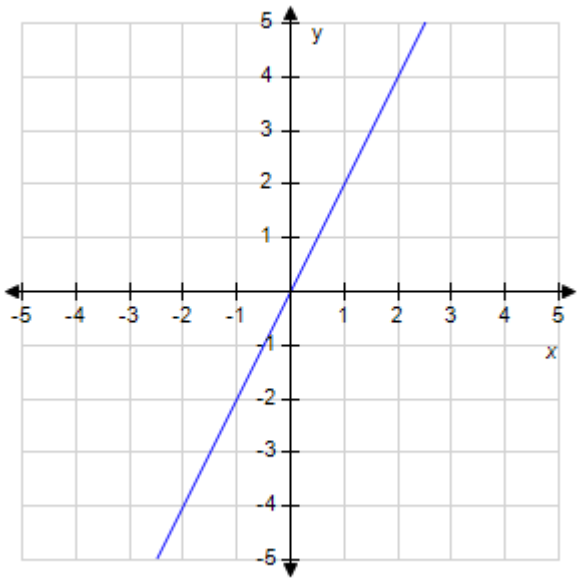
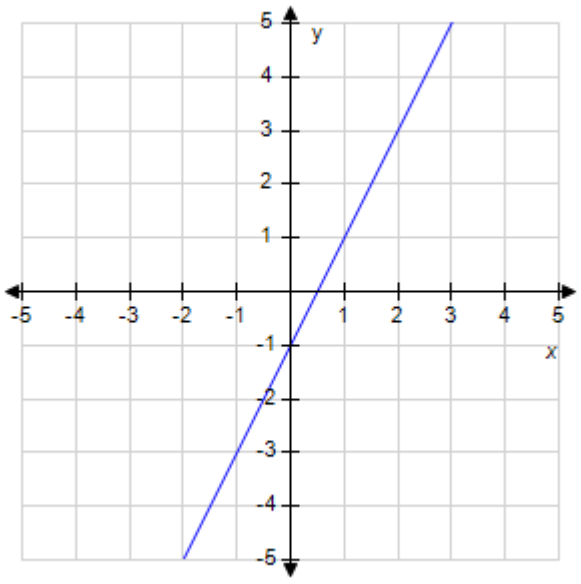
c.



d.



ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:38 AM

56. Find the slope of the line.

$y = 9x + 25$

a. $m = -9$
b. $m = 10$
c. $m = 13$
d. $m = 9$
e. $m = 6$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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57. Find the y-intercept of the line determined by the equation.

$-7x + 4y = 3$

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a. $\left(0, \frac{7}{4}\right)$

b. $\left(0, \frac{3}{4}\right)$

c. $\left(0, -\frac{3}{4}\right)$

d. $\left(-\frac{7}{4}, 0\right)$

e. $\left(0, -\frac{7}{4}\right)$

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 4:18 AM

58. Find the slope of the line determined by the equation.

$9x + 10y = 11$

a. $m = -9$

b. $m = 9$

c. $m = -\frac{9}{10}$

d. $m = \frac{11}{10}$

e. $m = -10$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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59. Write the equation of the line that passes through the point P(0, 0) and is parallel to the line $y = 8x - 7$.

a. $x = 8y$

b. $y = 7x + 8$

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c. $y = -7x$
d. $y = 8x$
e. $y = 7x$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:40 AM

60. Write the equation of the line that passes through the point P (0, 0) and is perpendicular to the line $y = -2x + 10$.

a. $y = \frac{1}{2}x$
b. $y = -\frac{1}{10}x$
c. $y = -10x$
d. $y = 2x$
e. $y = -\frac{1}{2}x + 10$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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61. Write the equation of the line that passes through the point P(4, 3) and is perpendicular to the line $y = -5x + 2$.

a. $y = \frac{1}{5}x + 2$
b. $y = \frac{1}{5}x + 3.8$
c. $y = \frac{1}{5}x + 2.2$
d. $y = 2.2x + \frac{1}{5}$
e. $y = x + 2.2$

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ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 7:56 AM

62. Find the slope of the line through $P(-8, -5)$ and $Q(2, 35)$.
ANSWER: 4
POINTS: 1
QUESTION TYPE: Numeric Response
HAS VARIABLES: True
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 4:32 AM

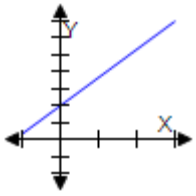
63. A line passes through the two points $P(3, 3)$ and $Q(-5, -5)$. Write the equation in slope-intercept form.
ANSWER: $y = x$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 9:31 AM

64. Write the equation of the line that passes through the point $P(0, 0)$, and is parallel to the line $y = 8x - 1$.

Write the answer in slope-intercept form.
ANSWER: $y = 8 \cdot x$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/20/2021 9:37 AM

Tell whether the slope of the line is positive, negative, 0, or undefined.
Choose the correct letter for each question.

a.



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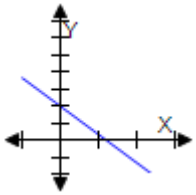
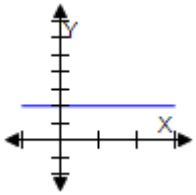
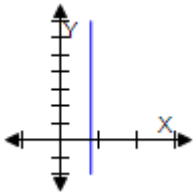
b.



c.



d.



QUESTION TYPE: Matching
HAS VARIABLES: True
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65. undefined slope
ANSWER: d
POINTS: 1

66. negative slope
ANSWER: b
POINTS: 1

67. zero slope
ANSWER: c
POINTS: 1

68. positive slope
ANSWER: a
POINTS: 1

Determine whether the line through the given points and the line through $R(8,7)$ and $S(5,14)$ are parallel, perpendicular, or neither.

Choose the correct letter for each question.
a. $P(16, 14)$; $Q(10, 28)$
b. $P(21, -24)$; $Q(42, -15)$
c. $P(14, 14)$; $Q(0, -10)$
QUESTION TYPE: Matching
HAS VARIABLES: False
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69. perpendicular
ANSWER: b
POINTS: 1

70. neither
ANSWER: c
POINTS: 1

71. parallel
ANSWER: a
POINTS: 1

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Section 1.4 - Functions

1. Which set of ordered pairs represents a function from A to B?

$A = \{3, 2, 4, 1\}$ and $B = \{-4, -5, 3, 2, 4\}$

a. $\{(3, -4), (2, -5), (4, -4), (3, -5)\}$
b. $\{(3, -4), (4, 4), (2, -5), (1, 3), (2, 2)\}$
c. $\{(3, 4), (1, 3), (2, 2)\}$
d. $\{(3, 2), (2, -4), (4, 3), (1, 4)\}$
e. $\{(3, -4), (2, 2), (1, 3)\}$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Which set of ordered pairs represents a function from A to B?

$A = \{a, b, c\}$ and $B = \{4, 3, 1, 2\}$

a. $\{(a, 4), (b, 3)\}$
b. $\{(a, 2), (c, 3), (b, 4)\}$
c. $\{(a, 4), (c, 1)\}$
d. $\{(a, 1), (c, 3), (c, 1), (b, 4)\}$
e. $\{(a, 4), (c, 3), (c, 1), (b, 1)\}$

ANSWER: b
POINTS: 1
REFERENCES: 2.2.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Which of the following equations represents y as a function of x?

a. $y^2 = 13 - x$
b. $y^3 = x + 13$
c. $y^2 = x + 13$
d. $x^2 + y = 13$
e. $x^2 + y^2 = 13$

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Section 1.4 - Functions

ANSWER: d
POINTS: 1
REFERENCES: 2.2.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Which of the following equations does not represent y as a function of x?

a. $y^2 = 1 - x$
b. $y = x^2 + 1$
c. $x^2 + y = 1$
d. $y = x^2 + x - 1$
e. $y = x^2 - 1$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. Evaluate $f(7)$ if $f(x) = 4x - 1$.

a. $f(7) = 27$
b. $f(7) = 26$
c. $f(7) = 29$
d. $f(7) = 25$
e. $f(7) = 28$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.37a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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6. Evaluate $f(-7)$ if $f(x) = 12x - 8$.

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a. $f(-7) = -89$
b. $f(-7) = -91$
c. $f(-7) = -88$
d. $f(-7) = -92$
e. $f(-7) = -90$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.37b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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7. Evaluate $g(s + 12)$ if $g(y) = 2 - 4y$.

a. $g(s + 12) = 46 + 4s$
b. $g(s + 12) = 46 - 4s$
c. $g(s + 12) = -46 + 4s$
d. $g(s + 12) = -46 - 4s$
e. $g(s + 12) = 2 - 4s$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.38c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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8. Evaluate $S(3)$ if $S(r) = 4\pi r^2$.

a. $S(3) = 40\pi$
b. $S(3) = 9\pi$
c. $S(3) = 38\pi$
d. $S(3) = 36\pi$
e. $S(3) = 37\pi$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.40a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.4 - Functions

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9. Evaluate $g(t) - g(13)$ if $g(t) = 9t^2 - 3t + 10$.

a. $g(t) - g(13) = 9t^2 - 1482 + 3t$
b. $g(t) - g(13) = 3t^2 - 1482t + 9$
c. $g(t) - g(13) = 9t^2 - 1482t - 3$
d. $g(t) - g(13) = 3t^2 + 9t - 1482$
e. $g(t) - g(13) = 9t^2 - 3t - 1482$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.41c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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10. Evaluate $f(16)$ if $f(x) = \sqrt{x + 9} + 1$.

a. $f(16) = 5$
b. $f(16) = 7$
c. $f(16) = 4$
d. $f(16) = 8$
e. $f(16) = 6$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/24/2014 6:00 AM
DATE MODIFIED: 9/24/2014 6:18 AM

11. Evaluate $f(11)$ if $f(x) = \dfrac{|x|}{x}$.

a. $f(11) = -1$
b. $f(11) = 2$
c. $f(11) = 0$
d. $f(11) = 1$
e. $f(11) = 3$

ANSWER: d

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POINTS: 1
REFERENCES: 2.2.47b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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12. Evaluate $q(4)$ if $q(x) = \dfrac{1}{(x^2 - 7)}$.

a. $q(4) = \dfrac{1}{13}$
b. $q(4) = \dfrac{1}{11}$
c. $q(4) = \dfrac{1}{9}$
d. $q(4) = \dfrac{1}{12}$
e. $q(4) = \dfrac{1}{10}$

ANSWER: c
POINTS: 1
REFERENCES: 2.2.45a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 9/24/2014 6:37 AM

13. Evaluate $f(0)$ if $f(x) = \begin{cases} 9x + 6, & x < 0 \\ 9x + 9, & x \geq 0 \end{cases}$.

a. $f(0) = -9$
b. $f(0) = 6$
c. $f(0) = 9$
d. $f(0) = -6$
e. $f(0) = 0$

ANSWER: c
POINTS: 1
REFERENCES: 2.2.49b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.4 - Functions

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14. Evaluate $f(-4)$ if $f(x) = \begin{cases} x^2 + 5, & x < 1 \\ 5x^2 + 5, & x \geq 1 \end{cases}$.

a. $f(-4) = 19$
b. $f(-4) = 11$
c. $f(-4) = 16$
d. $f(-4) = 23$
e. $f(-4) = 21$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.50a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Evaluate the function $f(x) = \begin{cases} 2x - 7, & x < -1 \\ 4, & -1 \leq x \leq 1 \\ x^2, & x > 1 \end{cases}$ at $f\left(-\frac{1}{7}\right)$.

a. $f\left(-\frac{1}{7}\right) = -21$
b. $f\left(-\frac{1}{7}\right) = 21$
c. $f\left(-\frac{1}{7}\right) = -4$
d. $f\left(-\frac{1}{7}\right) = -49$
e. $f\left(-\frac{1}{7}\right) = 4$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.51b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.4 - Functions

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16. Evaluate the function $f(x) = \begin{cases} 2-4x, & x < -2 \\ 0, & -2 \le x \le 2 \\ x^2+3, & x > 2 \end{cases}$ at $f(9)$.

a. $f(9) = 88$
b. $f(9) = 85$
c. $f(9) = 84$
d. $f(9) = 86$
e. $f(9) = 87$

ANSWER: c
POINTS: 1
REFERENCES: 2.2.52b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Complete the table.

$f(x) = x^2 - 3$

x	–3	–1	0	4	5
$f(x)$					

a.

x	–3	–1	0	4	5
$f(x)$	6	–2	13	–3	22

b.

x	–3	–1	0	4	5
$f(x)$	6	–2	–3	22	13

c.

x	–3	–1	0	4	5
$f(x)$	–2	6	–3	13	22

d.

x	–3	–1	0	4	5
$f(x)$	6	–2	0	13	22

e.

x	–3	–1	0	4	5
$f(x)$	6	–2	–3	13	22

ANSWER: e
POINTS: 1
REFERENCES: 2.2.53

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Section 1.4 - Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
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STUDENT ENTRY MODE: Basic
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18. Complete the table.

$$h(t) = \frac{1}{2}|t + 3|$$

t	–11	–9	0	–5	–1
$h(t)$					

a.

t	–11	–9	0	–5	–1
$h(t)$	3	4	–3	1	1

b.

t	–11	–9	0	–5	–1
$h(t)$	3	4	$\frac{3}{2}$	1	1

c.

t	–11	–9	0	–5	–1
$h(t)$	4	3	1	$\frac{3}{2}$	1

d.

t	–11	–9	0	–5	–1
$h(t)$	4	3	$\frac{3}{2}$	1	1

e.

t	–11	–9	0	–5	–1
$h(t)$	4	3	0	1	1

ANSWER: d
POINTS: 1
REFERENCES: 2.2.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Complete the table.

$$f(s) = \frac{|s-2|}{s-2}$$

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$					

a.

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$	–1	1	1	1	1

b.

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$	–1	1	1	3	1

c.

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$	–1	1	3	1	1

d.

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$	1	1	3	1	1

e.

s	0	4	$\frac{9}{2}$	$\frac{13}{2}$	7
$f(s)$	–1	3	1	1	1

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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20. Complete the table.

$$f(x) = \begin{cases} -\frac{1}{2}x + 4, & x \leq 0 \\ (x-2)^2, & x > 0 \end{cases}$$

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x	–6	–4	0	1	4
$f(x)$					

a.

x	–6	–4	0	1	4
$f(x)$	9	7	–3	1	4

b.

x	–6	–4	0	1	4
$f(x)$	7	6	4	3	6

c.

x	–6	–4	0	1	4
$f(x)$	7	6	4	1	4

d.

x	–6	–4	0	1	4
$f(x)$	7	6	0	1	4

e.

x	–6	–4	0	1	4
$f(x)$	7	8	4	4	1

ANSWER: c
POINTS: 1
REFERENCES: 2.2.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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21. Find all real values of x such that $f(x) = 0$.

$f(x) = 12 - 2x$

a. $x = 6$
b. $x = 5$
c. $x = 7$
d. $x = 4$
e. $x = 8$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.4 - Functions

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22. Find all real values of x such that $f(x) = 0$.

$$f(x) = \frac{-9x + 8}{5}$$

a. $x = \frac{8}{9}$

b. $x = \frac{8}{45}$

c. $x = \pm\frac{8}{9}$

d. $x = -\frac{8}{9}$

e. $x = \pm\frac{8}{45}$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. Find all real values of x such that $f(x) = 0$.

$$f(x) = \frac{81 - x^2}{3}$$

a. $x = \pm 12$
b. $x = \pm 13$
c. $x = \pm 11$
d. $x = \pm 10$
e. $x = \pm 9$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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24. Find all real values of x such that $f(x) = 0$.

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Section 1.4 - Functions

$f(x) = x^2 - 8x - 20$

a. $x = -10, 2$
b. $x = -10, -2$
c. $x = 2, 10$
d. $x = -2, 10$
e. $x = -8, 8$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Find the domain of the function.

$f(x) = 2x^2 + 4x - 5$

a. All real numbers x such that $x > 0$
b. All real numbers x
c. All real numbers x such that $x < 0$
d. Non-negative real numbers x
e. Non-positive real numbers x

ANSWER: b
POINTS: 1
REFERENCES: 2.2.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Find the domain of the function.

$h(t) = \frac{5}{t}$

a. All real numbers t except $t = 0$
b. Negative real numbers t
c. All real numbers t such that $t > 0$
d. Non-negative real numbers t
e. $t = 0$

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ANSWER: a
POINTS: 1
REFERENCES: 2.2.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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27. Find the domain of the function.

$$f(x) = \frac{x - 4}{\sqrt{x}}$$

a. Non-negative real numbers x except $x = 4$
b. All real numbers x except $x = 0$
c. Non-negative real numbers x
d. All real numbers x
e. All real numbers x such that $x > 0$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.81
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. Find the domain of the function.

$$f(x) = \frac{\sqrt{x + 4}}{4 + x}$$

a. Non-negative real numbers x
b. All real numbers x
c. All real numbers x such that $x > -4$
d. Non-negative real numbers x except $x = 4$
e. All real numbers x such that $x < 4$

ANSWER: c
POINTS: 1
REFERENCES: 2.2.80
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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29. Assume that the domain of f is the set $A = \{-5, -3, 0, 3, 5\}$. Determine the set of ordered pairs that represents the function f.

$f(x) = x^2$

a. $\{(-5, 25), (-3, 81), (0, 0), (3, 81), (5, 25)\}$
b. $\{(-5, -125), (-3, 9), (0, 0), (3, 9), (5, -125)\}$
c. $\{(-5, 25), (-3, -27), (0, 0), (3, -27), (5, 25)\}$
d. $\{(-5, 625), (-3, 9), (0, 0), (3, 9), (5, 625)\}$
e. $\{(-5, 25), (-3, 9), (0, 0), (3, 9), (5, 25)\}$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.83
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. Assume that the domain of f is the set $A = \{-4, -2, 0, 2, 3\}$. Determine the set of ordered pairs that represents the function f.

$f(x) = (x - 3)^2$

a. $\{(-4, 49), (-2, 1), (0, 9), (2, 625), (3, 49)\}$
b. $\{(-4, -343), (-2, 1), (0, 9), (2, 25), (3, -343)\}$
c. $\{(-4, 49), (-2, -125), (0, 0), (2, -125), (3, 49)\}$
d. $\{(-4, 2401), (-2, 1), (0, 0), (2, 25), (3, 2401)\}$
e. $\{(-4, 49), (-2, 25), (0, 9), (2, 1), (3, 0)\}$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.84
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Assume that the domain of f is the set $A = \{-5, -2, 0, 2, 3\}$. Determine the set of ordered pairs that represents the function f.

$f(x) = |x + 1|$

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a. {(–5, 4), (–2, 3), (0, 1), (2, 4), (3, 3)}
b. {(–5, 4), (–2, 4), (0, 1), (2, 4), (3, 4)}
c. {(–5, 7), (–2, 3), (0, 1), (2, 1), (3, 7)}
d. {(–5, 4), (–2, 1), (0, 1), (2, 3), (3, 4)}
e. {(–5, 6), (–2, 1), (0, 1), (2, 3), (3, 6)}

ANSWER: d
POINTS: 1
REFERENCES: 2.2.86
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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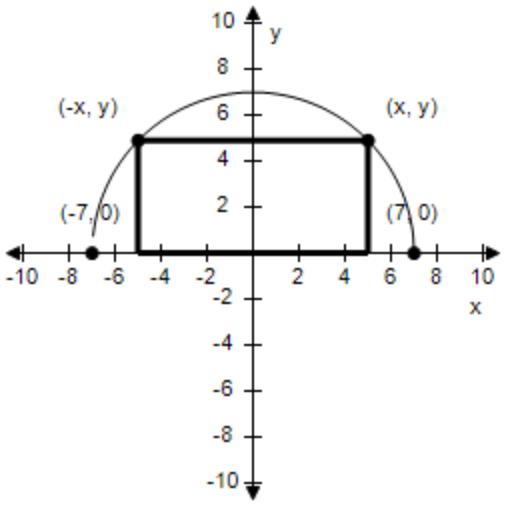
32. A rectangle is bounded by the x-axis and the semicircle $y = \sqrt{49 - x^2}$ (see figure). Select the area A of the rectangle as a function of x, and determine the domain of the function.



a. $A(x) = 2|x|\sqrt{49 - x^2}$, $-7 \le x \le 7$
b. $A(x) = -2x\sqrt{49 - x^2}$, $-7 \le x \le 7$
c. $A(x) = x\sqrt{49 - x^2}$, $x \ge 0$
d. $A(x) = 2x\sqrt{49 - x^2}$, $x \ge 0$
e. $A(x) = |x|\sqrt{49 - x^2}$, all real numbers

ANSWER: a
POINTS: 1

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REFERENCES: 2.2.92
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Find all real values of x such that $f(x) = 0$.

$f(x) = x^3 - x^2 - 9x + 9$

a. $x = 0, 3$
b. $x = 1, -3$
c. $x = 0, -3$
d. $x = 1, 3$
e. $x = 1, \pm 3$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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34. Find the difference quotient and simplify your answer.

$f(x) = x^2 - x + 1, \dfrac{f(6 + h) - f(6)}{h}, h \neq 0$

a. $\dfrac{f(6 + h) - f(6)}{h} = h + 11, h \neq 0$
b. $\dfrac{f(6 + h) - f(6)}{h} = h + 15, h \neq 0$
c. $\dfrac{f(6 + h) - f(6)}{h} = h + 14, h \neq 0$
d. $\dfrac{f(6 + h) - f(6)}{h} = h + 12, h \neq 0$
e. $\dfrac{f(6 + h) - f(6)}{h} = h + 13, h \neq 0$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.103
QUESTION TYPE: Multi-Mode (Multiple choice)

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Section 1.4 - Functions

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. Find the difference quotient and simplify your answer.

$f(x) = 5x - x^2, \dfrac{f(6+h) - f(6)}{h}, h \neq 0$

a. $\dfrac{f(6+h) - f(6)}{h} = -h - 6, h \neq 0$

b. $\dfrac{f(6+h) - f(6)}{h} = -h - 4, h \neq 0$

c. $\dfrac{f(6+h) - f(6)}{h} = -h - 3, h \neq 0$

d. $\dfrac{f(6+h) - f(6)}{h} = -h - 7, h \neq 0$

e. $\dfrac{f(6+h) - f(6)}{h} = -h - 5, h \neq 0$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.104
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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36. Does the table describe a function?

Input value	2001	2002	2003	2004	2005
Output value	20	50	20	40	30

a. No

b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 2.2.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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37. Does the table describe a function?

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Input value	20	40	20	30	50
Output value	2001	2002	2003	2004	2005

a. Yes

b. No

ANSWER: b
POINTS: 1
REFERENCES: 2.2.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. Does the table describe a function?

Input value	5	10	14	10	5
Output value	–13	–8	0	8	13

a. Yes

b. No

ANSWER: b
POINTS: 1
REFERENCES: 2.2.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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39. Does the table describe a function?

Input value	–5	–3	0	3	5
Output value	–3	–3	–3	–3	–3

a. No

b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 2.2.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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40. Which set of ordered pairs represents a function from P to Q?
$P = \{5, 10, 15, 20\}$ $Q = \{-1, 1, 3\}$

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a. {(5, 3), (15, 1), (5, –1), (15, 3)}
b. {(15, –1), (15, 1), (15, 3)}
c. {(5, –1), (10, 1), (10, 3), (15, 1), (20, –1)}
d. {(15, 1), (10, –1), (5, 1), (10, 3), (15, –1)}
e. {(5, –1), (10, 1), (15, 3), (20, –1)}

ANSWER: e
POINTS: 1
REFERENCES: 2.2.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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41. Which equation does not represent y as a function of x?

a. $2x = 8y$
b. $-4y = -8$
c. $5x^2 + 5y = 3$
d. $3x + 6y = -5$
e. $7y^2 + 8x = 9$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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42. Which equation does not represent y as a function of x?

a. $y = \sqrt{6 + 3x}$
b. $y = |-2 + 7x^2|$
c. $x = -6y - 2$
d. $x = -8$
e. $y = -3x + 5$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.4 - Functions

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43. Evaluate the function at the specified value of the independent variable and simplify.

$g(s) = 3s + 1$
$g(-18)$

a. $g(-18) = -55$
b. $g(-18) = -54s + 3$
c. $g(-18) = -18s - 1$
d. $g(-18) = -18s + 1$
e. $g(-18) = -53$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. Evaluate the function at the specified value of the independent variable and simplify.

$$q(y) = \begin{cases} -y, & y \le -1 \\ -y^2 + 3y, & -1 < y \le 1 \\ -y^3 + 3y^2, & y > 1 \end{cases}$$

$q(-\frac{1}{2})$

a. $q(-\frac{1}{2}) = \frac{1}{2}$
b. $q(-\frac{1}{2}) = \frac{7}{8}$
c. $q(-\frac{1}{2}) = -\frac{17}{4}$
d. $q(-\frac{1}{2}) = 7$
e. $q(-\frac{1}{2}) = -\frac{7}{4}$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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Section 1.4 - Functions

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45. Find all real values of x such that $f(x) = 0$.

$$f(x) = \frac{5x - 7}{3}$$

a. $x = 2$

b. $x = \frac{8}{5}$

c. $x = \frac{9}{5}$

d. $x = \frac{7}{5}$

e. $x = \frac{11}{5}$

ANSWER: d
POINTS: 1
REFERENCES: 2.2.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. Find all real values of x such that $f(x) = 0$.

$f(x) = 64x^2 - 36$

a. $x = \pm\frac{4}{3}$

b. $x = \pm\frac{3}{4}$

c. $x = -\frac{9}{16}$

d. $x = \frac{4}{3}$

e. $x = \pm\frac{9}{16}$

ANSWER: b
POINTS: 1
REFERENCES: 2.2.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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47. Find the value(s) of x for which $f(x) = g(x)$.

$f(x) = x^2 + x - 13$ $\quad$ $g(x) = -5x + 3$

a. $x = -8, 2$

b. $x = 8, -2$

c. $x = -13, 1, \frac{3}{5}$

d. $x = -13, -14, \frac{3}{5}$

e. $x = 12, \frac{3}{5}$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. Find the domain of the function.

$$f(w) = \frac{8w}{w+6}$$

a. $w = -6, w = 0$

b. $w = -6$

c. all real numbers w such that $w \neq -6, w \neq 0$

d. all real numbers

e. all real numbers w such that $w \neq -6$

ANSWER: e
POINTS: 1
REFERENCES: 2.2.74
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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49. Find the difference quotient and simplify your answer.

$f(w) = 3w^2 - 8w, \quad \frac{f(5+h) - f(5)}{h}, \quad h \neq 0$

a. $\frac{f(5+h) - f(5)}{h} = 22 + 3h$

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b. $\dfrac{f(5+h)-f(5)}{h} = -8+3w-\dfrac{80}{w}$

c. $\dfrac{f(5+h)-f(5)}{h} = -8+3h$

d. $\dfrac{f(5+h)-f(5)}{h} = 22+3w-\dfrac{80}{w}$

e. $\dfrac{f(5+h)-f(5)}{h} = 2+h$

ANSWER: a
POINTS: 1
REFERENCES: 2.2.105
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. Evaluate the function at the specified value of the independent variable and simplify.
$q(p) = -6p - 3$
$q(-2.6)$

a. $q(-2.6) = 15.6p + 18$
b. $q(-2.6) = 18.6$
c. $q(-2.6) = 12.6$
d. $q(-2.6) = -2.6p - 3$
e. $q(-2.6) = -2.6p + 3$

ANSWER: c
POINTS: 1
REFERENCES: 10
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/14/2015 6:11 AM

51. Evaluate the function at the specified value of the independent variable and simplify.
$f(p) = \dfrac{-8p}{9p+8}$

$f(y - 5)$

a. $f(y-5) = \dfrac{-8y+40}{9y-37}$

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b. $f(y - 5) = \dfrac{-8y - 40}{9y - 37}$

c. $f(y - 5) = \dfrac{-8p + 40}{9p - 37}$

d. $f(y - 5) = -\dfrac{40}{53}$

e. $f(y - 5) = -\dfrac{40}{37}$

ANSWER: a
POINTS: 1
REFERENCES: 12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/14/2015 6:02 AM

52. Find the domain of the function.
$g(p) = \sqrt{81 - p^2}$

a. $-9 \le p \le 9$
b. $p \le -9$ or $p \ge 9$
c. $p \ge 0$
d. $p \le 9$
e. all real numbers

ANSWER: a
POINTS: 1
REFERENCES: 17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 10/22/2014 6:43 AM

53. Let the function f be defined by the equation $y = f(x)$, where x and $f(x)$ are real numbers. Find the domain of the function $f(x) = \sqrt{9x^2 - 4}$.

a. domain: $(-\infty, -\dfrac{4}{9}) \cup (\dfrac{4}{9}, +\infty)$

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b. domain: $(-\infty, -\frac{2}{3})$

c. domain: $(\frac{4}{9}, +\infty)$

d. domain: $(-\frac{2}{3}, \frac{2}{3})$

e. domain: $(-\infty, -\frac{2}{3}] \cup [\frac{2}{3}, +\infty)$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 5/14/2015 7:02 AM
DATE MODIFIED: 5/21/2021 8:14 AM

54. Let the function f be defined by the equation $y = f(x)$, where x and $f(x)$ are real numbers. Find the domain of the function $f(x) = \sqrt{25x^2 - 31}$.

a. domain: $(-\infty, -\frac{31}{25})$

b. domain: $(-\frac{31}{5}, \frac{31}{5})$

c. domain: $(-\infty, -\frac{31}{25}] \cup [\frac{31}{25}, +\infty)$

d. domain: $(\frac{\sqrt{31}}{5}, +\infty)$

e. domain: $(-\infty, -\frac{\sqrt{31}}{5}] \cup [\frac{\sqrt{31}}{5}, +\infty)$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/21/2021 8:22 AM

55. Find the graph of the equation.

$f(x) = |x - 4|$

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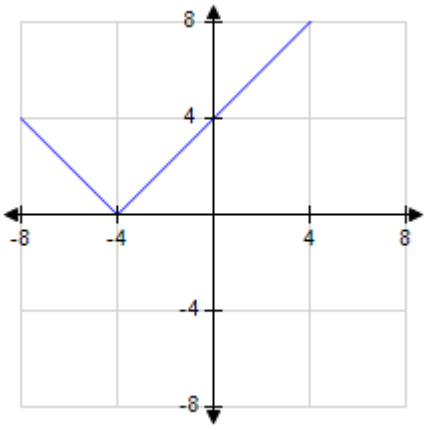
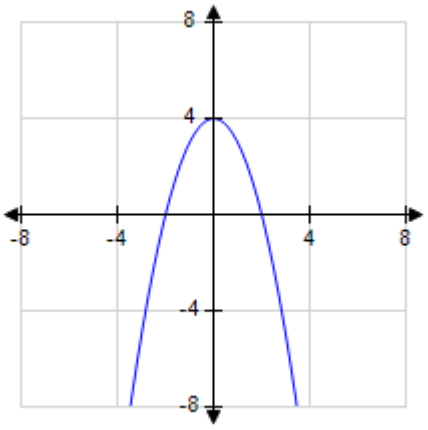
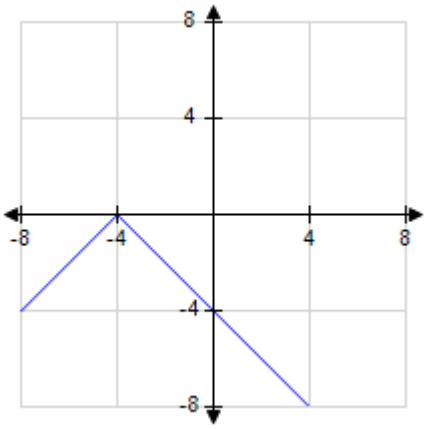
a.



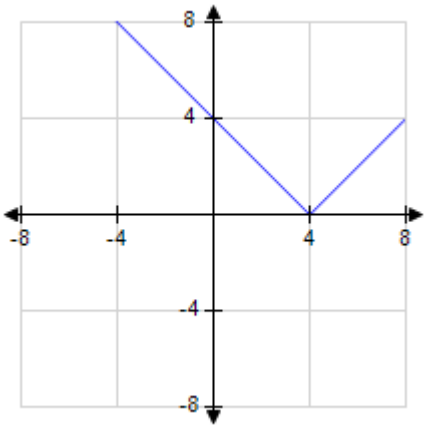
b.



c.



d.



ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 11:24 AM

56. Evaluate the difference quotient for the function.

$f(x) = 2x - 7$

a. -7
b. $\frac{7}{2}$
c. 7
d. $2x + 7$
e. 2

ANSWER: e
POINTS: 1

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Section 1.4 - Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 11:25 AM

Indicate whether the equation determines y to be a function of x. Match each equation with the corresponding answer.

Choose the correct letter for each question.
a. $y - 2x = 0$
b. $x = -2$
QUESTION TYPE: Matching
HAS VARIABLES: False
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/26/2014 11:32 AM

57. yes
ANSWER: a
POINTS: 1

58. no
ANSWER: b
POINTS: 1

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Section 1.5 - Analyzing Graphs of Functions

1. Find the zeros of the function algebraically.

$f(x) = 2x^2 - 5x - 25$

a. $x = -\frac{5}{2}, x = 5$

b. $x = -\frac{5}{2}, x = -5$

c. $x = -\frac{2}{5}, x = 5$

d. $x = \frac{5}{2}, x = -5$

e. $x = \frac{5}{2}, x = 5$

ANSWER: a
POINTS: 1
REFERENCES: 2.3.23
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/24/2014 5:20 AM
DATE MODIFIED: 5/13/2021 10:29 AM

2. Find the zeros of the function algebraically.

$f(x) = 6x^2 + 20x - 16$

a. $x = \frac{2}{3}, x = -4$

b. $x = -\frac{2}{3}, x = -4$

c. $x = \frac{3}{2}, x = -4$

d. $x = \frac{2}{3}, x = 4$

e. $x = -\frac{2}{3}, x = 4$

ANSWER: a
POINTS: 1
REFERENCES: 2.3.24
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/24/2014 7:35 AM
DATE MODIFIED: 5/13/2021 10:30 AM

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3. Find the zeros of the function algebraically.

$$f(x) = \frac{x}{9x^2 - 5}$$

a. $x = 5$
b. $x = 10$
c. $x = 9$
d. $x = 8$
e. $x = 0$

ANSWER: e
POINTS: 1
REFERENCES: 2.3.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/24/2014 8:56 AM

4. Find the zeros of the function algebraically.

$$f(x) = \frac{x^2 - 6x + 8}{5x}$$

a. $x = -2, x = 0, x = 4$
b. $x = -4, x = 0, x = 2$
c. $x = 2, x = 4$
d. $x = 0, x = 2, x = 4$
e. $x = -4, x = -2, x = 0$

ANSWER: c
POINTS: 1
REFERENCES: 2.3.26
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/24/2014 8:59 AM
DATE MODIFIED: 5/13/2021 10:33 AM

5. Find the zeros of the function algebraically.

$$f(x) = \frac{1}{7}x^3 - x$$

a. $x = 0, x = \sqrt{7}$
b. $x = 0, x = -\sqrt{7}$

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c. $x = 0, x = -7, x = 7$

d. $x = 0, x = -\sqrt{7}, x = \sqrt{7}$

e. $x = 0, x = 7$

ANSWER: d
POINTS: 1
REFERENCES: 2.3.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 10:36 AM

6. Find the zeros of the function algebraically.

$f(x) = \sqrt{18x} - 3$

a. $x = 0, x = 2$

b. $x = \frac{1}{2}$

c. $x = 0, x = \sqrt{2}$

d. $x = 0, x = -\sqrt{2}, x = \sqrt{2}$

e. $x = 0, x = -2, x = 2$

ANSWER: b
POINTS: 1
REFERENCES: 2.3.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 10:39 AM

7. Find the zeros of the function algebraically.

$f(x) = \sqrt{5x + 2}$

a. $x = -\frac{2}{5}$

b. $x = \frac{2}{5}$

c. $x = \frac{5}{2}$

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d. $x = -\frac{5}{2}$

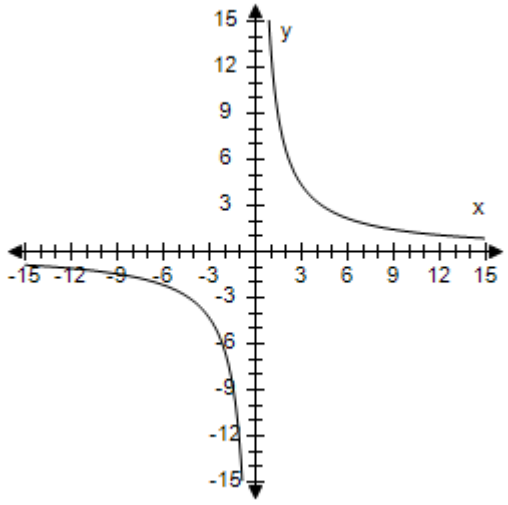
e. $x = -2$

ANSWER: a
POINTS: 1
REFERENCES: 2.3.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/24/2014 9:53 AM

8. Select the graph of the function and find the zeros of the function.

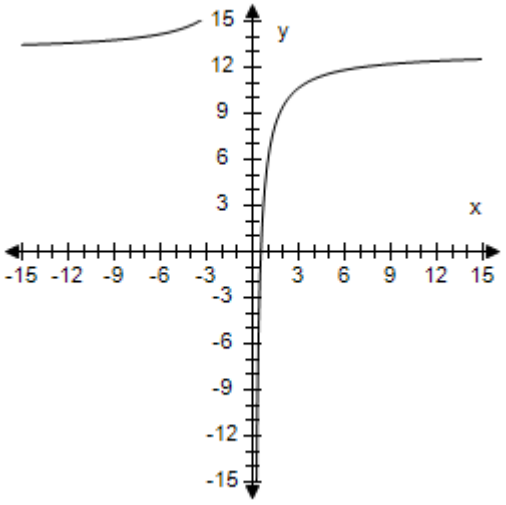
$f(x) = 7 + \frac{13}{x}$

a.



$x = -13$

b.



$x = \frac{7}{13}$

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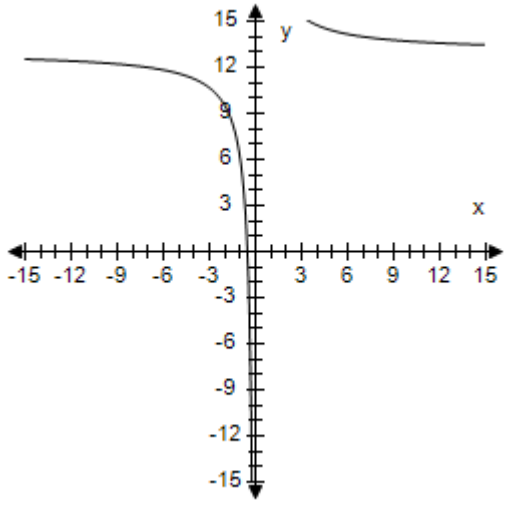
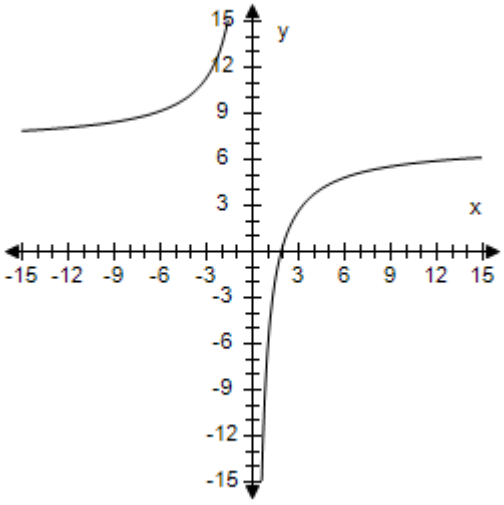
c.



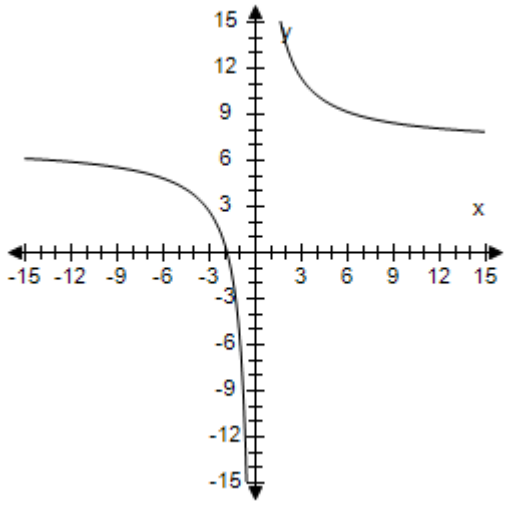
$x = -\frac{7}{13}$

d.



$x = \frac{13}{7}$

e.



$x = -\frac{13}{7}$

ANSWER: e
POINTS: 1
REFERENCES: 2.3.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:53 AM

9. Select the graph of the function and find the zeros of the function.

$f(x) = x(x-6)$

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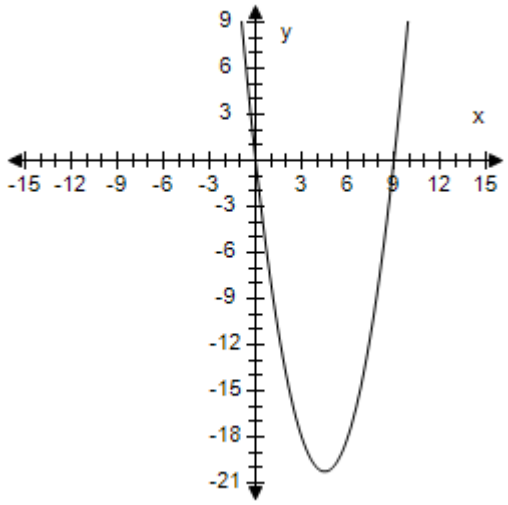
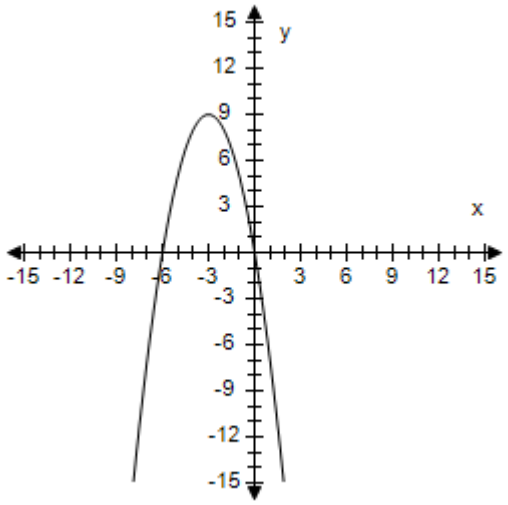
Section 1.5 - Analyzing Graphs of Functions

a.



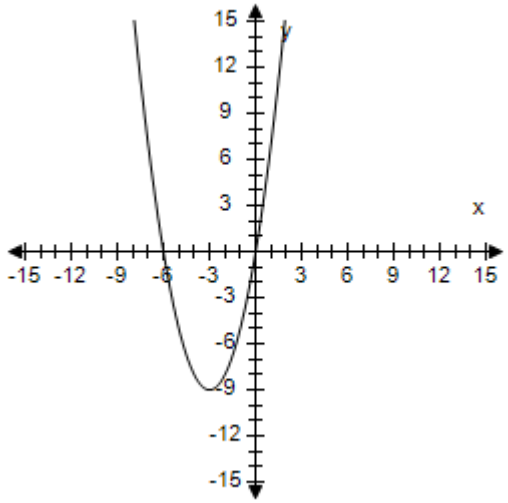
$x = 0, x = 9$

b.



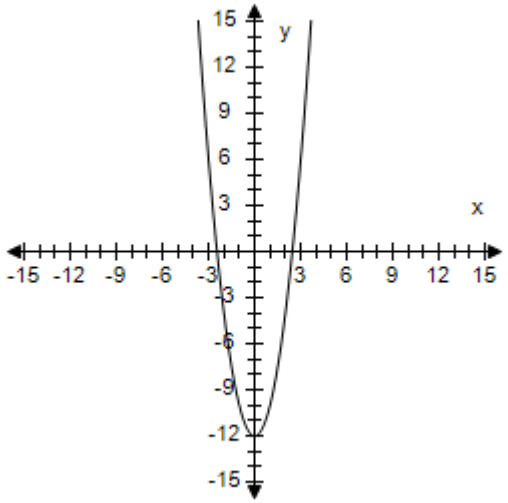
$x = -6, x = 0$

c.



$x = -6, x = 0$

d.



$x = 6$

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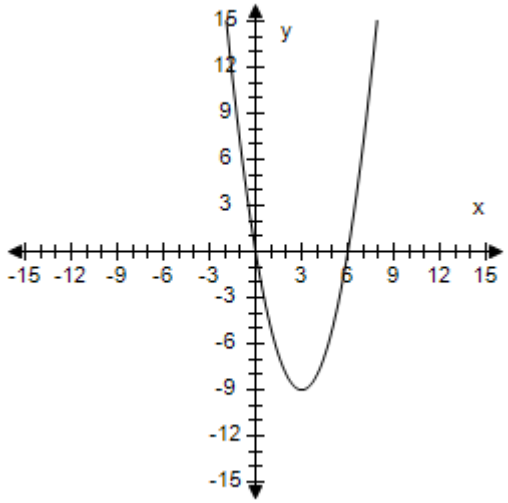
e.



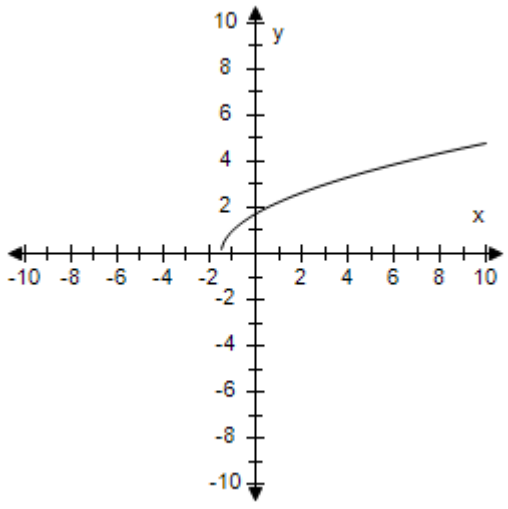
$x = 0, x = 6$

ANSWER: e
POINTS: 1
REFERENCES: 2.3.34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 10:43 AM

10. Select the graph of the function and find the zeros of the function.

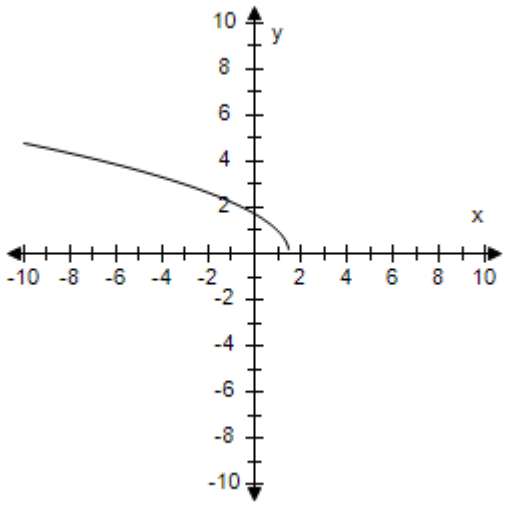
$f(x) = \sqrt{2x+3}$

a.



$x = \frac{2}{3}$

b.



$x = \frac{3}{2}$

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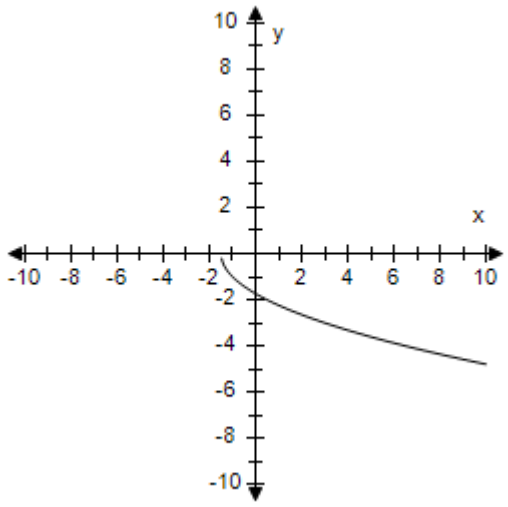
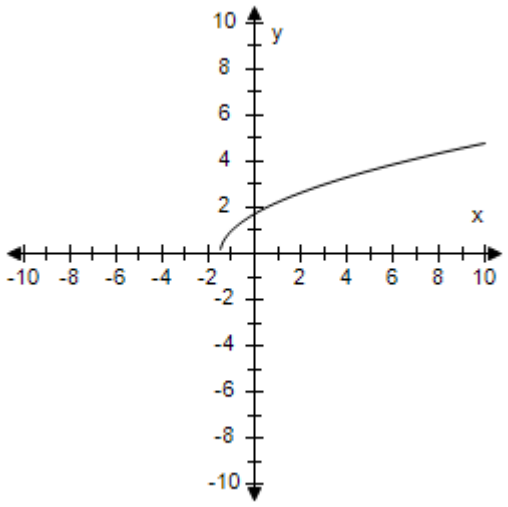
c.



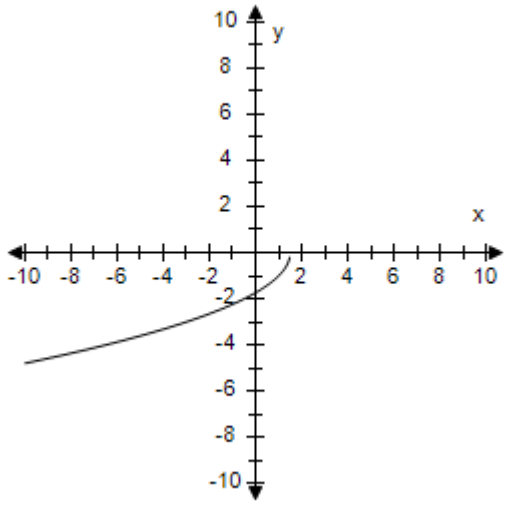
$x = -\frac{3}{2}$

d.



$x = -\frac{3}{2}$

e.



$x = -\frac{2}{3}$

ANSWER: d
POINTS: 1
REFERENCES: 2.3.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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11. Find the average rate of change of the function from $x_1 = 0$ to $x_2 = 3$.

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Section 1.5 - Analyzing Graphs of Functions

$f(x) = -2x + 12$

a. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is –2.

b. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 12.

c. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 2.

d. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is –12.

e. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 19.

ANSWER: a
POINTS: 1
REFERENCES: 2.3.75
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:22 AM

12. Find the average rate of change of the function from $x_1 = 0$ to $x_2 = 3$.

$f(x) = 3x + 10$

a. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is –3.

b. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 3.

c. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is –10.

d. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 10.

e. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 19.

ANSWER: b
POINTS: 1
REFERENCES: 2.3.76
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:24 AM

13. Find the average rate of change of the function from $x_1 = 1$ to $x_2 = 5$.

$f(x) = x^2 + 18x - 4$

a. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is 24.

b. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is –4.

c. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is –24.

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d. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is –18.

e. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is 4.

ANSWER: a
POINTS: 1
REFERENCES: 2.3.77
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:26 AM

14. Find the average rate of change of the function from $x_1 = 1$ to $x_2 = 5$.

$f(x) = x^2 - 3x + 6$

a. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is 19.

b. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is 3.

c. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is –6.

d. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is –3.

e. The average rate of change from $x_1 = 1$ to $x_2 = 5$ is 6.

ANSWER: b
POINTS: 1
REFERENCES: 2.3.78
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:33 AM

15. Find the average rate of change of the function from $x_1 = 1$ to $x_2 = 3$.

$f(x) = x^3 - 8x^2 - x$

a. The average rate of change from $x_1 = 1$ to $x_2 = 3$ is 19.

b. The average rate of change from $x_1 = 1$ to $x_2 = 3$ is –20.

c. The average rate of change from $x_1 = 1$ to $x_2 = 3$ is 8.

d. The average rate of change from $x_1 = 1$ to $x_2 = 3$ is –14.

e. The average rate of change from $x_1 = 1$ to $x_2 = 3$ is 14.

ANSWER: b
POINTS: 1
REFERENCES: 2.3.79

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Section 1.5 - Analyzing Graphs of Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:35 AM

16. Find the average rate of change of the function from $x_1 = 1$ to $x_2 = 6$.

$f(x) = -x^3 + 2x^2 + x$

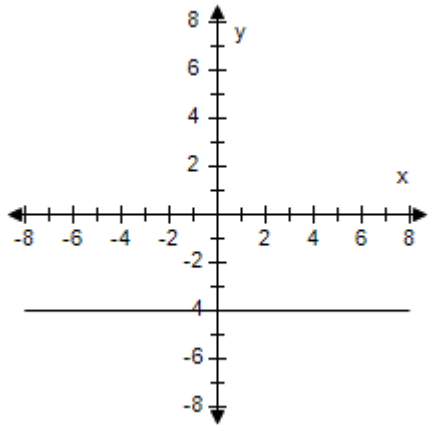
a. The average rate of change from $x_1 = 1$ to $x_2 = 6$ is 19.
b. The average rate of change from $x_1 = 1$ to $x_2 = 6$ is –9.
c. The average rate of change from $x_1 = 1$ to $x_2 = 6$ is 9.
d. The average rate of change from $x_1 = 1$ to $x_2 = 6$ is –28.
e. The average rate of change from $x_1 = 1$ to $x_2 = 6$ is –2.

ANSWER: d
POINTS: 1
REFERENCES: 2.3.80
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 6:39 AM

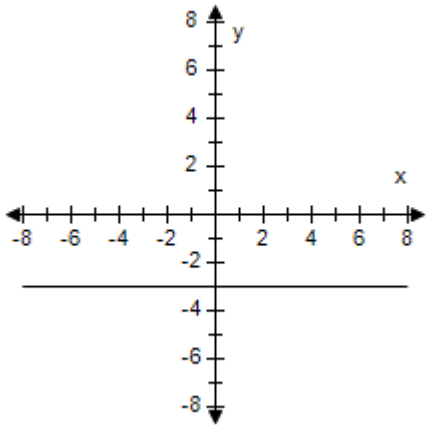
17. Select the graph of the function and determine whether it is even, odd, or neither.

$f(x) = 4$

a. Neither



b. Odd



c. Even

d. Even

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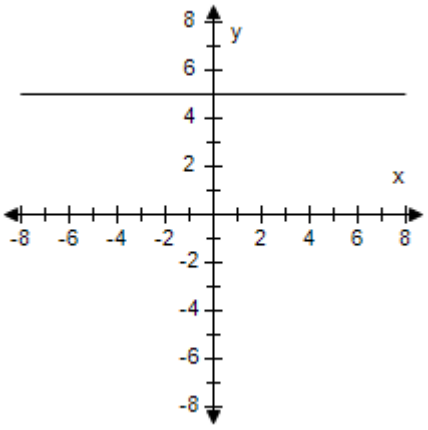
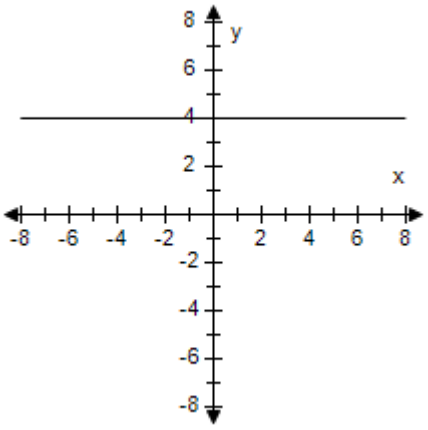
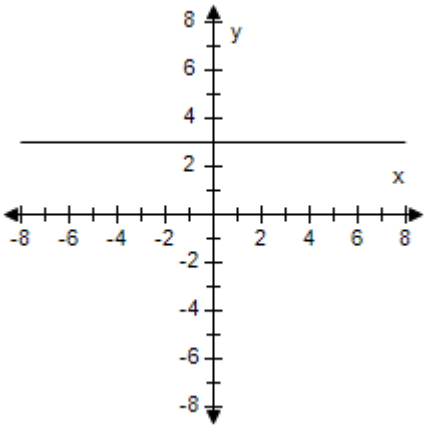




e. Odd



ANSWER: d
POINTS: 1
REFERENCES: 2.3.91
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/14/2015 9:01 AM

18. Select the graph of the function and determine whether it is even, odd, or neither.

$f(x) = 6x - 5$

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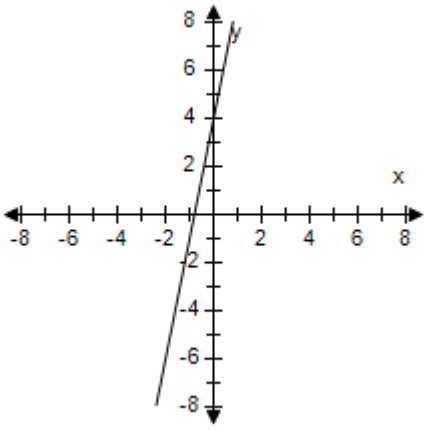
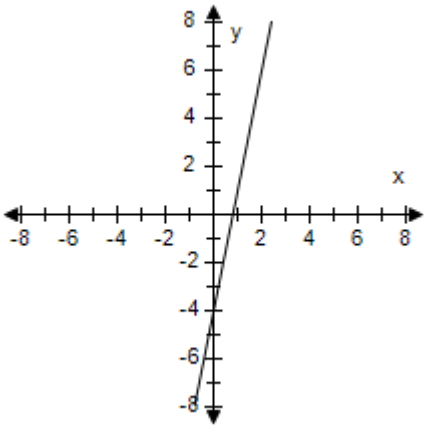
a.



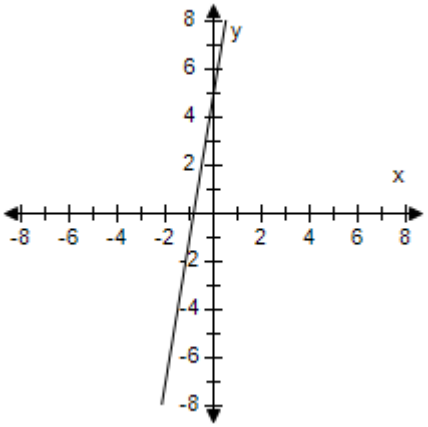
Even

b.



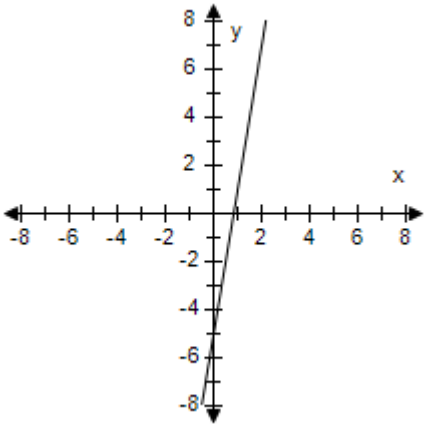
Even

c.



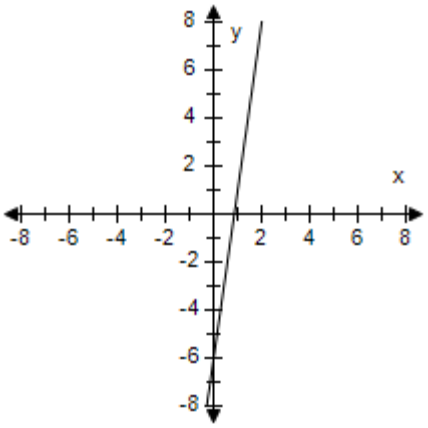
Odd

d.



Neither

e.



Odd

ANSWER: d
POINTS: 1
REFERENCES: 2.3.93
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.5 - Analyzing Graphs of Functions

STUDENT ENTRY MODE: Basic
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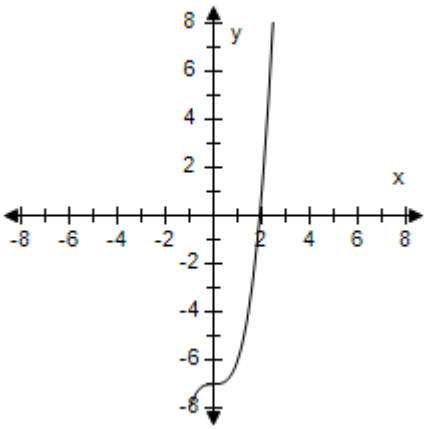
DATE MODIFIED: 9/25/2014 7:09 AM

19. Select the graph of the function and determine whether it is even, odd, or neither.

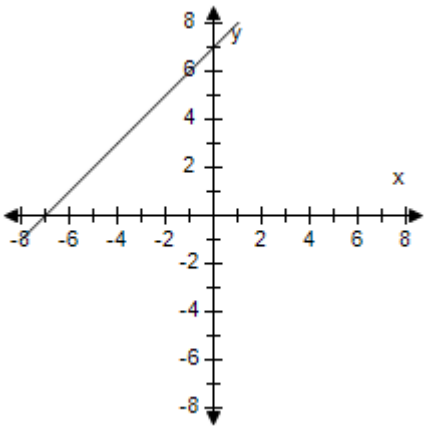
$f(x) = x^2 - 6$

a.



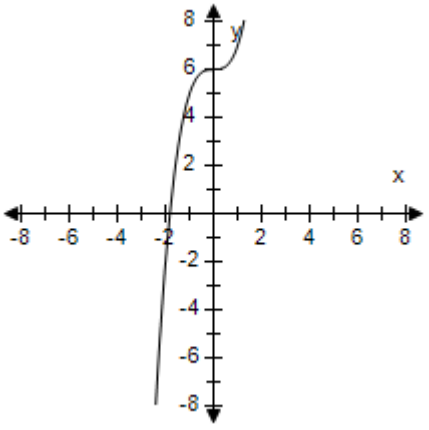
Odd

b.



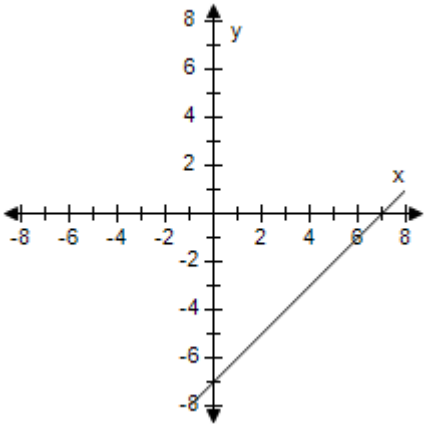
Neither

c.



Odd

d.



Neither

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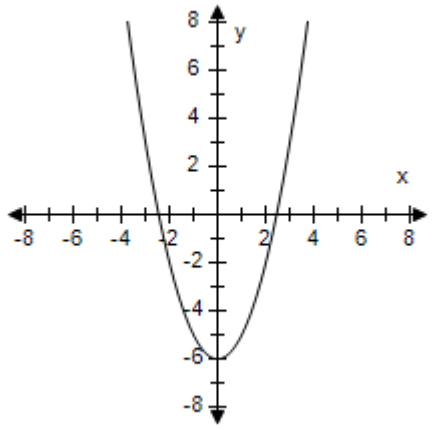
e.



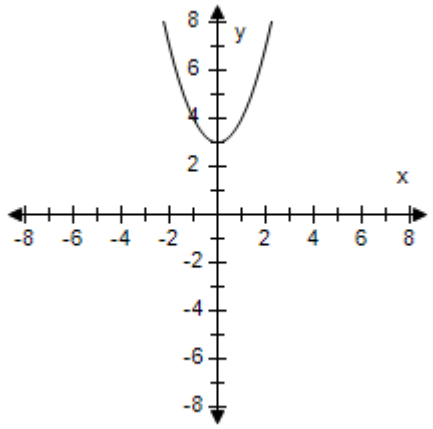
Even

ANSWER: e
POINTS: 1
REFERENCES: 2.3.95
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 7:31 AM

20. Select the graph of the function and determine whether it is even, odd, or neither.

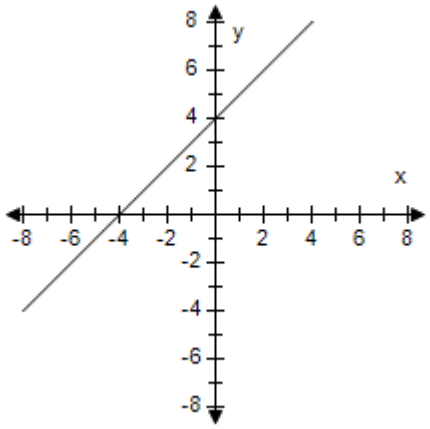
$f(x) = \sqrt{3-x}$

a.



Even

b.



Odd

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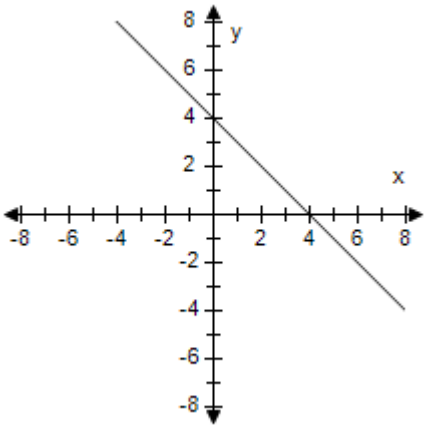
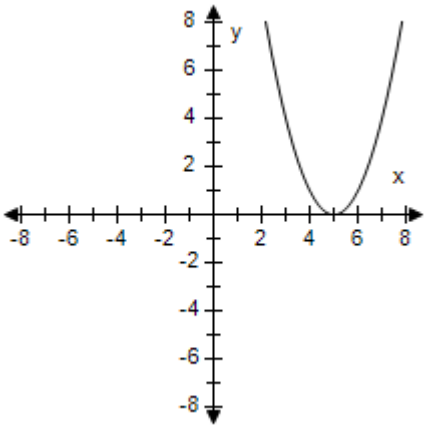
c.



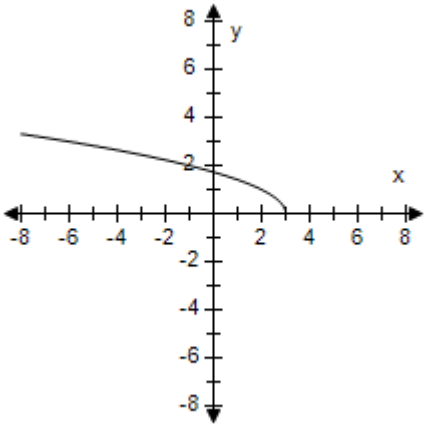
Odd

d.



Even

e.



Neither

ANSWER: e
POINTS: 1
REFERENCES: 2.3.97
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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21. Select the graph of the function and determine whether it is even, odd, or neither.

$g(t) = \sqrt[3]{t-4}$

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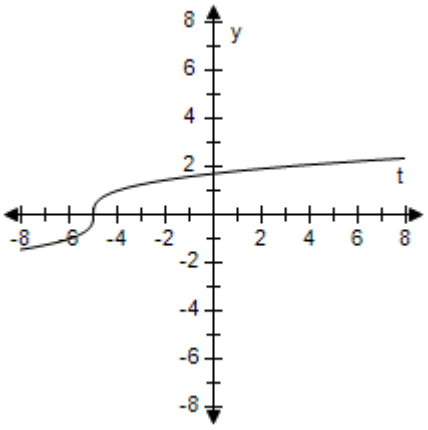
Section 1.5 - Analyzing Graphs of Functions

a.



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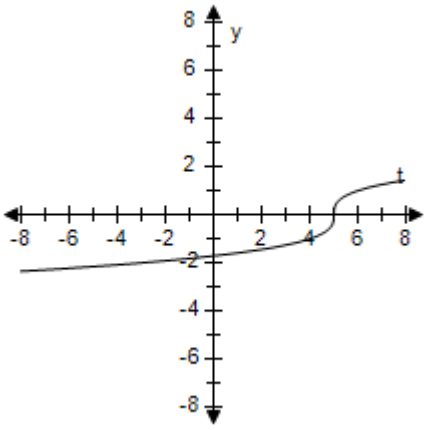
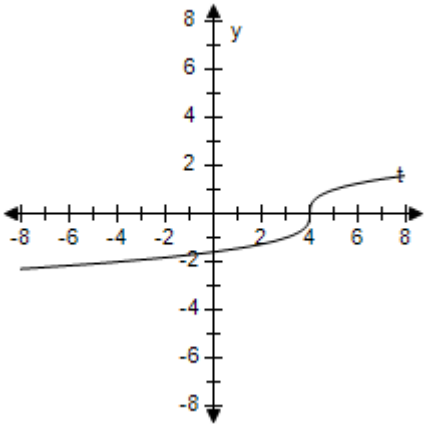
b.



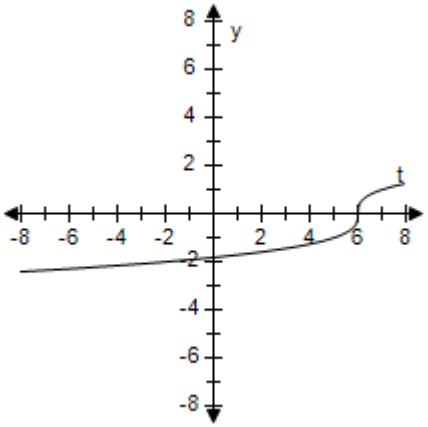
Odd

c.



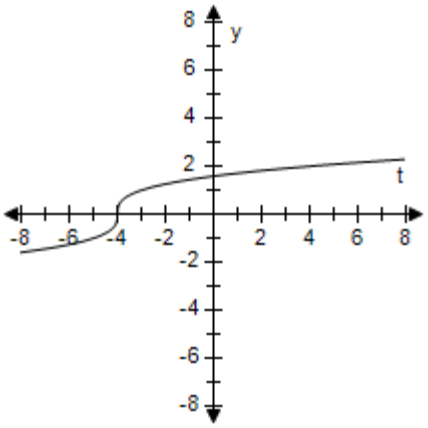
Neither

d.



Even

e.



Odd

ANSWER: c
POINTS: 1
REFERENCES: 2.3.98
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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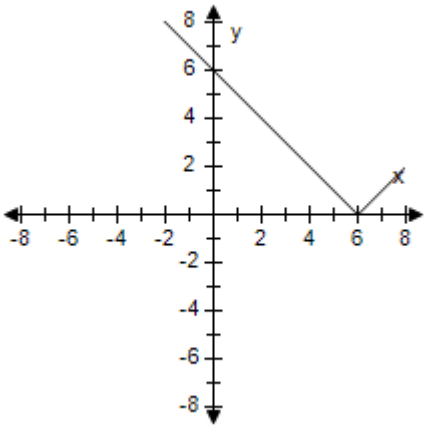
Section 1.5 - Analyzing Graphs of Functions

STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 7:43 AM

22. Select the graph of the function and determine whether it is even, odd, or neither.

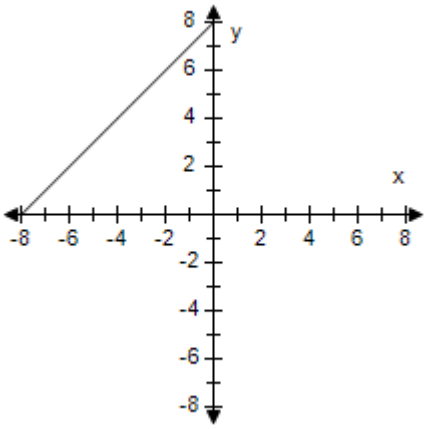
$f(x) = |x + 6|$

a.



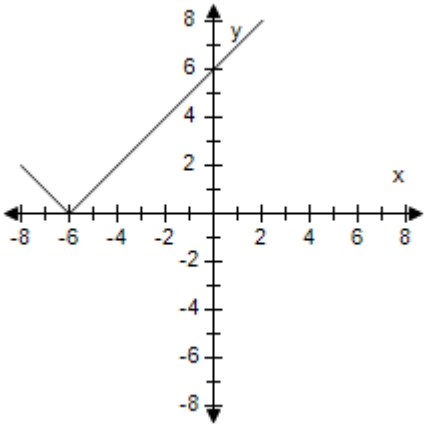
Even

b.



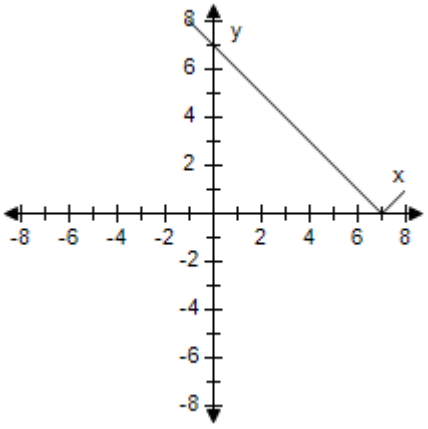
Odd

c.



Neither

d.



Odd

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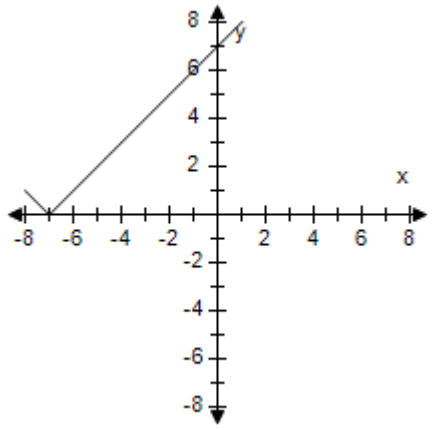
e.



Even

ANSWER: c
POINTS: 1
REFERENCES: 2.3.99
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/25/2014 7:53 AM

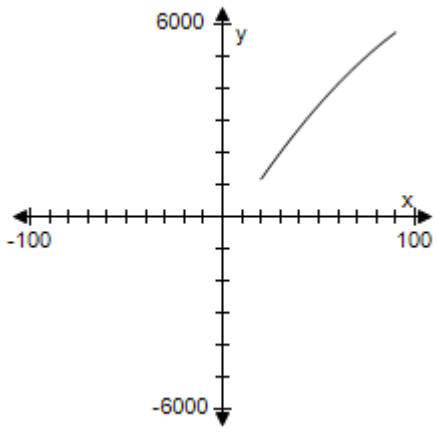
23. The number of lumens (time rate of flow of light) L from a fluorescent lamp can be approximated by the model

$L = -0.294x^2 + 97.744x - 664.875, \qquad 20 \le x \le 90$

where x is the wattage of the lamp.

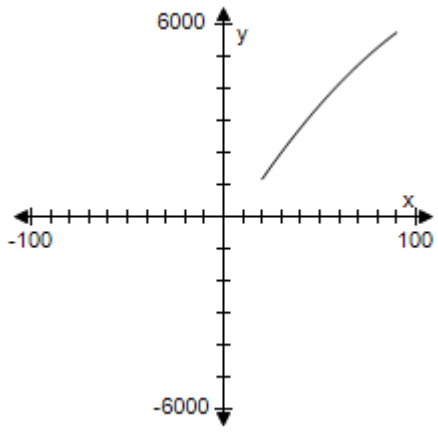
Use a graphing utility to select the graph of the function. Use the graph to estimate the wattage necessary to obtain 3500 lumens.

a.



55W

b.



45W

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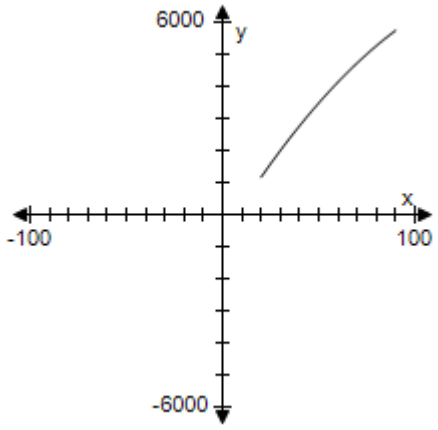
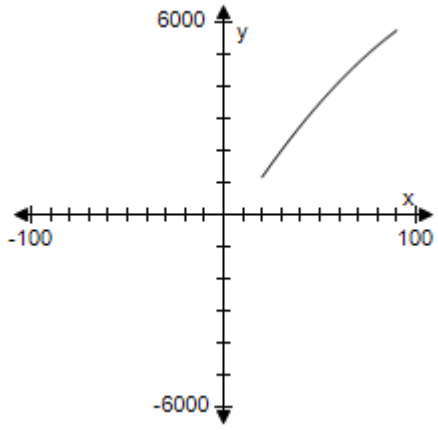
c.



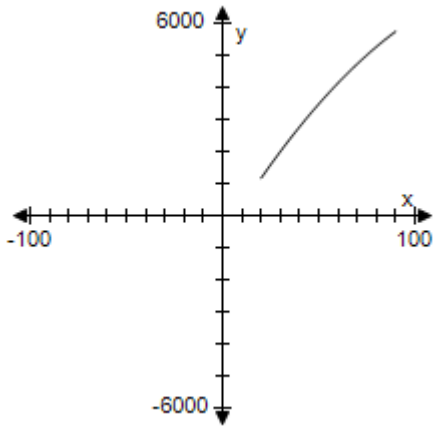
60W

d.



40W

e.



50W

ANSWER:	e
POINTS:	1
REFERENCES:	2.3.109
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:17 PM
DATE MODIFIED:	5/13/2021 11:00 AM

24. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is even.

$\left(-\frac{1}{2}, 5\right)$

a. $\left(-\frac{1}{2}, -5\right)$

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b. $\left(\frac{1}{2}, 5\right)$

c. $\left(\frac{1}{2}, -5\right)$

d. $\left(-\frac{1}{2}, 5\right)$

e. None of the above

ANSWER: b
POINTS: 1
REFERENCES: 2.3.125a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2015 10:02 AM

25. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is odd.

$\left(-\frac{9}{7}, -4\right)$

a. $\left(\frac{9}{7}, 4\right)$

b. $\left(-\frac{9}{7}, 4\right)$

c. $\left(-\frac{9}{7}, -4\right)$

d. $\left(\frac{9}{7}, -4\right)$

e. None of the above

ANSWER: a
POINTS: 1
REFERENCES: 2.3.126b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2015 10:03 AM

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Section 1.5 - Analyzing Graphs of Functions

26. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is even.

(4, 3)

a. (–4, –3)
b. (–4, 3)
c. (4, 3)
d. (4, –3)
e. None of the above

ANSWER: b
POINTS: 1
REFERENCES: 2.3.127a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 11:01 AM

27. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is odd.

(8, –7)

a. (8, 7)
b. (8, –7)
c. (–8, –7)
d. (–8, 7)
e. None of the above

ANSWER: d
POINTS: 1
REFERENCES: 2.3.128b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 11:02 AM

28. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is even.

$(-x, y)$

a. $(-x, -y)$
b. $(x, -y)$
c. $(-x, y)$

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d. (x, y)

e. None of the above

ANSWER: d
POINTS: 1
REFERENCES: 2.3.129a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2015 10:04 AM

29. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is odd.

$(4a, 6b)$

a. $(-4a, -6b)$

b. $(-4a, 6b)$

c. $(4a, -6b)$

d. $(4a, 6b)$

e. None of the above

ANSWER: a
POINTS: 1
REFERENCES: 2.3.130b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2015 10:04 AM

30. An object is thrown upward from a height of 8 feet at a velocity of 72 feet per second.
Use the position equation $s = -16t^2 + v_0t + s_0$ to select a function that represents the situation and select the graph of the function.

a. $s = -16t^2 - 72t + 8$

b. $s = -16t^2 + 72t$

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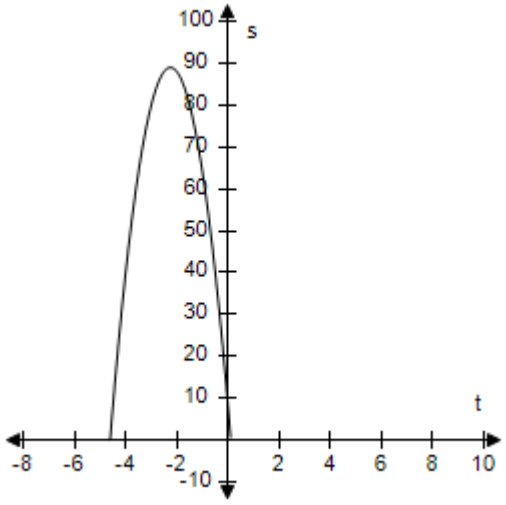
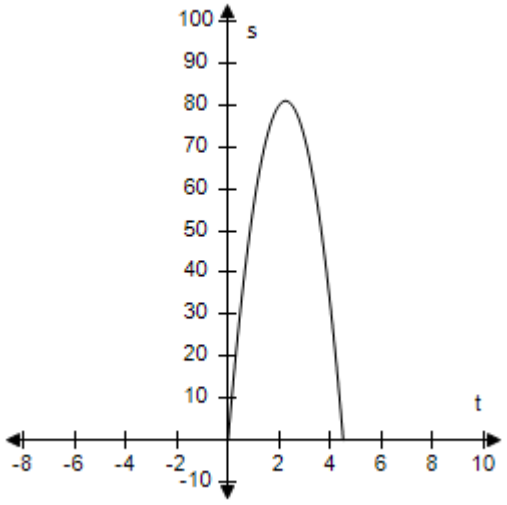
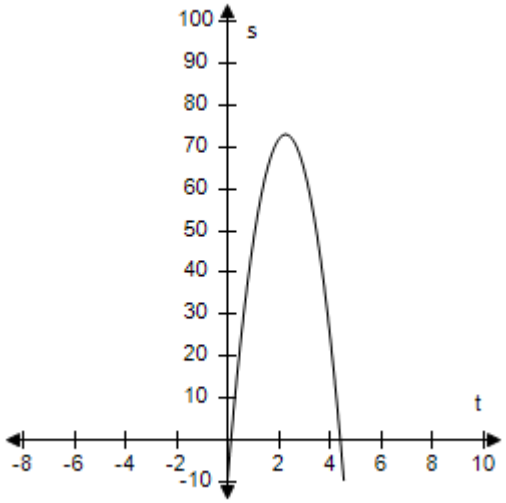
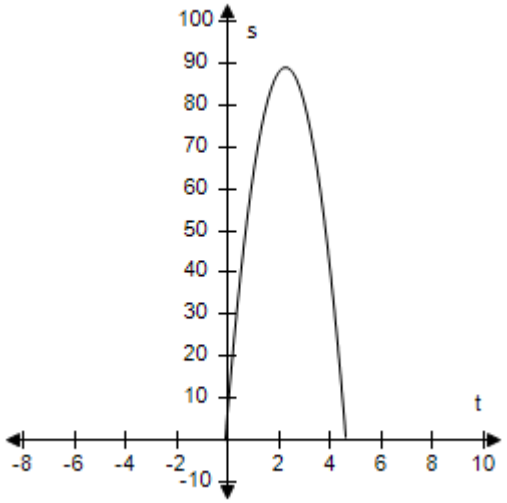




c. $s = -16t^2 + 72t - 8$

d. $s = -16t^2 + 72t + 8$





e. $s = -16t^2 - 72t - 8$

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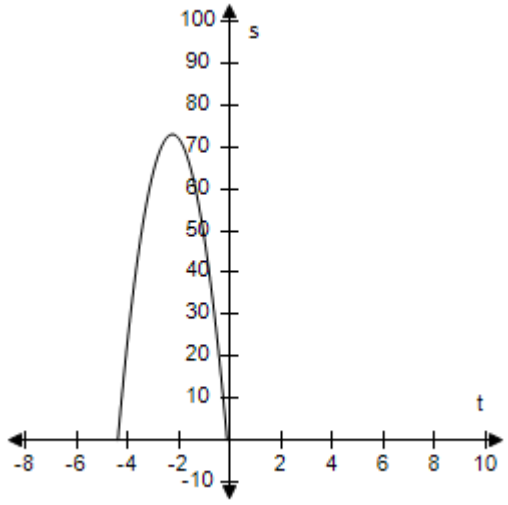
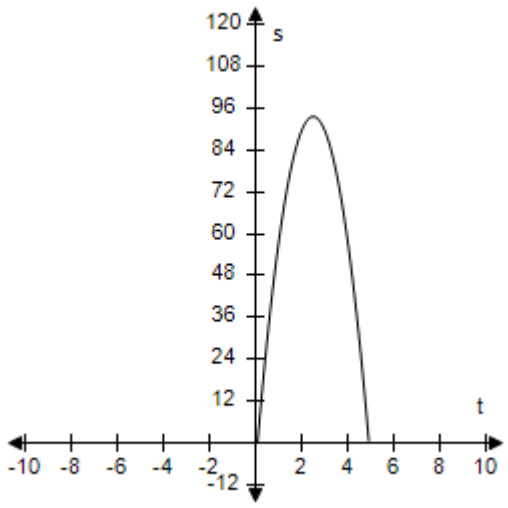


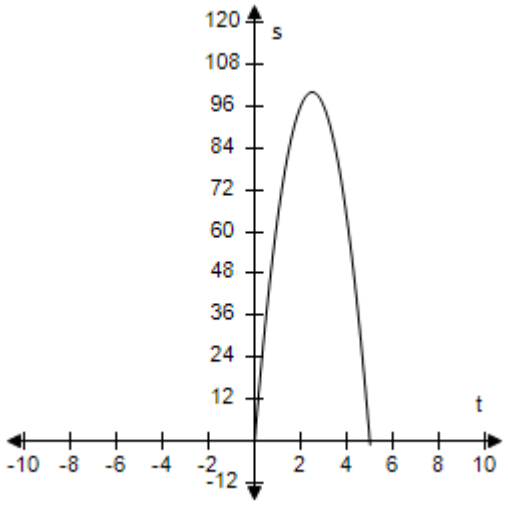
ANSWER: d
POINTS: 1
REFERENCES: 2.3.115
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2021 11:06 AM

31. An object is thrown upward from a height of 6.4 feet at a velocity of 80 feet per second.
Use the position equation $s = -16t^2 + v_0t + s_0$ to select a function that represents the situation and select the graph of the function.

a. $s = -16t^2 + 80 - 6.4$



b. $s = -16t^2 + 80t$



c. $s = -16t^2 - 80t - 6.4$

d. $s = -16t^2 - 80t + 6.4$

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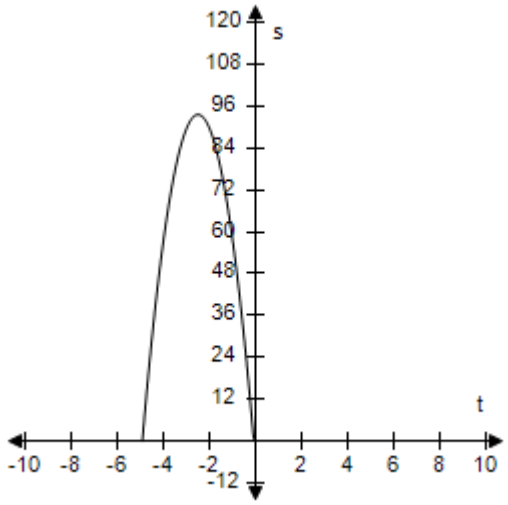
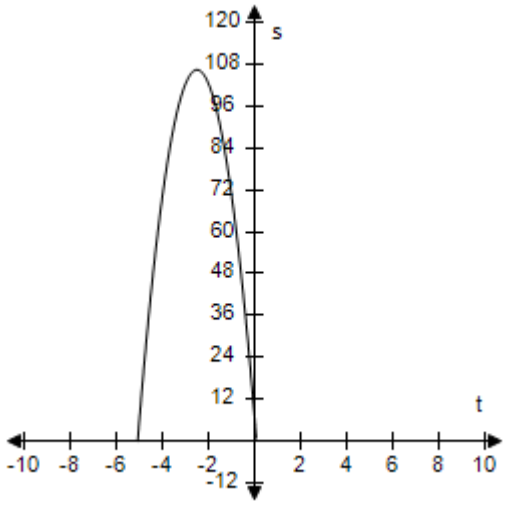
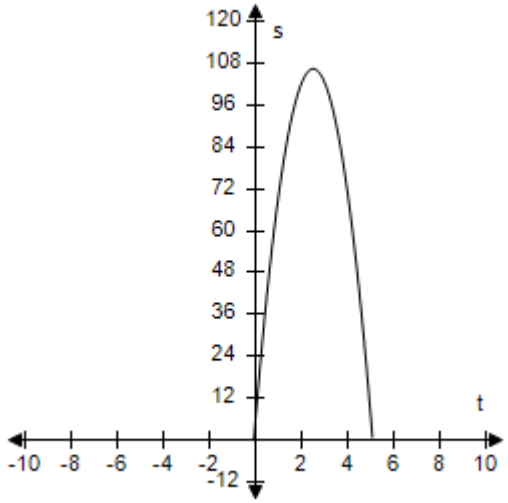




e. $s = -16t^2 + 80t + 6.4$



ANSWER: e
POINTS: 1
REFERENCES: 2.3.116
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/16/2015 6:34 AM

32. An object is thrown upward from ground level at a velocity of 90 feet per second.
Use the position equation $s = -16t^2 + v_0t + s_0$ to select a function that represents the situation and select the graph of the function.

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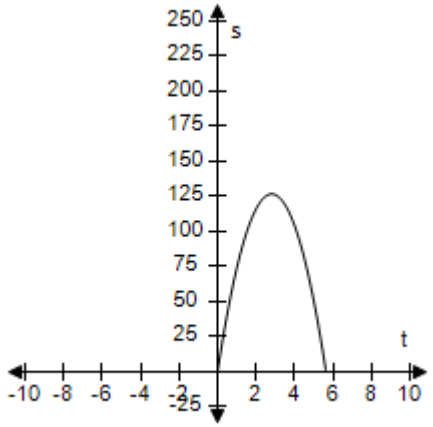
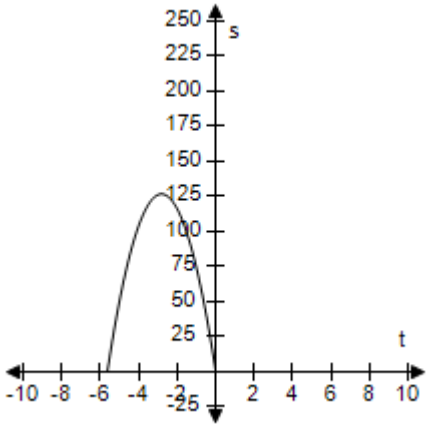
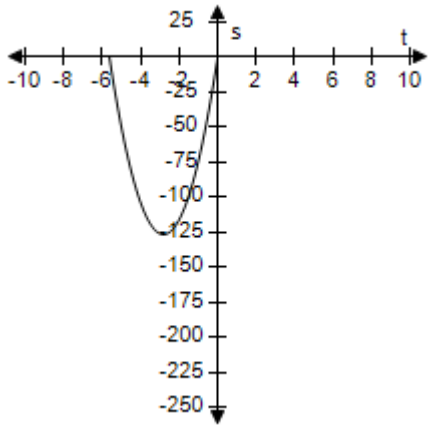
a. $s = -16t^2 + 90t$



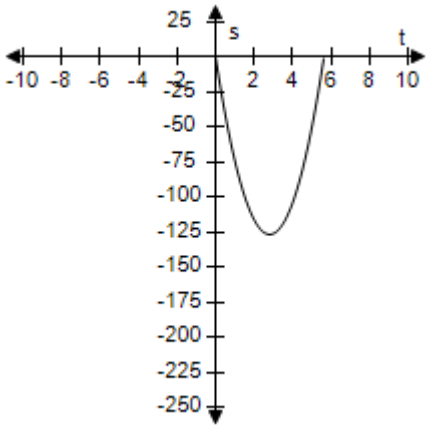
b. $s = -16t^2 - 90t$



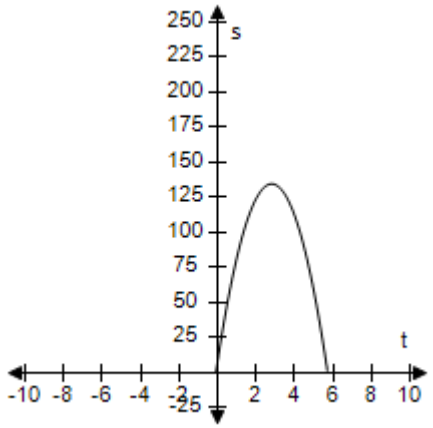
c. $s = 16t^2 + 90t$



d. $s = 16t^2 - 90t$



e. $s = -16t^2 + 90t + 8$



ANSWER: a
POINTS: 1
REFERENCES: 2.3.117

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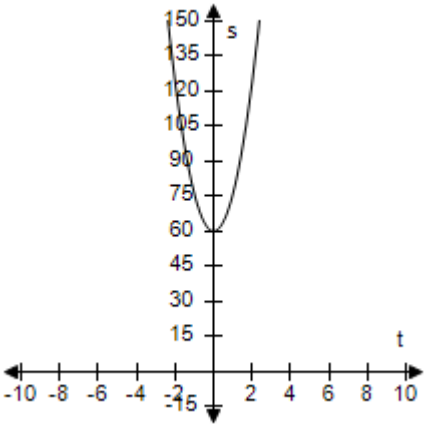
Section 1.5 - Analyzing Graphs of Functions

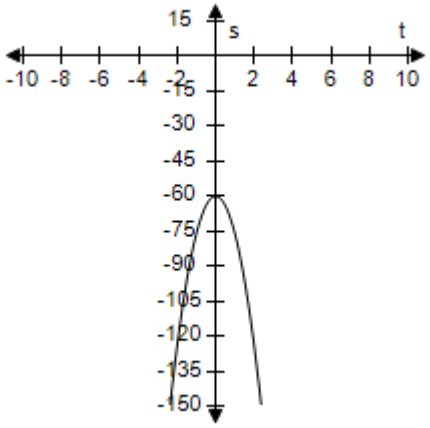
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 5:56 AM

33. An object is dropped from a height of 60 feet.
Use the position equation $s = -16t^2 + v_0t + s_0$ to write a function that represents the situation and select the graph of the function.

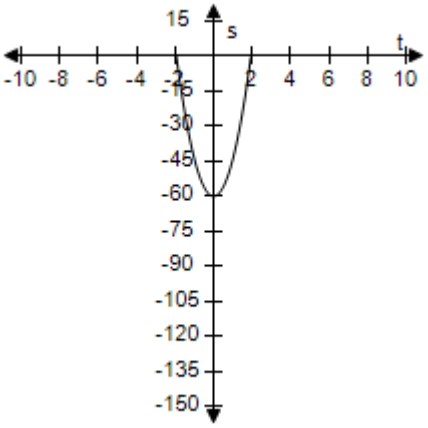
a. $s = 16t^2 + 60$



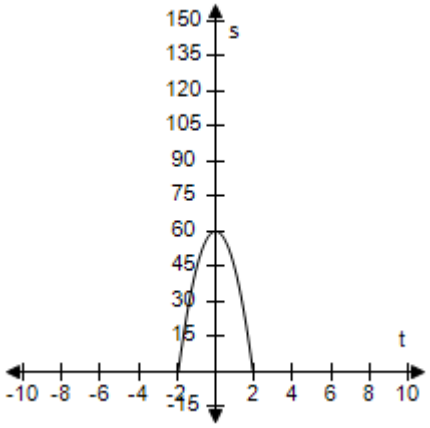
b. $s = -16t^2 - 60$



c. $s = 16t^2 - 60$



d. $s = -16t^2 + 60$



e. $s = -16t^2 + 60t$

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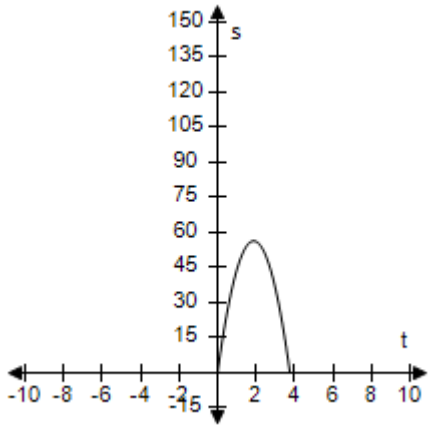
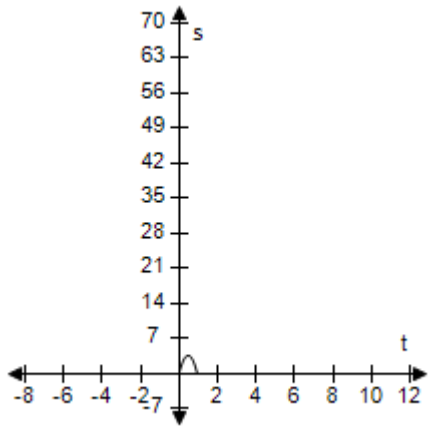


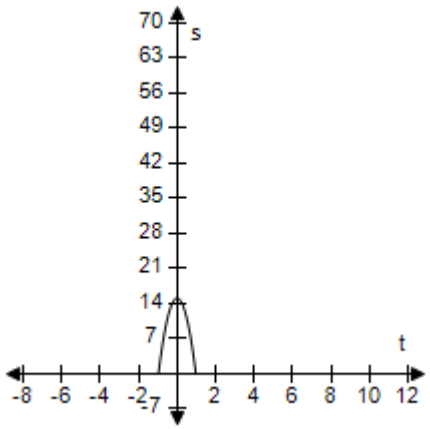
ANSWER: d
POINTS: 1
REFERENCES: 2.3.119
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 6:00 AM

34. An object is dropped from a height of 15 feet.
Use the position equation $s = -16t^2 + v_0t + s_0$ to write a function that represents the situation and select the graph of the function.

a. $s = -16t^2 + 15t$



b. $s = -16t^2 + 15$



c. $s = -16t^2 - 15t$

d. $s = 16t^2 + 15$

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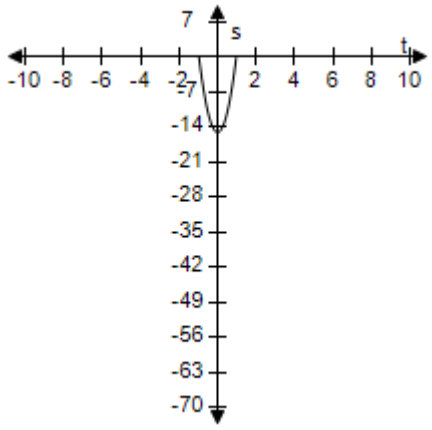
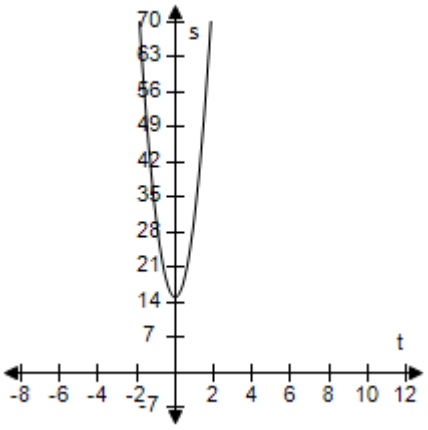
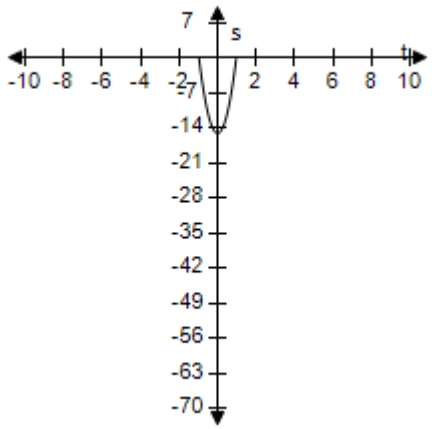




e. $s = -16t^2 - 15$



ANSWER: b
POINTS: 1
REFERENCES: 2.3.120
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 6:05 AM

35. Select the graph of the given function and determine the interval(s) for which $f(x) \geq 0$.

$f(x) = 5 - x$

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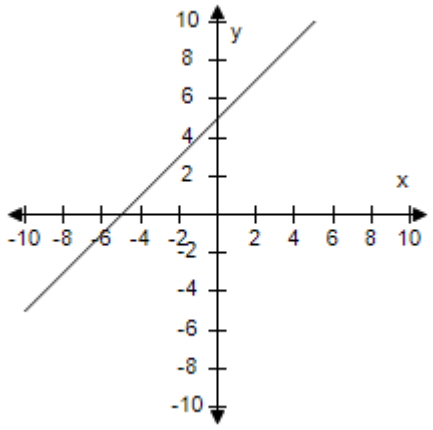
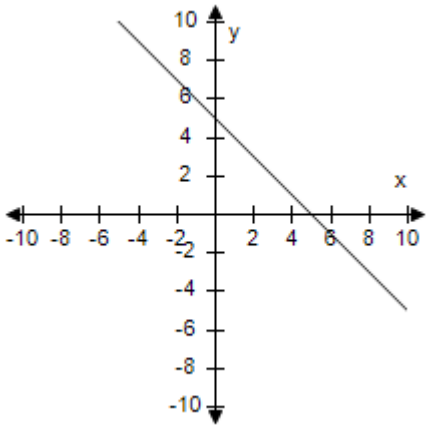
a.



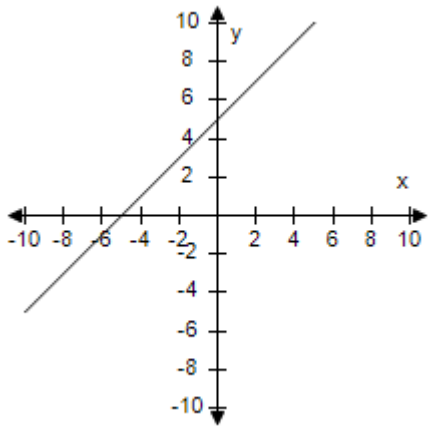
[–5, ∞)

b.



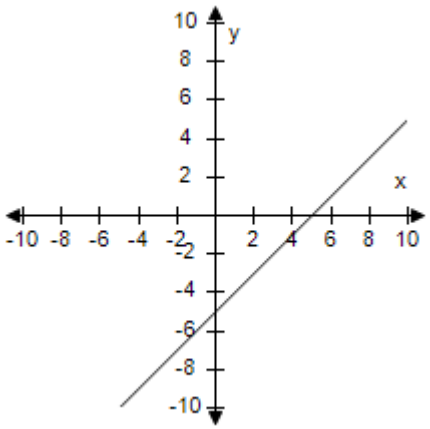
(–∞, –5]

c.



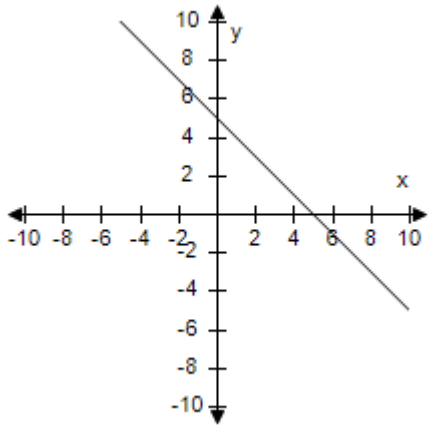
[5, ∞)

d.



(–∞, 5]

e.



(–∞, 5]

ANSWER: e
POINTS: 1
REFERENCES: 2.3.67
QUESTION TYPE: Multi-Mode (Multiple choice)

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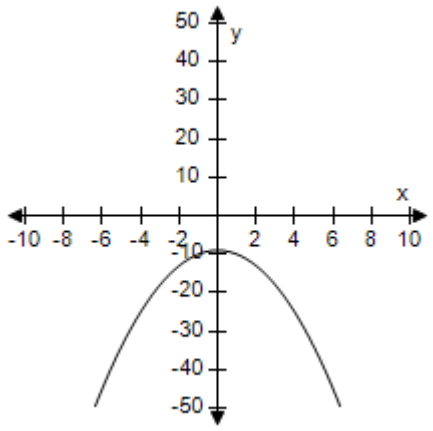
Section 1.5 - Analyzing Graphs of Functions

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/13/2021 11:13 AM

36. Select the graph of the given function and determine the interval(s) for which $f(x) \geq 0$.

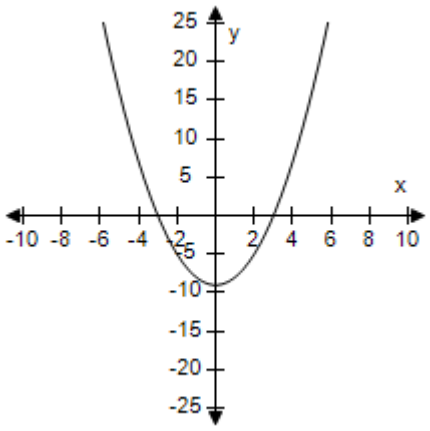
$f(x) = 9 - x^2$

a.



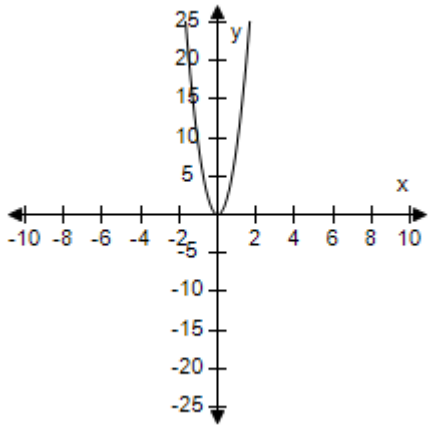
[–3, 3]

b.



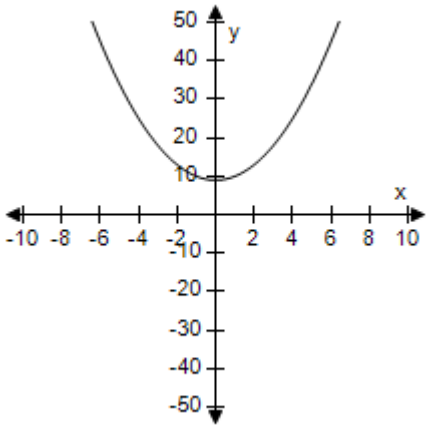
[–3, 3]

c.



[–3, 3]

d.



[–3, 3]

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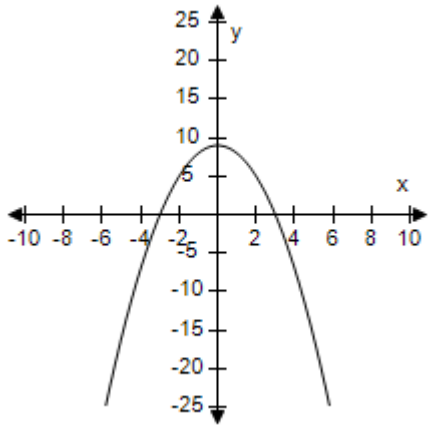
e.



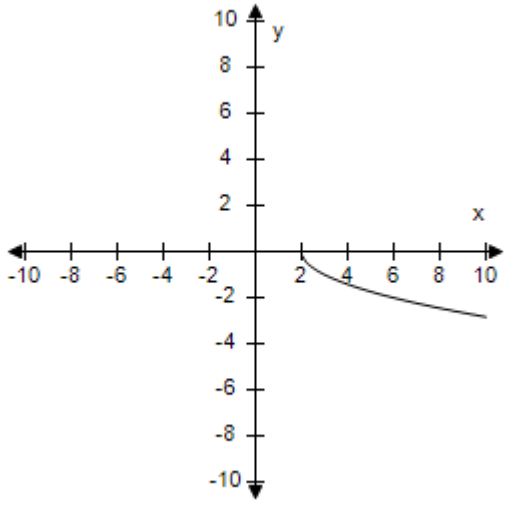
[–3, 3]

ANSWER: e
POINTS: 1
REFERENCES: 2.3.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/13/2021 11:24 AM

37. Select the graph of the given function and determine the interval(s) for which $f(x) \geq 0$.

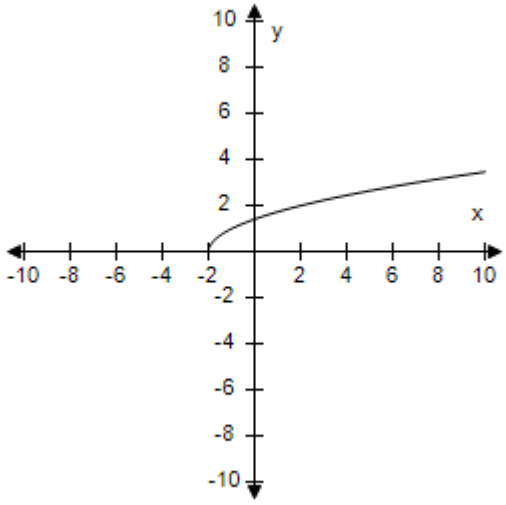
$f(x) = \sqrt{x-2}$

a.



(–∞, 2]

b.



[–2, ∞)

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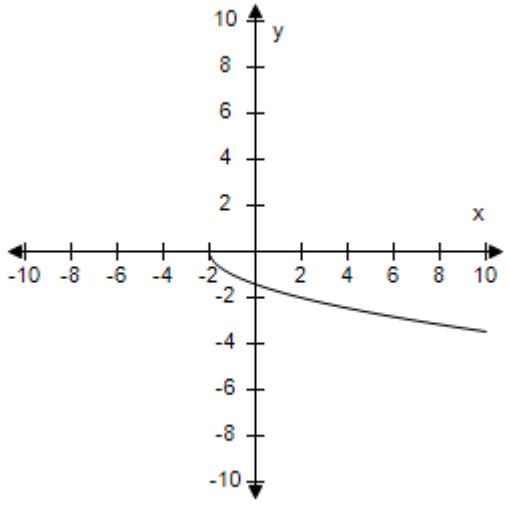
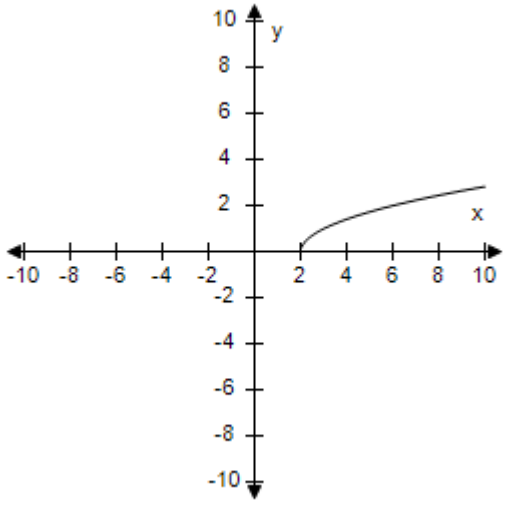
c.



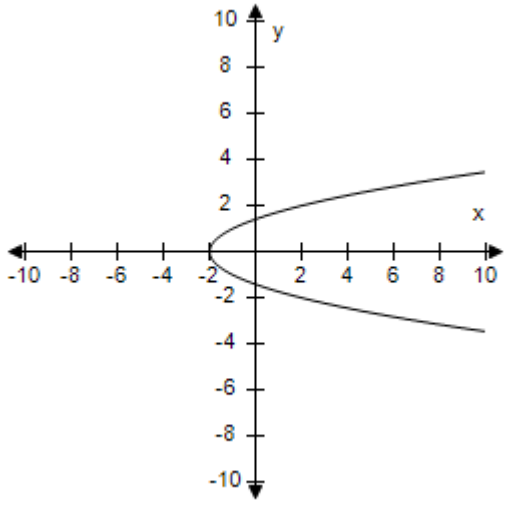
[–2, 2)

d.



[2, ∞)

e.



[–2, ∞)

ANSWER: d
POINTS: 1
REFERENCES: 2.3.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 6:28 AM

38. Select the graph of the given function and determine the interval(s) for which $f(x) \geq 0$.

$f(x) = -(6 + |x|)$

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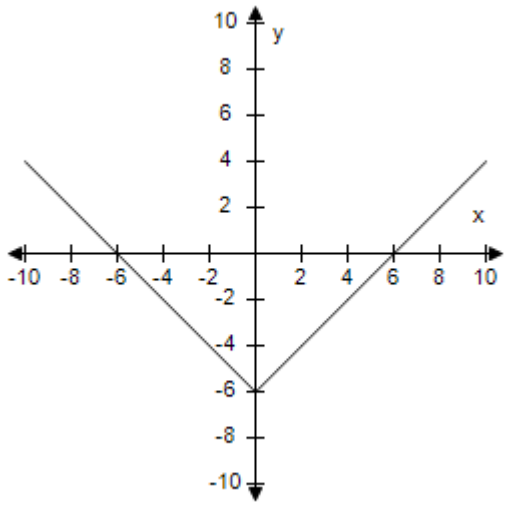
Precalculus with Limits 5th edition Larson Test Bank

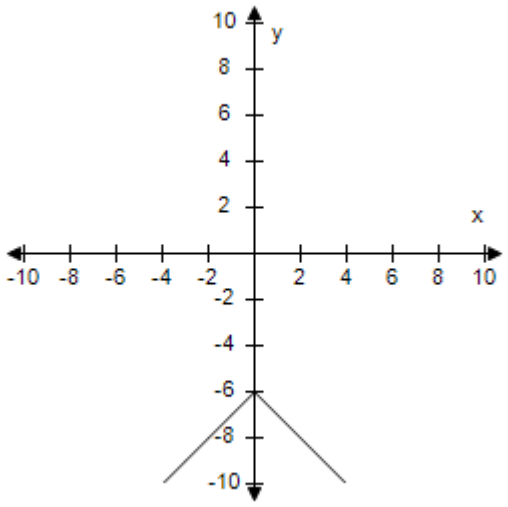
Section 1.5 - Analyzing Graphs of Functions

a.



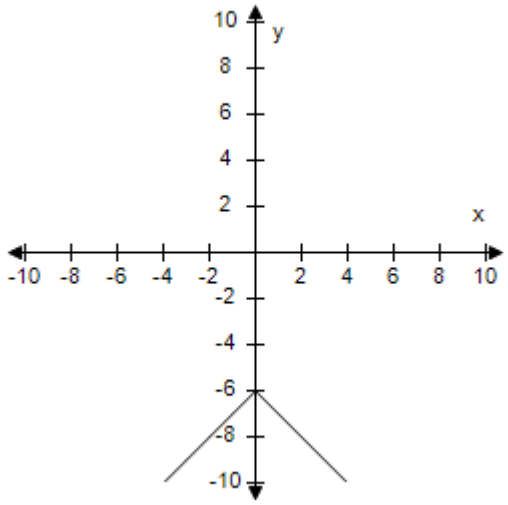
$f(x) > 6$ for all x.

b.



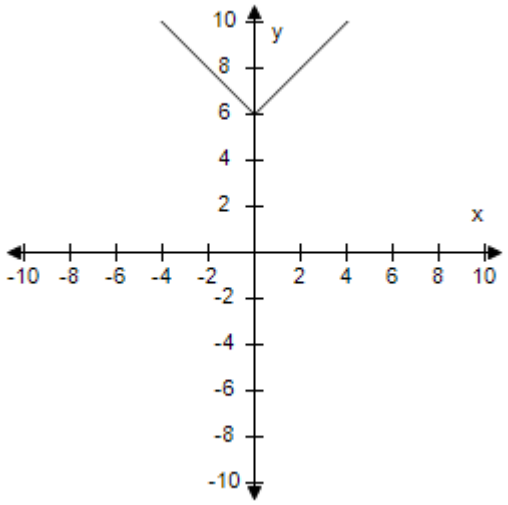
$f(x) < 0$ for all x.

c.



$f(x) \leq 0$ for all x.

d.



$f(x) \geq 0$ for all x.

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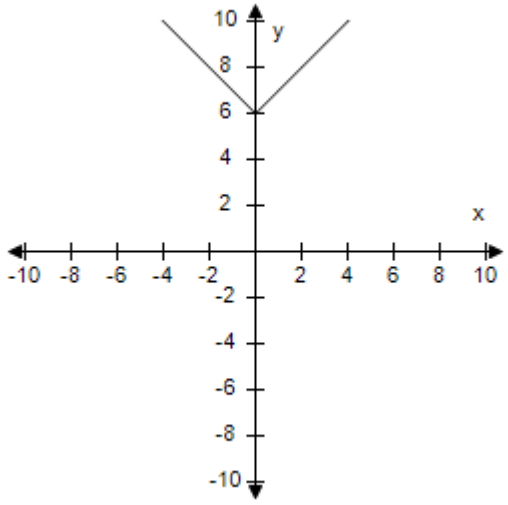
e.



$f(x) > 0$ for all x.

ANSWER: b
POINTS: 1
REFERENCES: 2.3.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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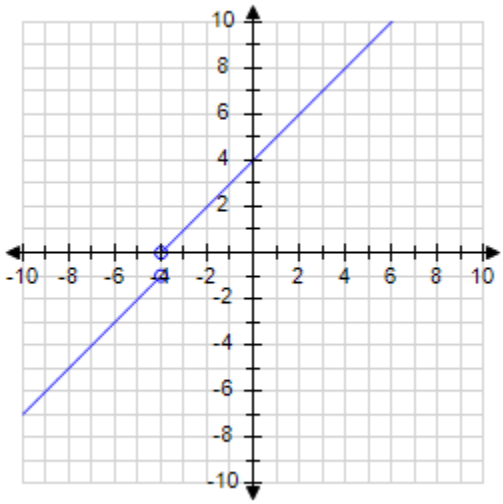
39. Use the graph of the function to find the domain and range of f.



a. domain: all real numbers
range: $(-\infty, -1) \cup (0, \infty)$

b. domain: $(-\infty, -4) \cup (-4, \infty)$
range: $(-\infty, -1) \cup (0, \infty)$

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c. domain: $(-\infty, -1) \cup (0, \infty)$
range: $(-\infty, -4) \cup (-4, \infty)$

d. domain: all real numbers
range: $(-\infty, -1] \cup [0, \infty)$

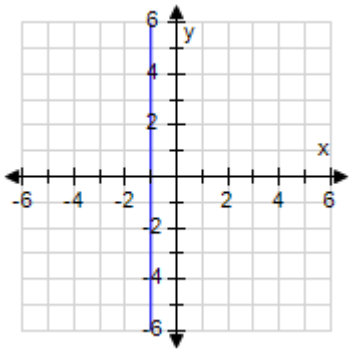
e. domain: all real numbers
range: all real numbers

ANSWER: b
POINTS: 1
REFERENCES: 2.3.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.117 - Find domain and range of graphs
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 7:47 AM

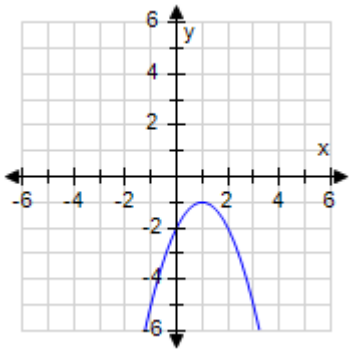
40. Use the Vertical Line Test to determine in which of the graphs y is **not** a function of x.

a. All of the choices (b, c, d, and e) represent functions.

b. $x = -1$



c. $y = -x^2 + 2x - 2$



d. $y = 2x + 3$

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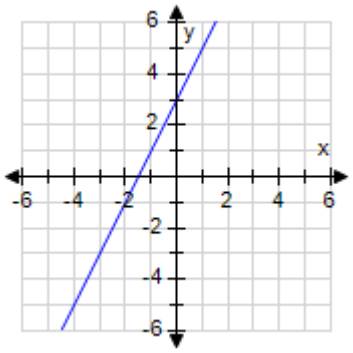
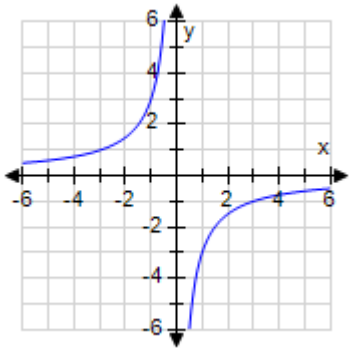


e. $y = -\frac{3}{x}$



ANSWER: b
POINTS: 1
REFERENCES: 2.3.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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41. Find the zeroes of the function algebraically.

$$f(x) = -\frac{x^2 + 13x + 40}{9x}$$

a. $x = 8, x = 5, x = -\frac{1}{9}$

b. $x = -8, x = -5$

c. $x = 8, x = 5$

d. $x = -\frac{1}{9}$

e. $x = -8, x = -5, x = -\frac{1}{9}$

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Section 1.5 - Analyzing Graphs of Functions

ANSWER: b
POINTS: 1
REFERENCES: 2.3.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/13/2021 11:54 AM

42. Find the zeroes of the function algebraically.

$f(x) = \sqrt{9x} - 5$

a. $x = -\frac{5}{9}, x = \frac{5}{9}$

b. $x = -\frac{25}{9}, x = \frac{25}{9}$

c. $x = \frac{5}{9}$

d. $x = \frac{25}{9}$

e. no real zeroes

ANSWER: d
POINTS: 1
REFERENCES: 2.3.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/13/2021 11:56 AM

43. Use a graphing utility to graph the function and find the zeroes of the function.

$f(x) = 7 - \frac{3}{x}$

a. $x = \frac{3}{7}$

b. $x = -\frac{3}{7}$

c. $x = \frac{7}{3}$

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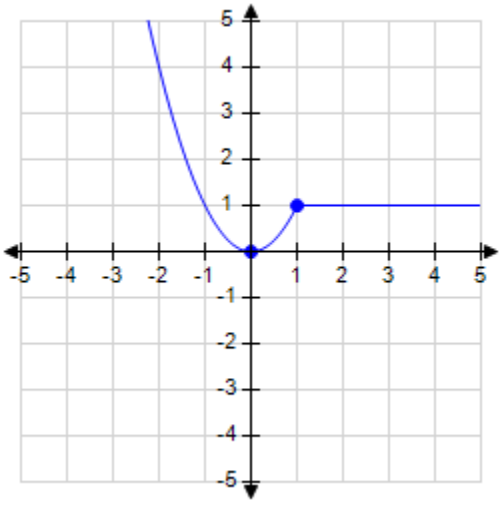
d. $x = -\frac{7}{3}$

e. no real zeroes

ANSWER: a
POINTS: 1
REFERENCES: 2.3.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/29/2014 4:29 AM

44. Determine the intervals over which the function is increasing, decreasing, or constant.

$$f(x) = \begin{cases} x^2, x < 1 \\ 1, x \geq 1 \end{cases}$$



a. constant on (–∞, 0)
increasing on (0, ∞)

b. decreasing on (–∞, 0)
increasing on (0, 1)
constant on (1, ∞)

c. constant on (–∞, 1)
increasing on (1, ∞)

d. constant on (–∞, 0)
decreasing on (1, ∞)

e. constant on (–∞, 0)
decreasing on (0, 1)

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Section 1.5 - Analyzing Graphs of Functions

ANSWER: b
POINTS: 1
REFERENCES: 2.3.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 6:54 AM

45. Use a graphing utility to graph the function and visually determine the intervals over which the function is increasing, decreasing, or constant.

$f(x) = 6x^2 - 12x + 6$

a. increasing on $(-\infty, \infty)$
b. decreasing on $(-\infty, 1)$
   increasing on $(1, \infty)$
c. increasing on $(-\infty, 1)$
   decreasing on $(1, \infty)$
d. decreasing on $(-\infty, \infty)$
e. decreasing on $(1, 1)$
   increasing on $(1, \infty)$

ANSWER: b
POINTS: 1
REFERENCES: 2.3.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 6:59 AM

46. Use a graphing utility to graph the function and approximate (to two decimal places) any relative minimum or relative maximum values.

$f(x) = x^3 + 2x^2 - 2x + 3$

a. relative maximum: (2.58, 0.39)
   relative minimum: (7.27, –1.72)
b. relative maximum: (0.39, 2.58)
   relative minimum: (–1.72, 7.27)
c. relative maximum: (–1.72, 7.27)
   relative minimum: (0.39, 2.58)
d. relative maximum: (7.27, –1.72)
   relative minimum: (2.58, 0.39)
e. relative maximum: (2.58, 28.33)

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relative minimum: (7.27, 478.41)

ANSWER: c
POINTS: 1
REFERENCES: 2.3.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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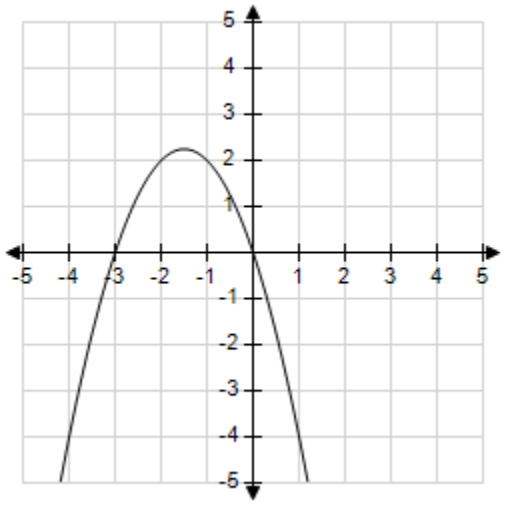
47. Graph the function and determine the interval(s) for which $f(x) \geq 0$.

$f(x) = -x^2 - 3x$



a. $(-\infty, -3) \cup (0, \infty)$
b. $(-3, 0)$
c. $[-3, 0]$
d. $\{-3\}$
e. $(-\infty, -3] \cup [0, \infty)$

ANSWER: c
POINTS: 1
REFERENCES: 2.3.70
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. Determine whether the function is even, odd, or neither.

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$f(x) = 3x^3 - 8x + 5$

a. neither
b. even
c. odd

ANSWER: a
POINTS: 1
REFERENCES: 2.3.95
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.121 - Identify even and odd functions
DATE CREATED: 6/10/2014 4:18 PM
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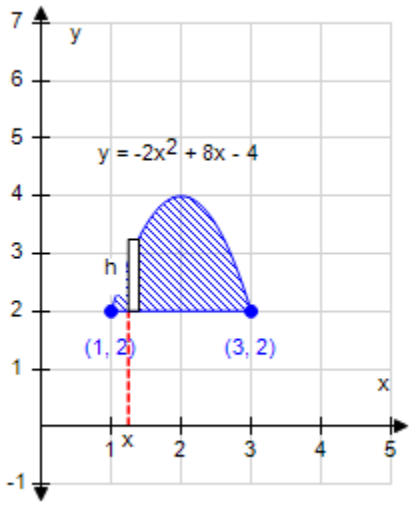
49. Write the height h of the rectangle as a function of x.



a. $h(x) = x^2 + 2x$
b. $h(x) = -2x^2 + 8x - 6$
c. $h(x) = -2x^2 + 8x - 5$
d. $h(x) = -2x^2 + 8x - 4$
e. $h(x) = -2x^2 + 6x - 4$

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Section 1.5 - Analyzing Graphs of Functions

ANSWER: b
POINTS: 1
REFERENCES: 2.3.103
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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50. Use the position equation $s = -16t^2 + v_0t + s_0$ to write a function that represents the situation and give the average velocity of the object from time t_1 to time t_2.
An object is thrown upward from a height of 38 feet at a velocity of 84 feet per second.
$t_1 = 1, t_2 = 3$

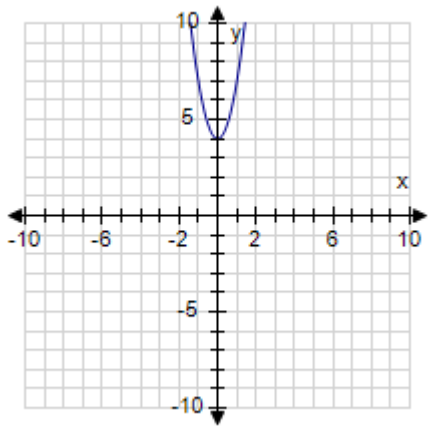
a. $s = -16t^2 + 38t + 84$; avg. velocity = 79 ft/s
b. $s = -16t^2 + 84t + 38$; avg. velocity = 125 ft/s
c. $s = -16t^2 + 38t + 84$; avg. velocity = –26 ft/s
d. $s = -16t^2 + 84t + 38$; avg. velocity = 20 ft/s
e. $s = -16t^2 + 84t + 38$; avg. velocity = 40 ft/s

ANSWER: d
POINTS: 1
REFERENCES: 2.3.115
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 4/17/2015 4:08 AM
DATE MODIFIED: 4/17/2015 4:38 AM

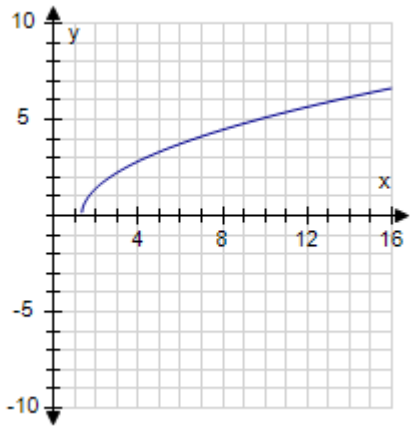
51. Find the graph of the equation.

$f(x) = \sqrt{3x - 4}$

a.



b.



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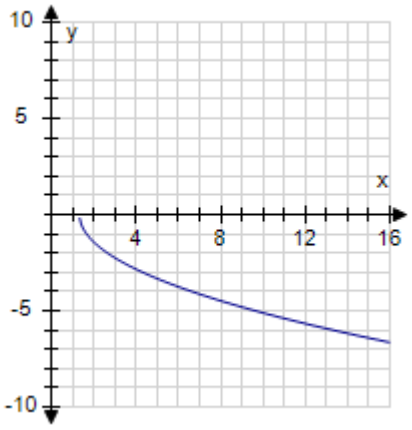
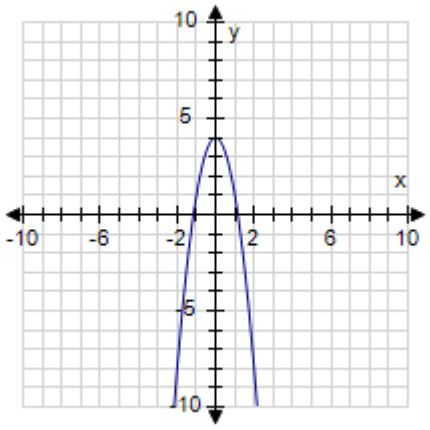
c.



d.



ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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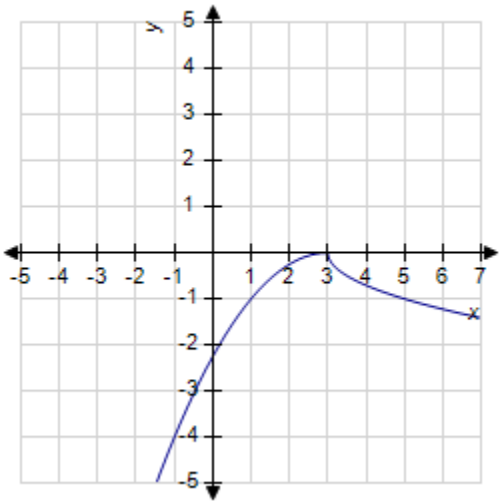
52. Tell where the function is increasing.



a. $(3, \infty)$
b. $(-\infty, 3)$
c. always increasing
d. always constant
e. always decreasing

ANSWER: b

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Section 1.5 - Analyzing Graphs of Functions

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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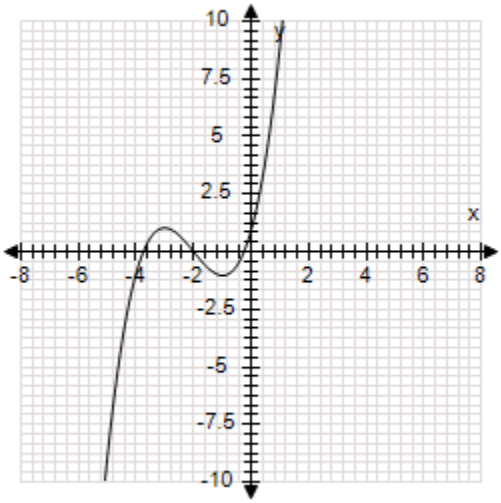
53. The graph of a function is sketched below.



Determine the interval on which the function is decreasing.

a. $(-\infty, -3) \cup (-1, \infty)$
b. $(-3, -1)$
c. $(-1, -1)$
d. $(1, 3)$
e. $(-\infty, -3) \cup (-1, \infty)$

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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54. Tell where the function is decreasing.

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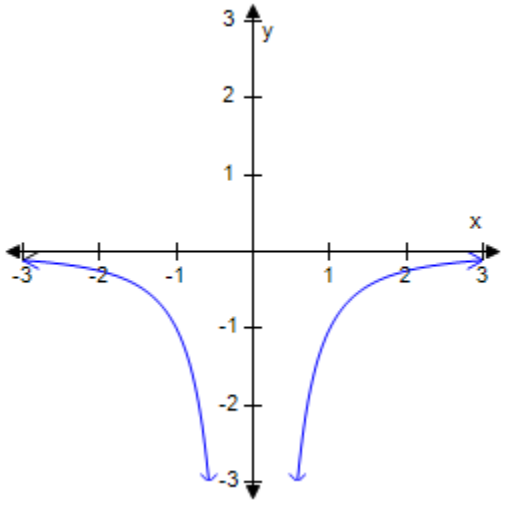

a. always increasing
b. always decreasing
c. (0, ∞)
d. always constant
e. (–∞, 0)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2015 9:36 AM

55. Graph the piecewise-defined function.

$$y = f(x) = \begin{cases} x + 6, \text{ if } x < 0 \\ 6, \text{ if } x \geq 0 \end{cases}$$

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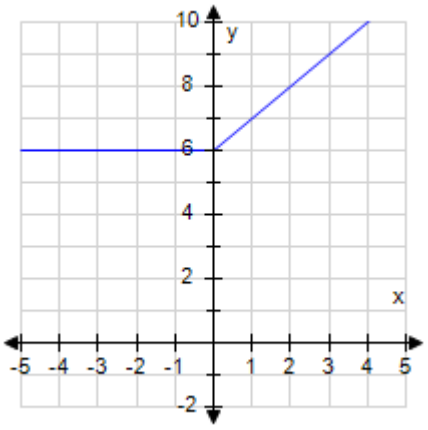
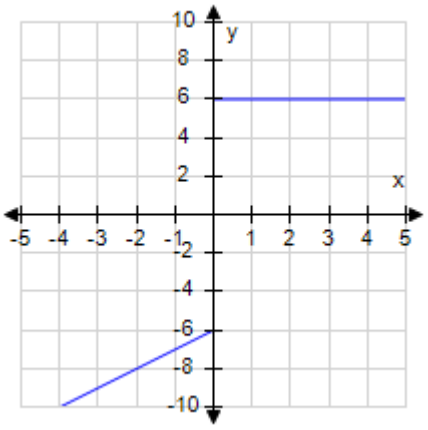
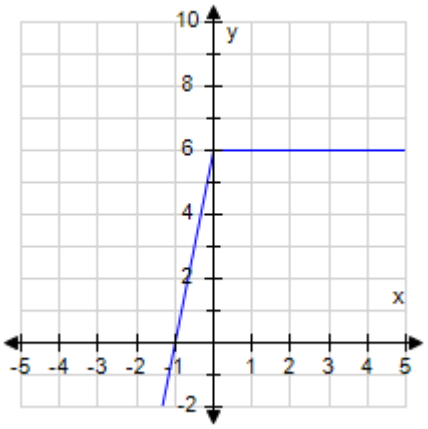
a.



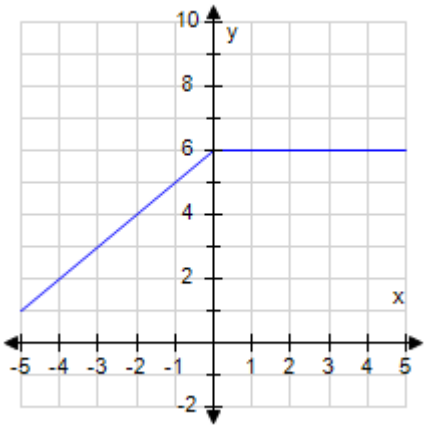
b.



c.



d.



ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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56. Graph the function.

$y = [[4x]]$

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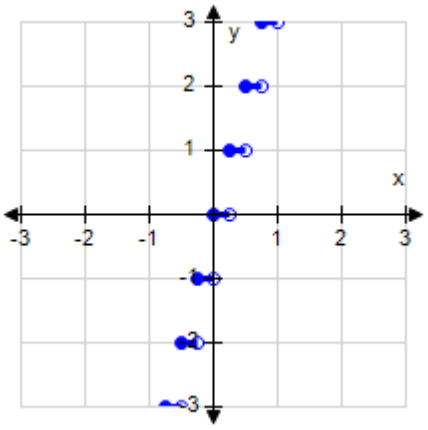
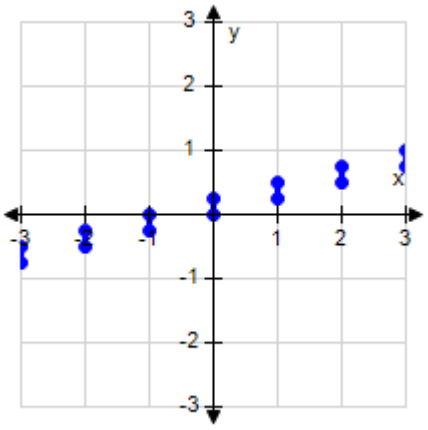
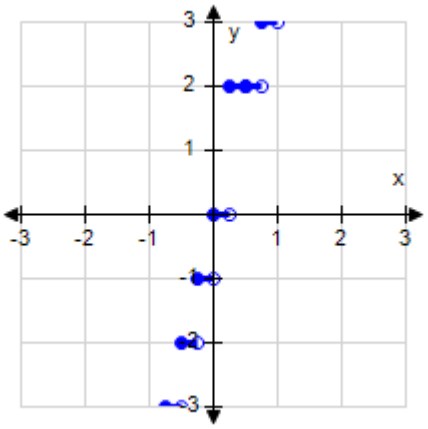
a.



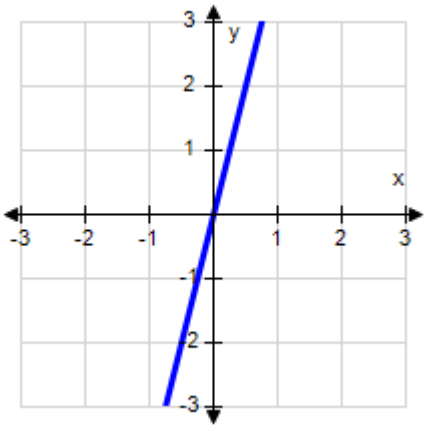
b.



c.



d.



ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 10/1/2014 8:43 AM

57. The graph of the function is sketched as follows:

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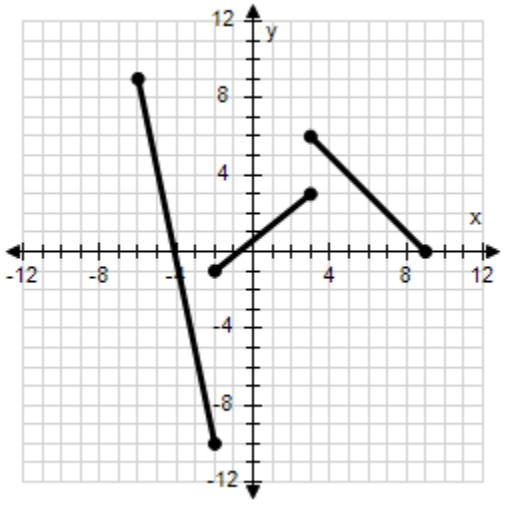
Section 1.5 - Analyzing Graphs of Functions



Determine the interval where the function is increasing.

ANSWER: $[-2, 3]$

POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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Section 1.6 - A Library of Parent Functions

1. Identify the following function.

$f(x) = 8$

a. Constant function
b. Absolute value function
c. Square root function
d. Squaring function
e. Identity function

ANSWER: a
POINTS: 1
REFERENCES: 2.4.1e
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 3:10 AM

2. Select the linear function such that it has the indicated function values.

$f(1) = 8, f(0) = 7$

a. $f(x) = 4x + 7$
b. $f(x) = x + 7$
c. $f(x) = 7x–3$
d. $f(x) = x - 7$
e. $f(x) = -7x - 7$

ANSWER: b
POINTS: 1
REFERENCES: 2.4.11a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 3:40 AM

3. Select the linear function such that it has the indicated function values.

$f(8) = 16, f(-3) = -17$

a. $f(x) = 3x - 8$
b. $f(x) = -3x + 3$
c. $f(x) = 3x + 8$
d. $f(x) = 8x + 3$

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e. $f(x) = -3x - 3$

ANSWER: a
POINTS: 1
REFERENCES: 2.4.14a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/24/2014 6:16 AM

4. Select the linear function such that it has the indicated function values.

$f(-4) = -2, f(4) = -2$

a. $f(x) = -x$
b. $f(x) = 2$
c. $f(x) = -2$
d. $f(x) = 4$
e. $f(x) = x$

ANSWER: c
POINTS: 1
REFERENCES: 2.4.15a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 5/12/2015 10:54 AM

5. Select the correct graph of the given function.

$f(x) = -x + 5$

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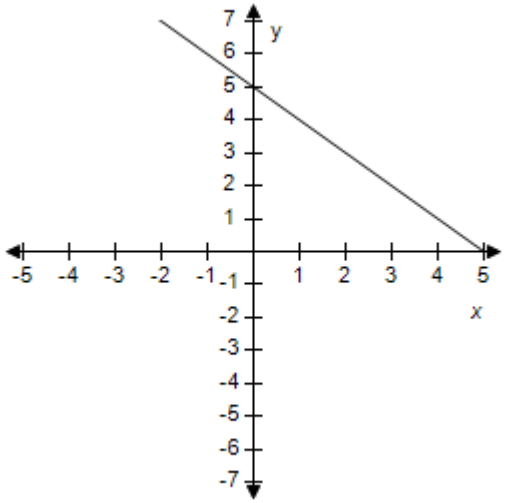
a.



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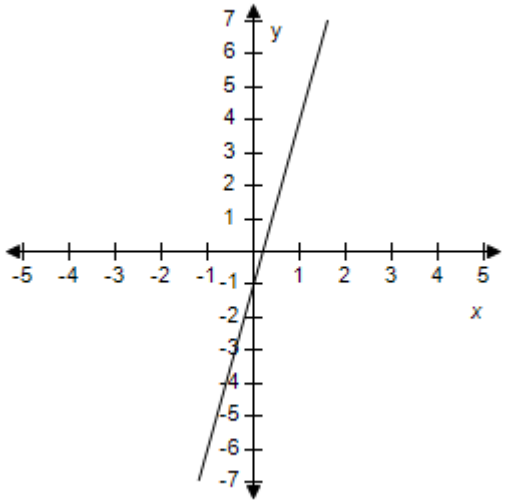

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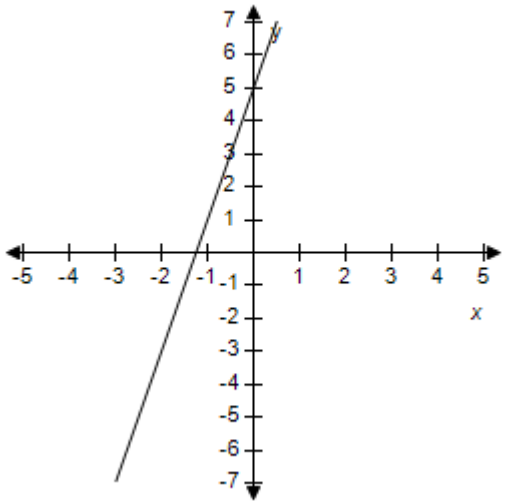

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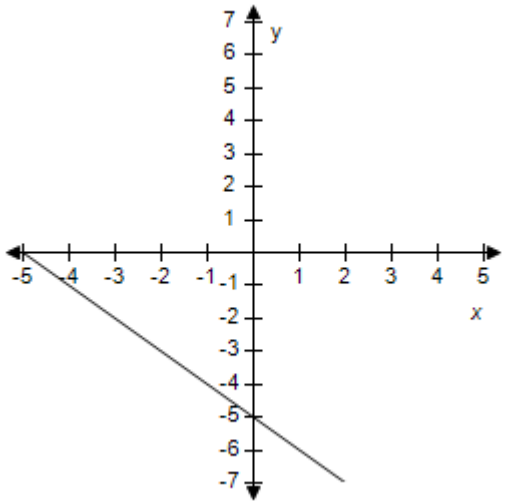

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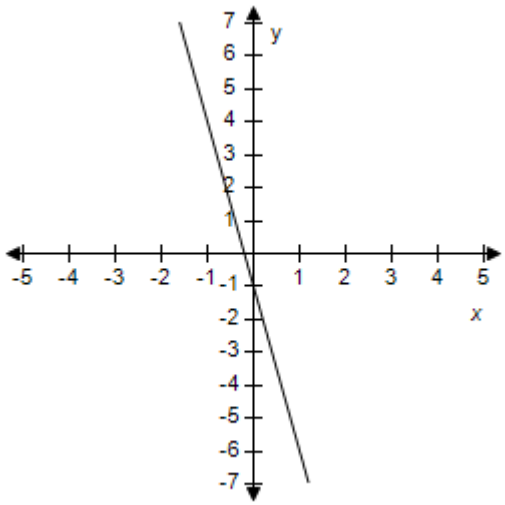

ANSWER: a

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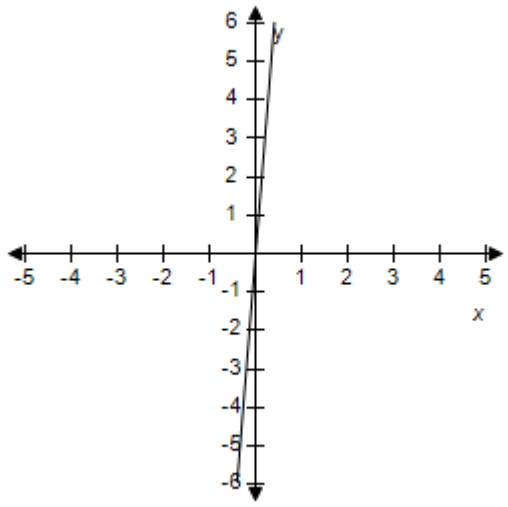
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.19
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 4:10 AM

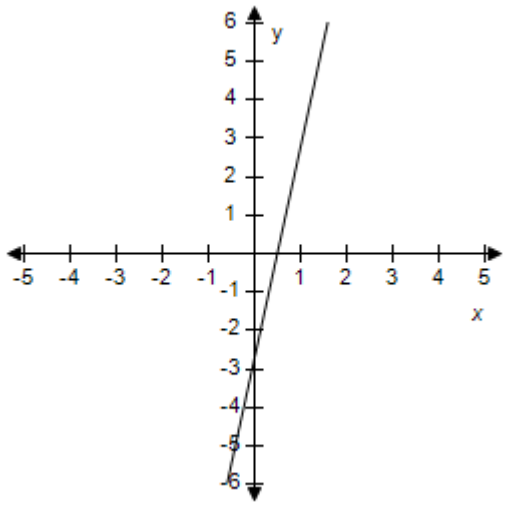
6. Select the correct graph of the given function.

$f(x) = 2.7x - 5.5$

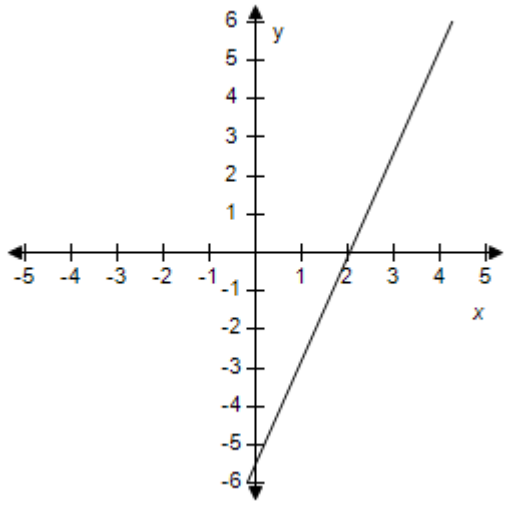
a.



b.



c.



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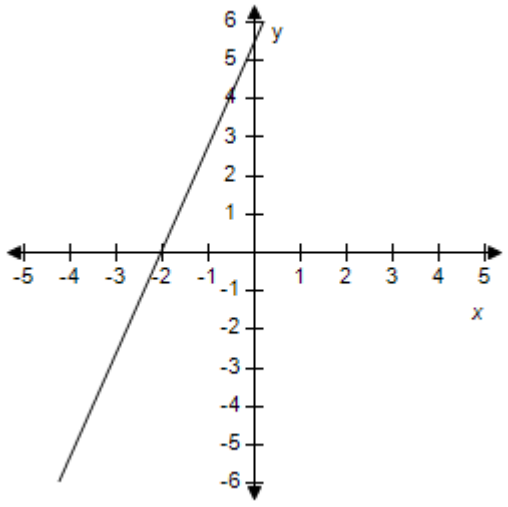

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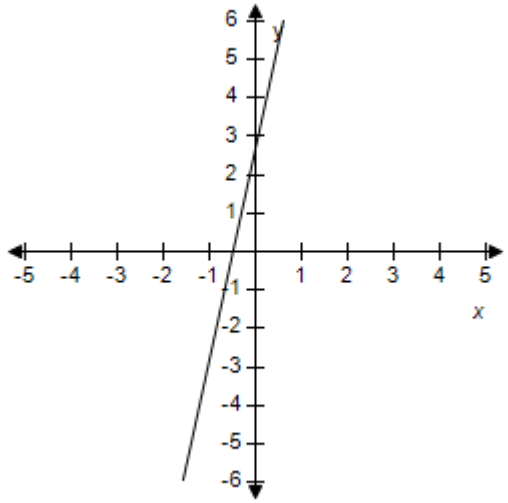
e.

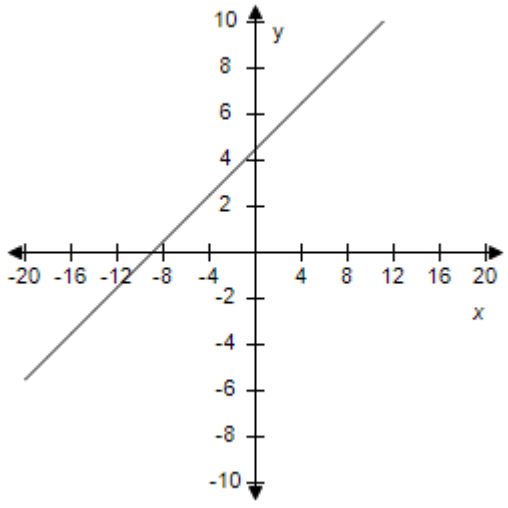


ANSWER: c
POINTS: 1
REFERENCES: 2.4.20
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 9:32 AM

7. Select the correct graph of the given function.

$$f(x) = -\frac{1}{2}x - \frac{9}{2}$$

a.



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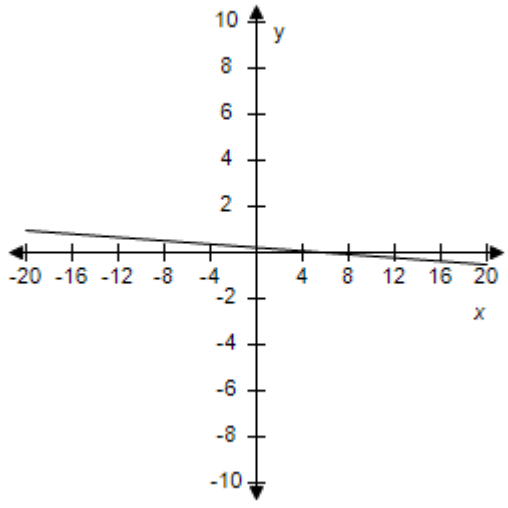

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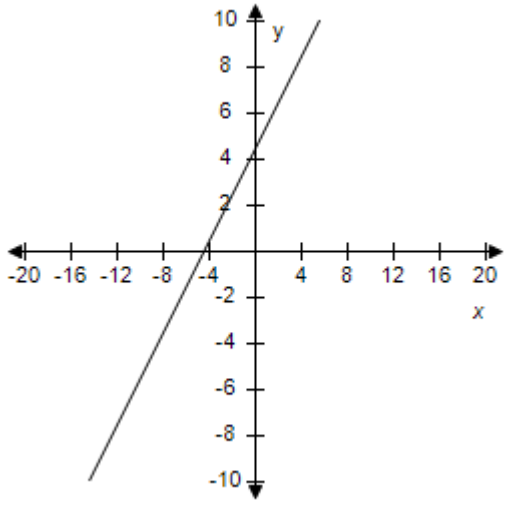
c.



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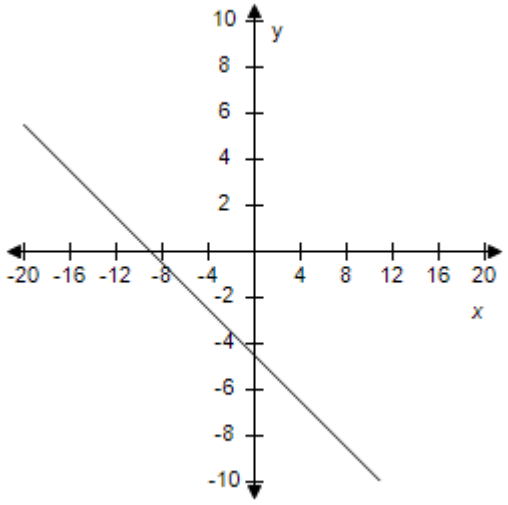

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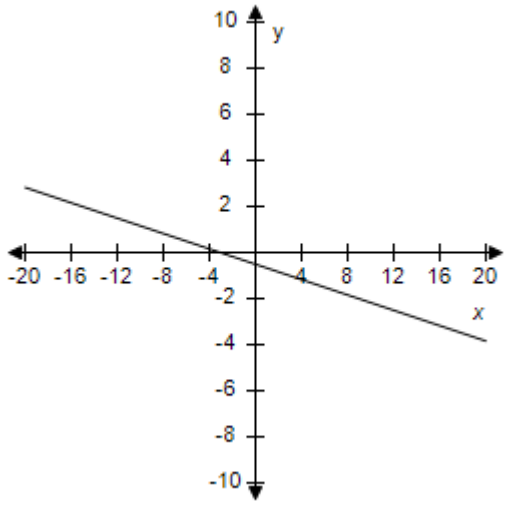

ANSWER: d
POINTS: 1
REFERENCES: 2.4.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 6:20 AM

8. Select the correct graph of the given function.

$f(x) = -3x^3$

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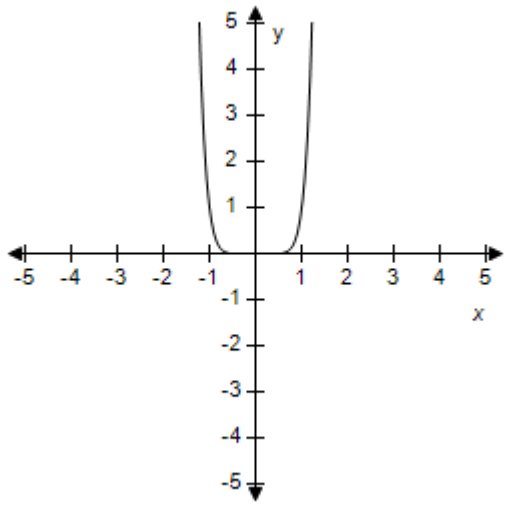
a.



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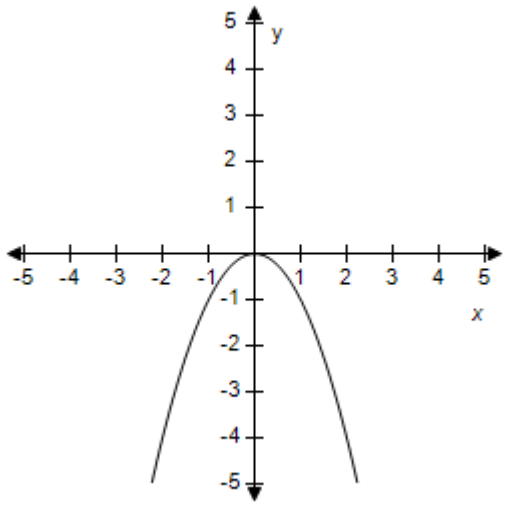

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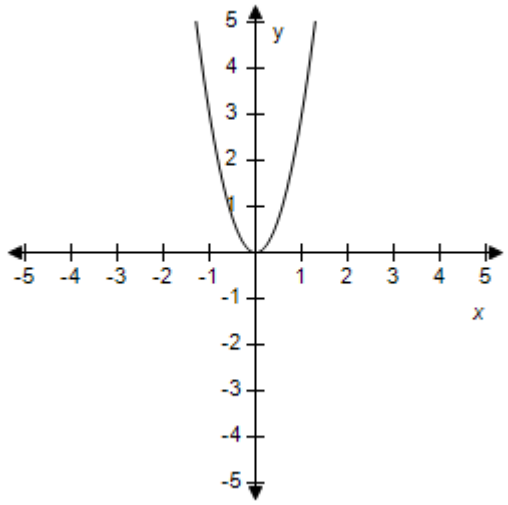
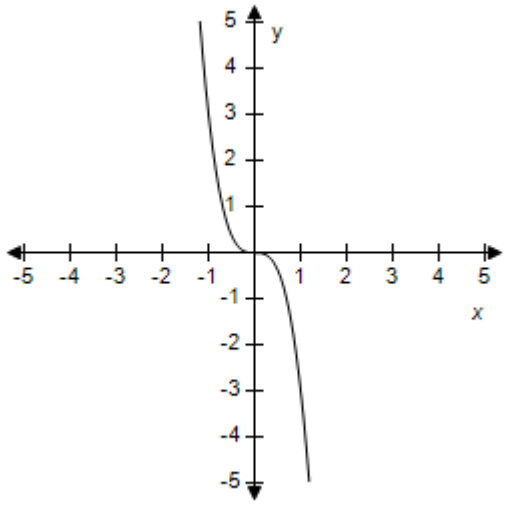


d.



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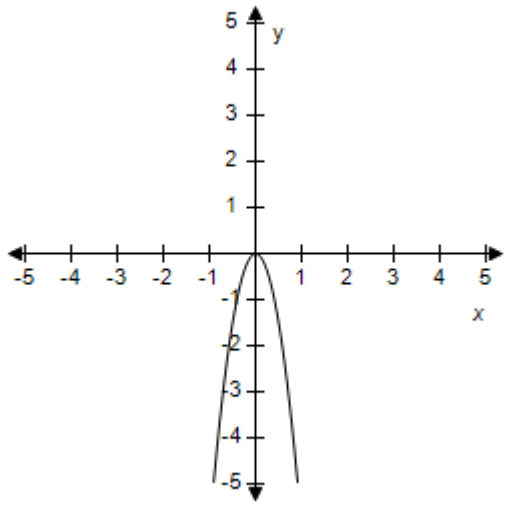

ANSWER: d

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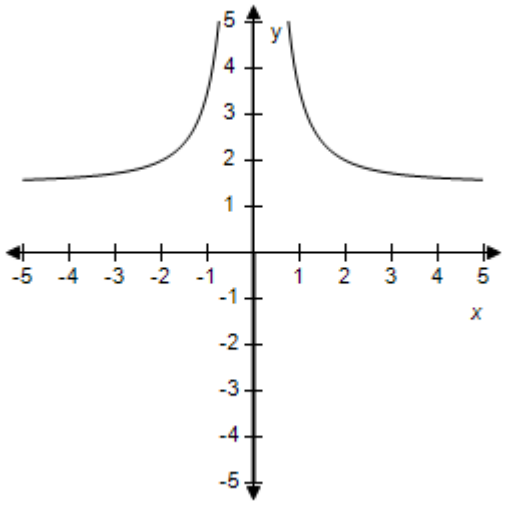
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 4:49 AM

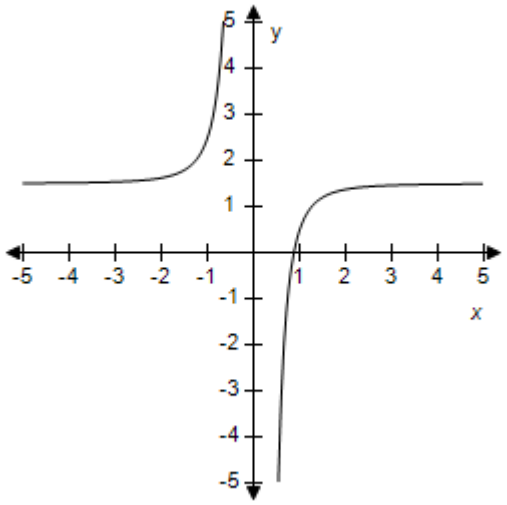
9. Select the correct graph of the given function.

$f(x) = 1.5 - 2x^2$

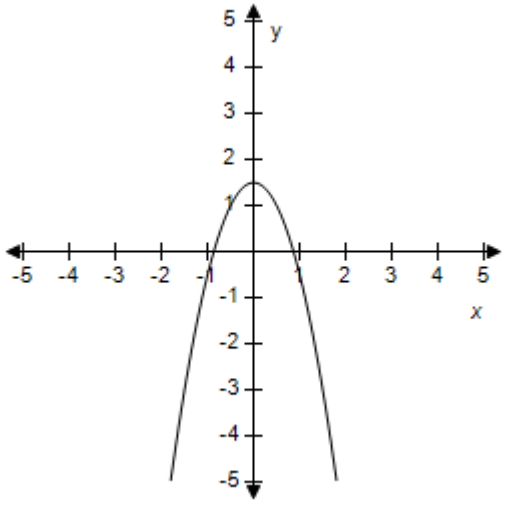
a.



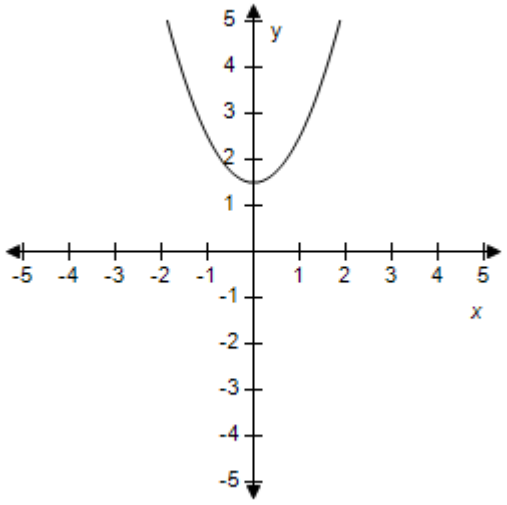
b.



c.



d.



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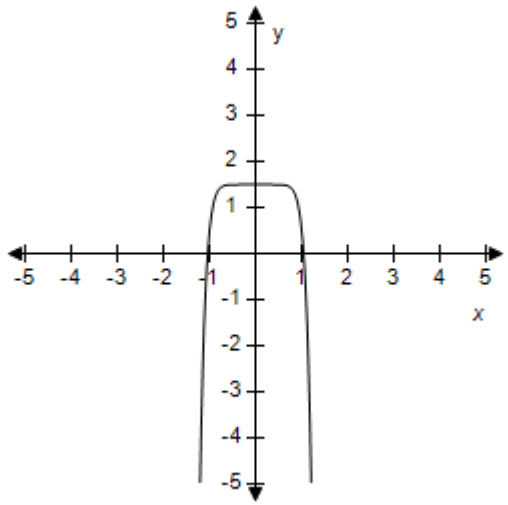
e.

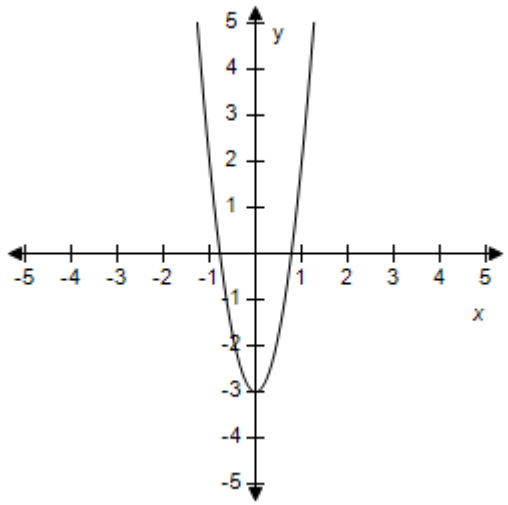


ANSWER: c
POINTS: 1
REFERENCES: 2.4.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 5:02 AM

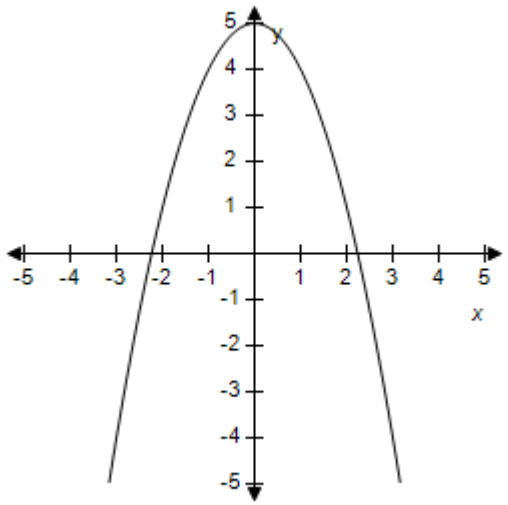
10. Select the correct graph of the given function.

$f(x) = 5x^2 - 1$

a.



b.



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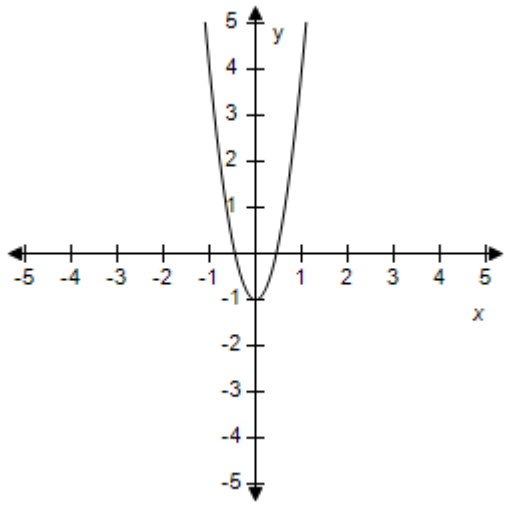
c.



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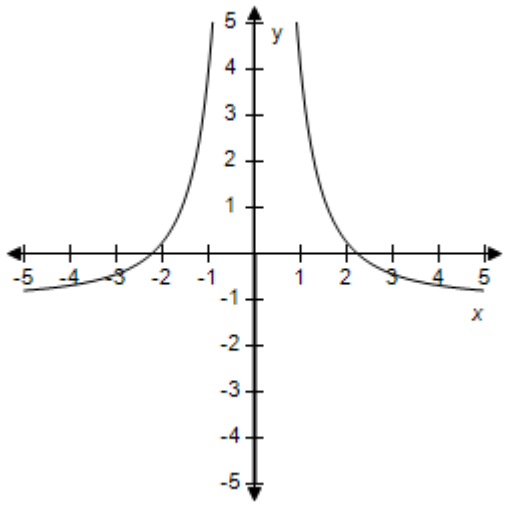

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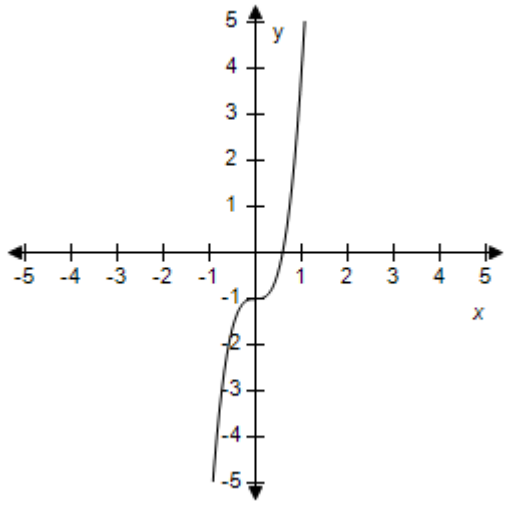

ANSWER: c
POINTS: 1
REFERENCES: 2.4.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/24/2014 7:28 AM

11. Select the correct graph of the given function.

$f(x) = x^6 - 6$

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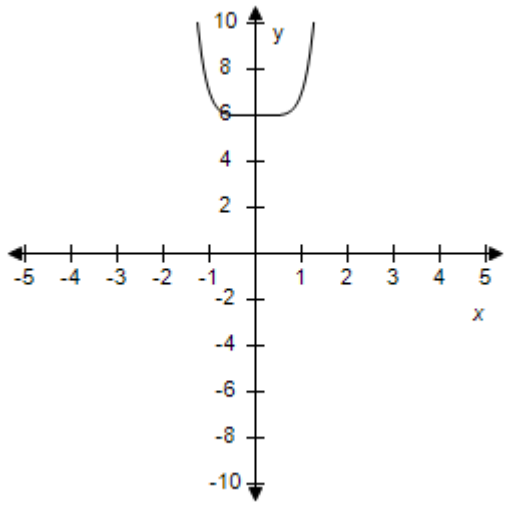
a.



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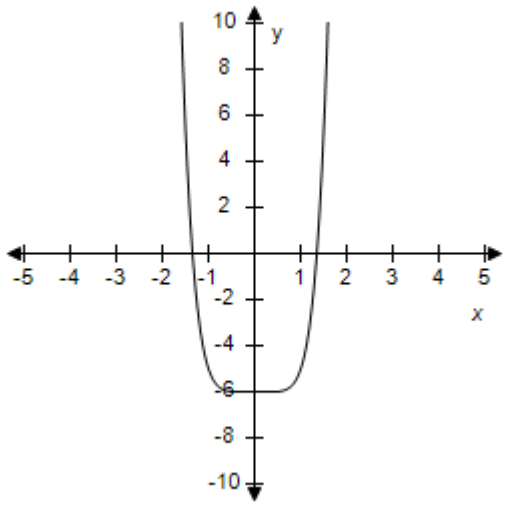

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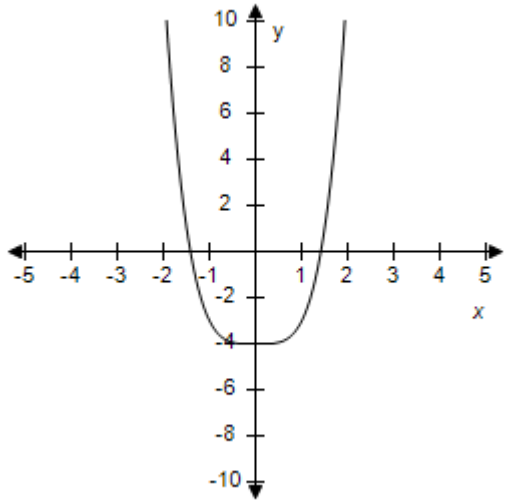

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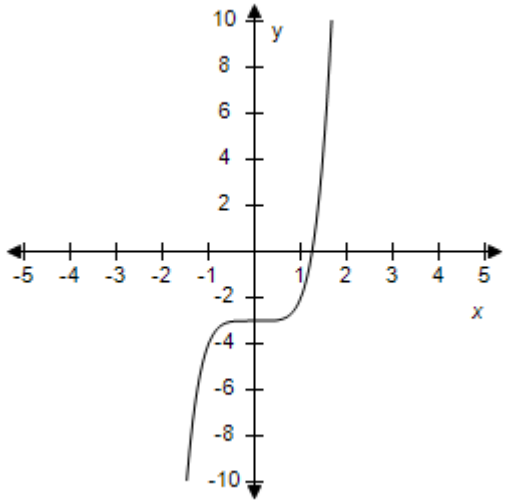

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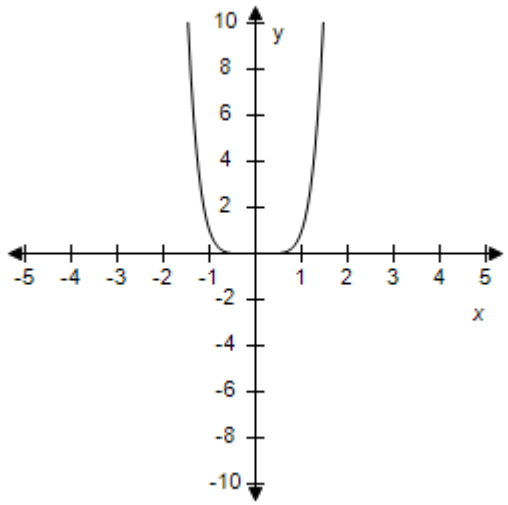

ANSWER: b

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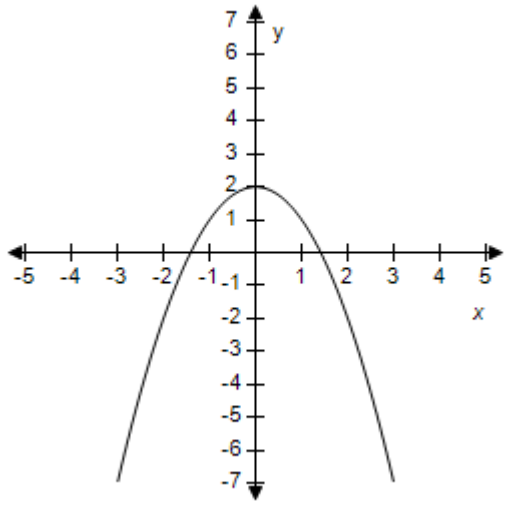
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 5:33 AM

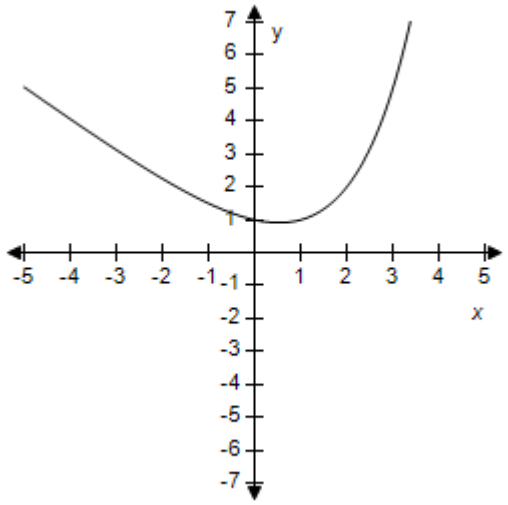
12. Select the correct graph of the given function.

$f(x) = 2 - x^2$

a.



b.



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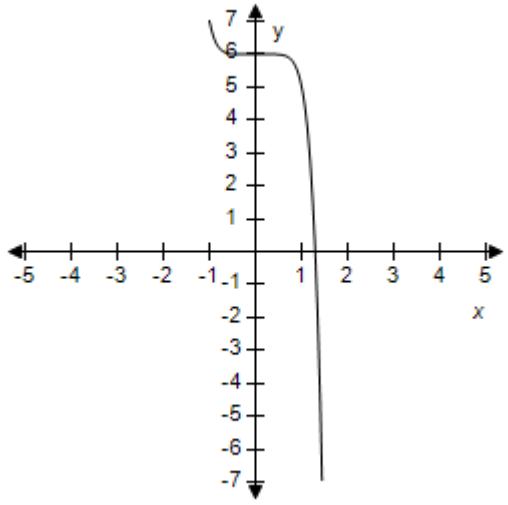

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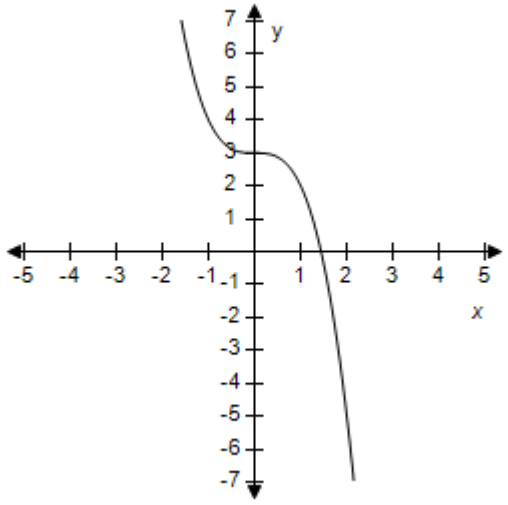

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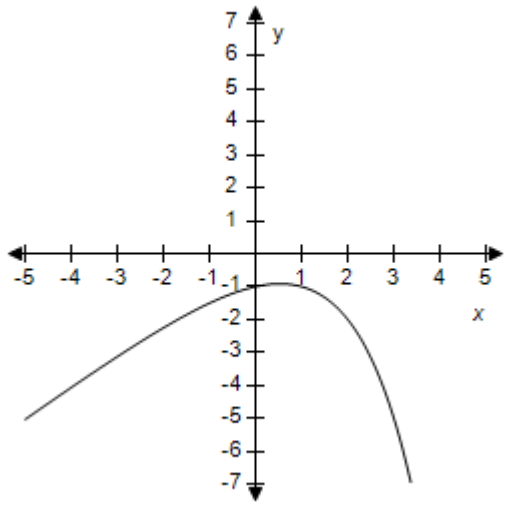
e.

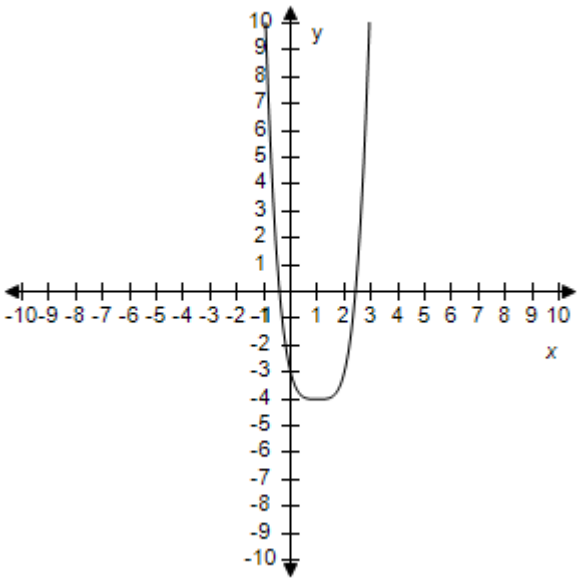


ANSWER: a
POINTS: 1
REFERENCES: 2.4.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 5:41 AM

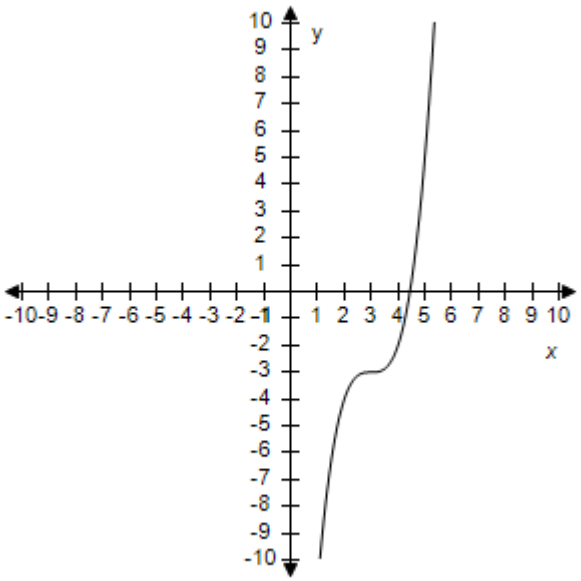
13. Select the correct graph of the given function.

$f(x) = (x-3)^3 - 3$

a.



b.



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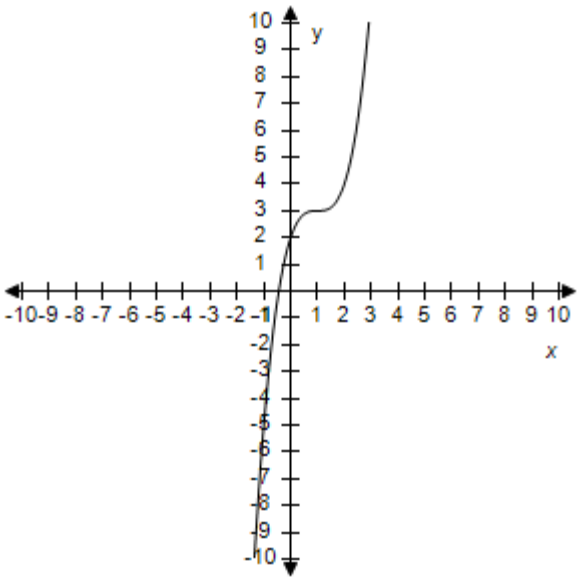
c.



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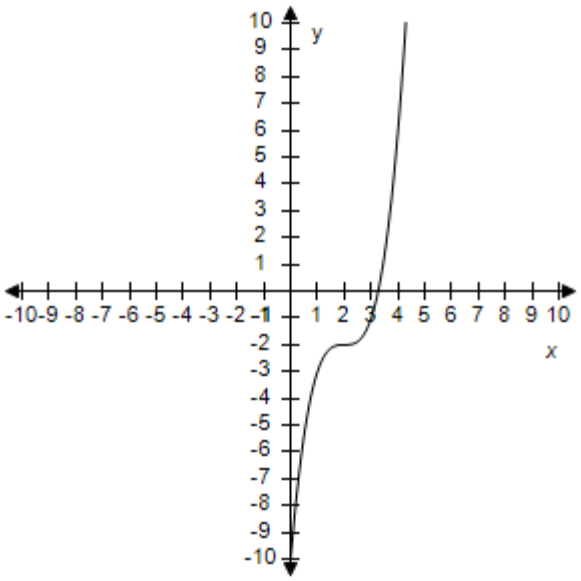

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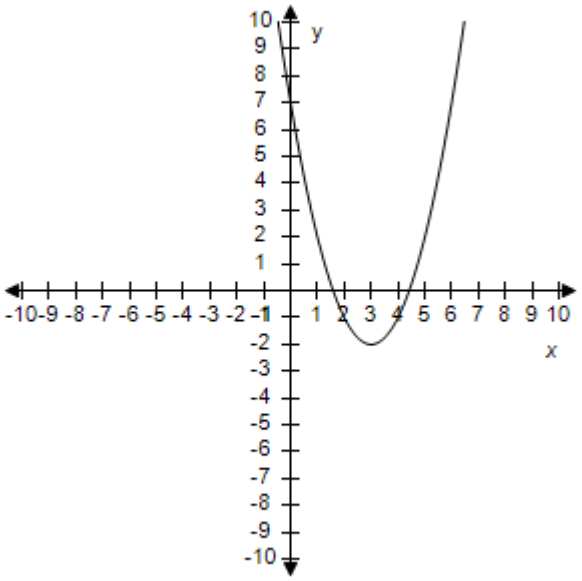

ANSWER: b
POINTS: 1
REFERENCES: 2.4.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 6:11 AM

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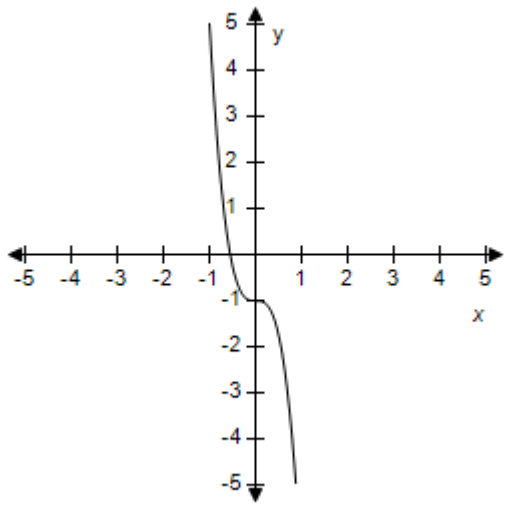
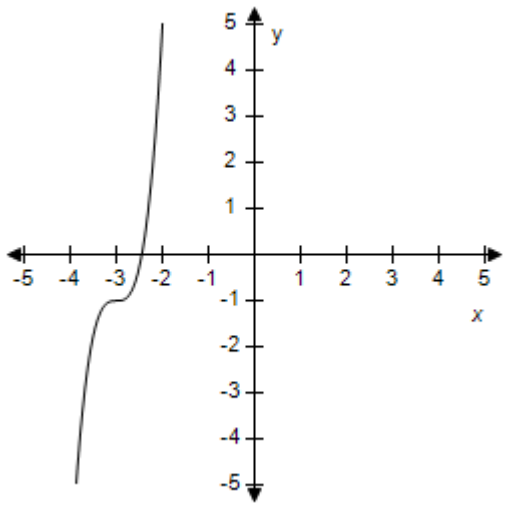
14. Select the correct graph for the given function.

$f(x) = 6(x+3)^3 - 1$

a.



b.



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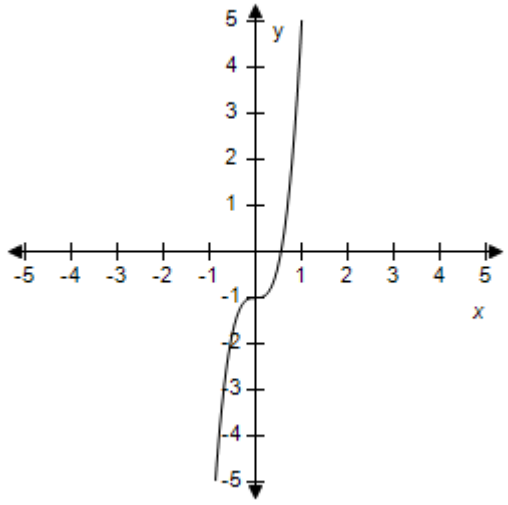

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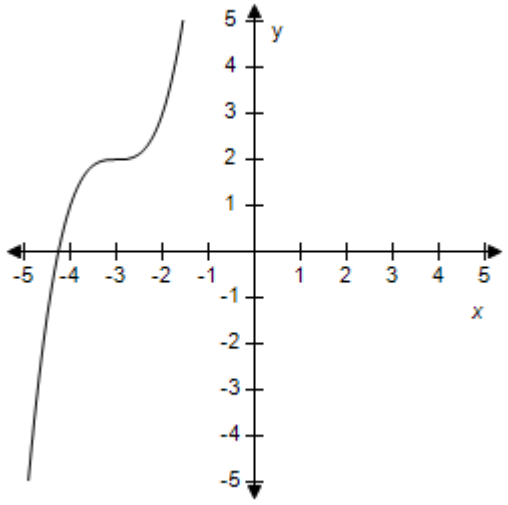

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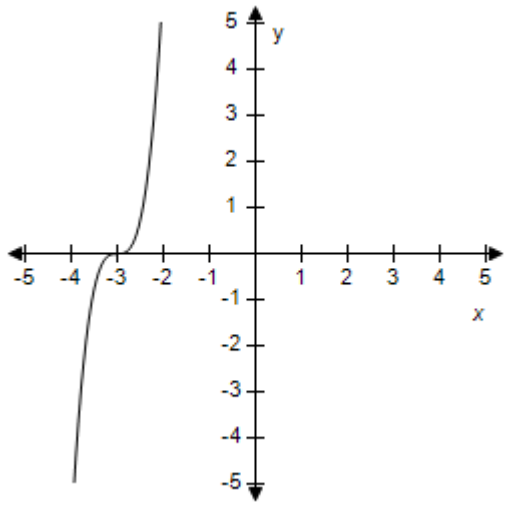
e.

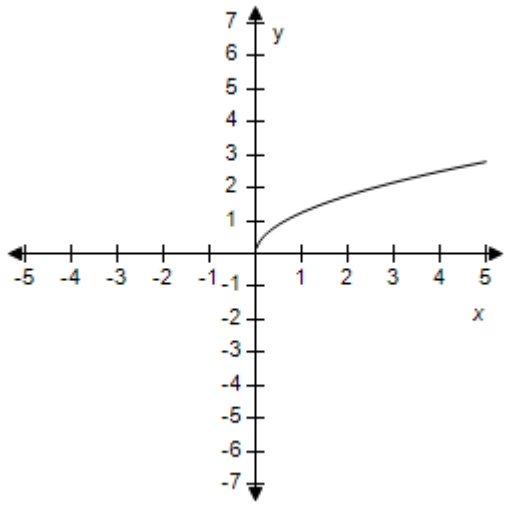


ANSWER: b
POINTS: 1
REFERENCES: 2.4.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 9:45 AM

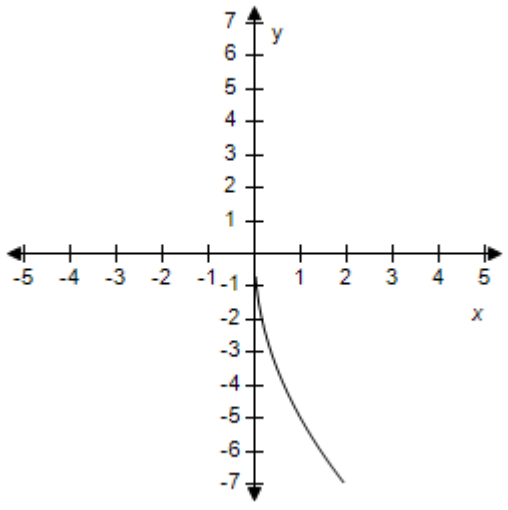
15. Select the correct graph for the given function.

$f(x) = 5\sqrt{x}$

a.



b.



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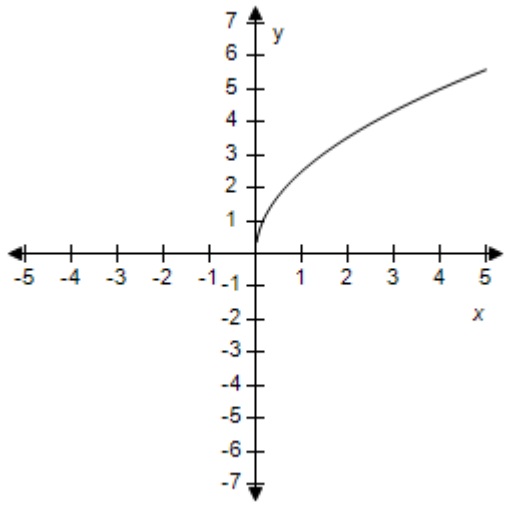
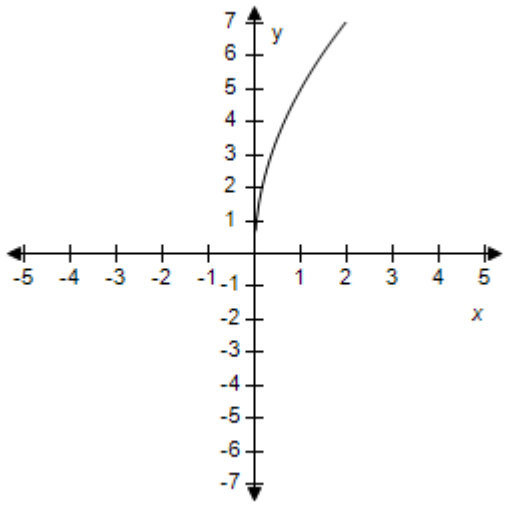
c.



d.



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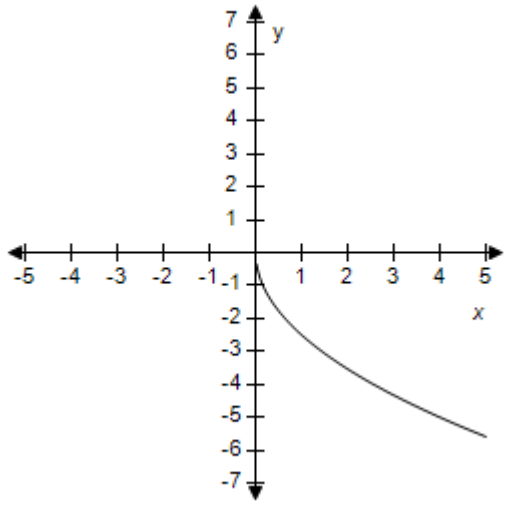

ANSWER: d
POINTS: 1
REFERENCES: 2.4.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 6:36 AM

16. Select the correct graph of the given function.

$f(x) = 1 - 2\sqrt{x}$

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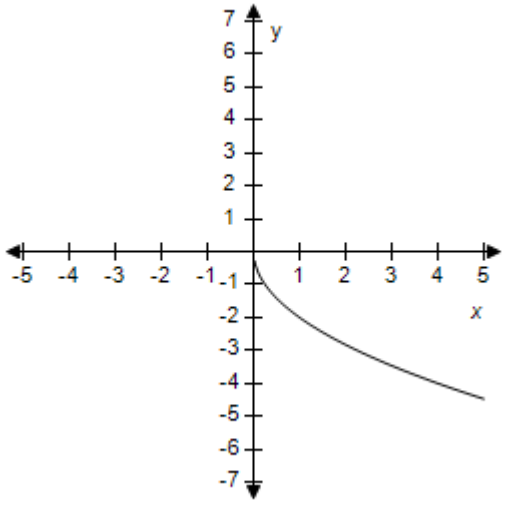
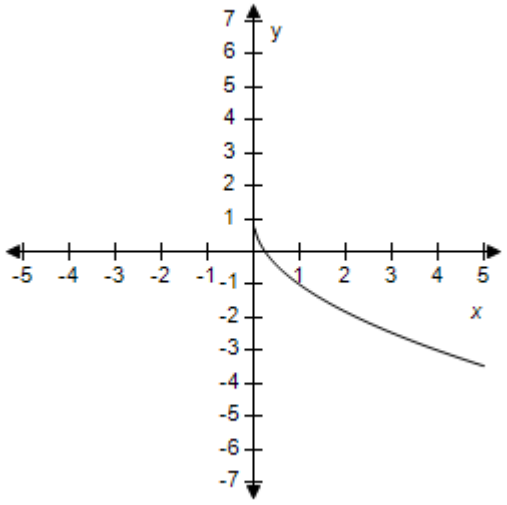
a.



b.



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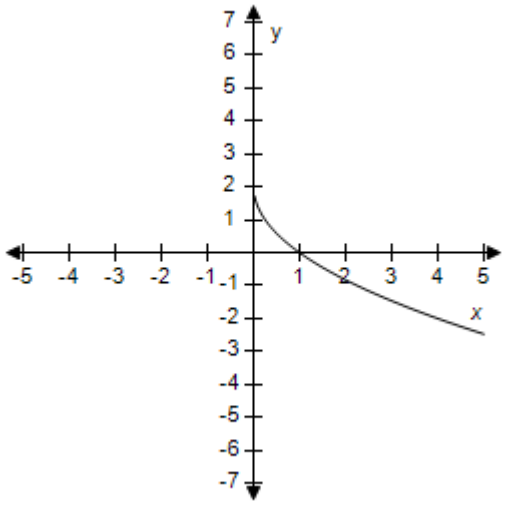

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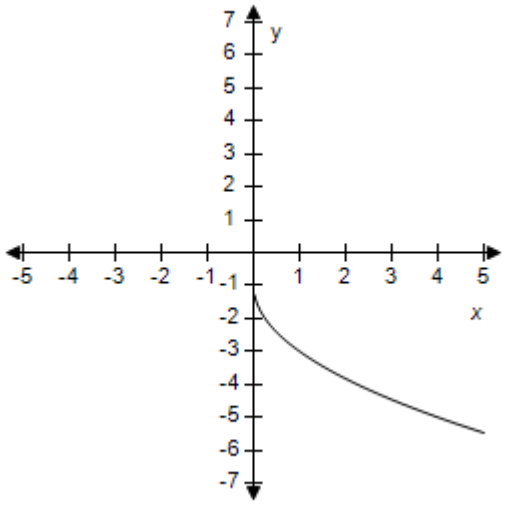

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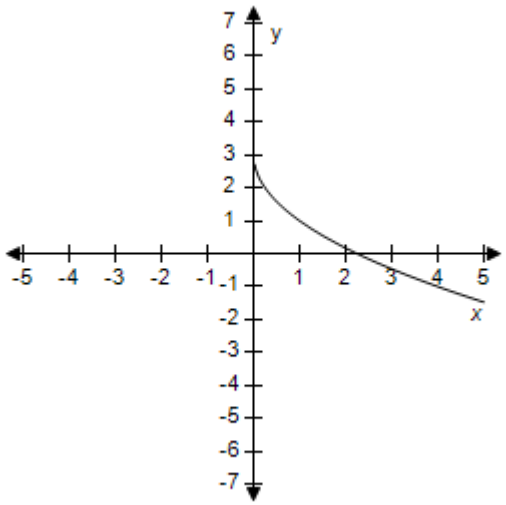

ANSWER: b

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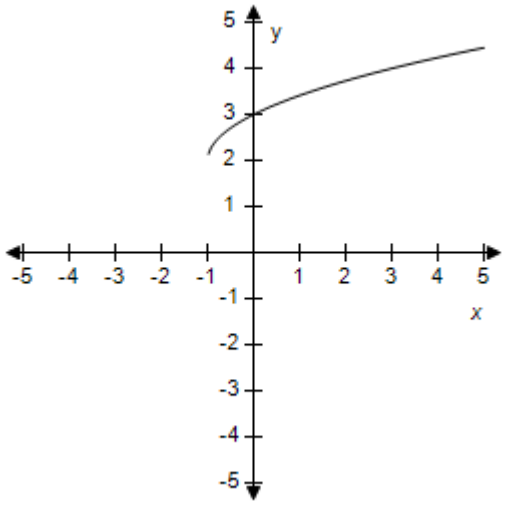
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 6:43 AM

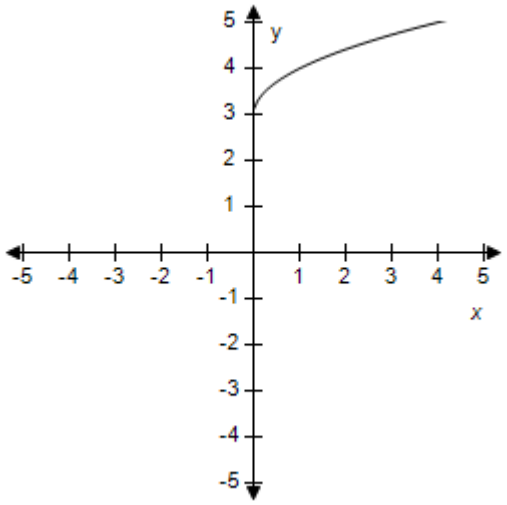
17. Select the correct graph of the given function.

$f(x) = \sqrt{x+1} + 2$

a.



b.



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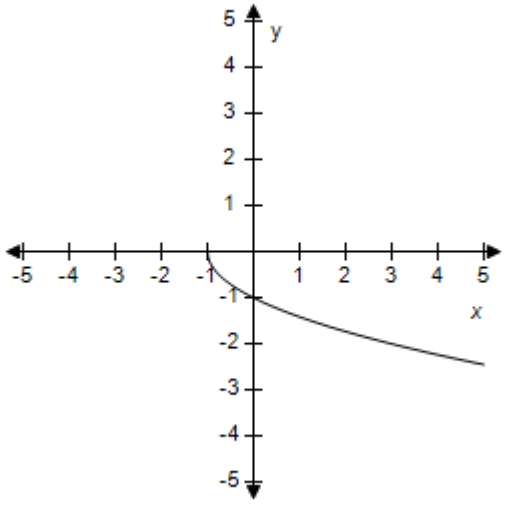
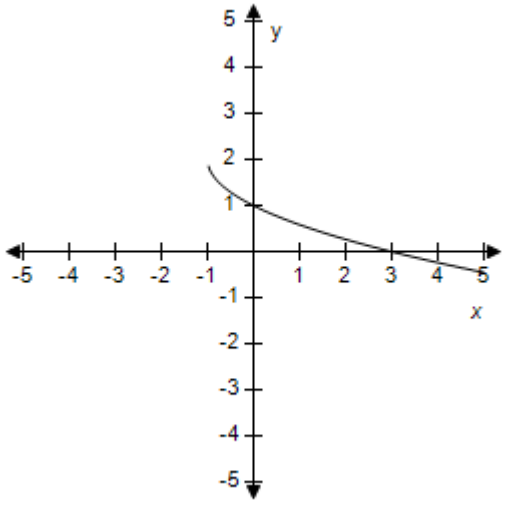


d.



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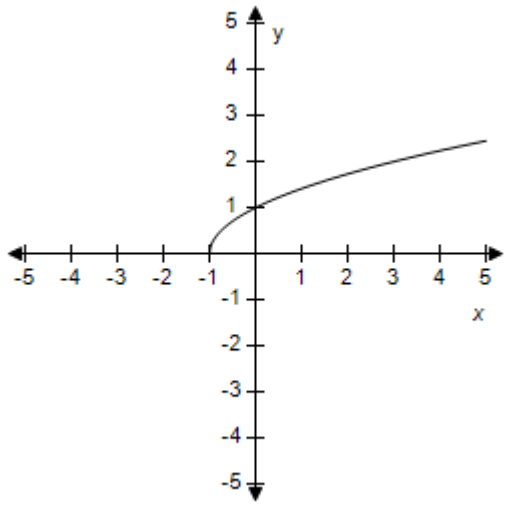
e.

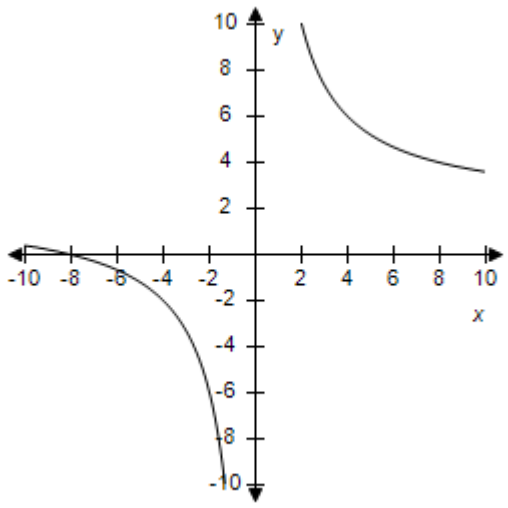


ANSWER: a
POINTS: 1
REFERENCES: 2.4.34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 7:00 AM

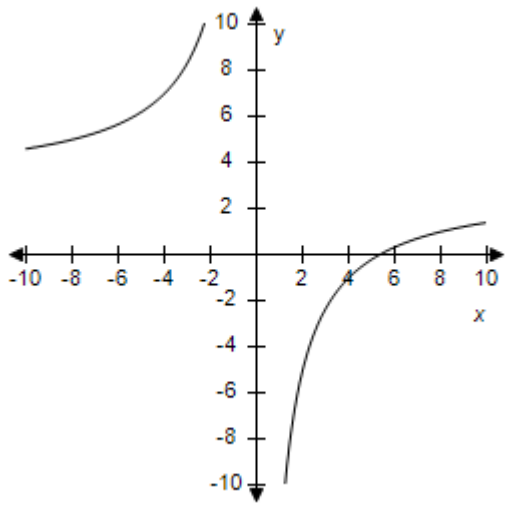
18. Select the correct graph of the given function.

$$f(x) = -\frac{8}{x}$$

a.



b.



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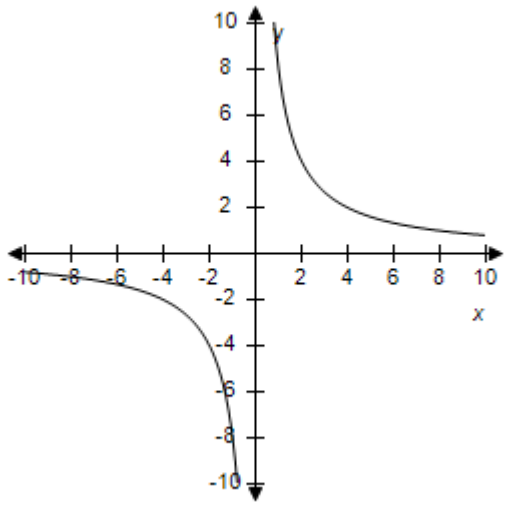
c.



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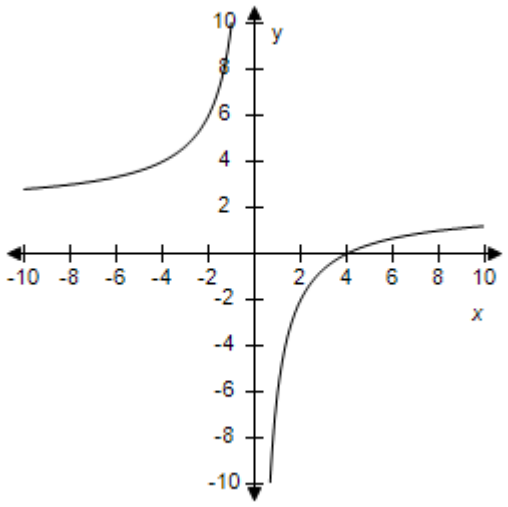
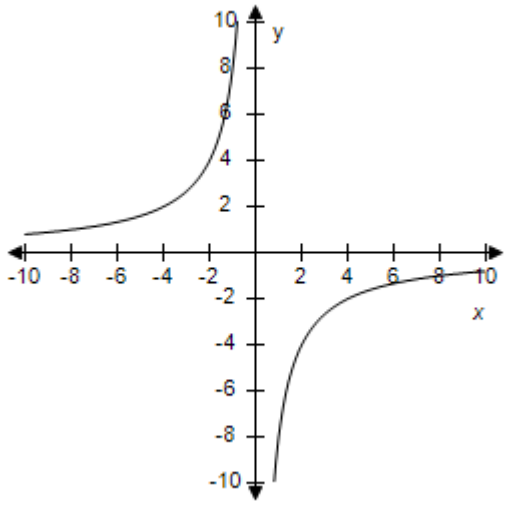


e.



ANSWER: e
POINTS: 1
REFERENCES: 2.4.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 7:38 AM

19. Select the correct graph of the given function.

$$f(x) = 1 + \frac{1}{x}$$

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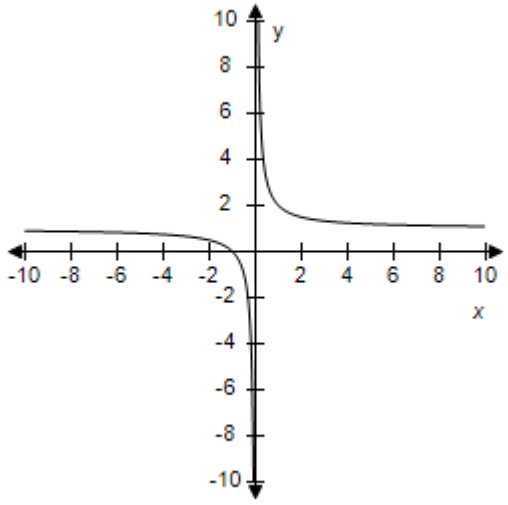
a.



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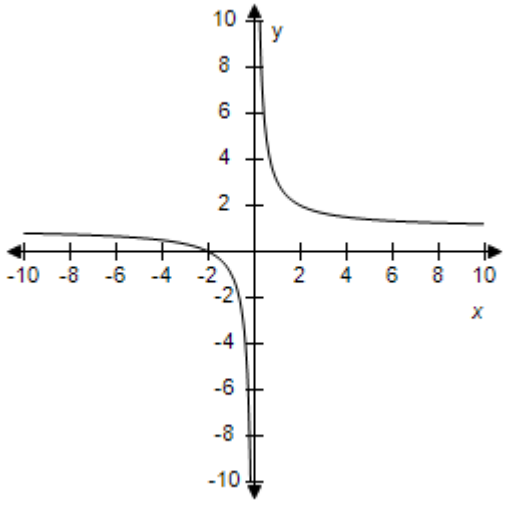

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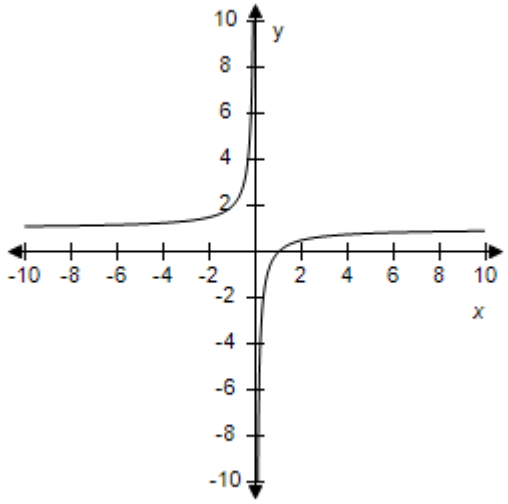

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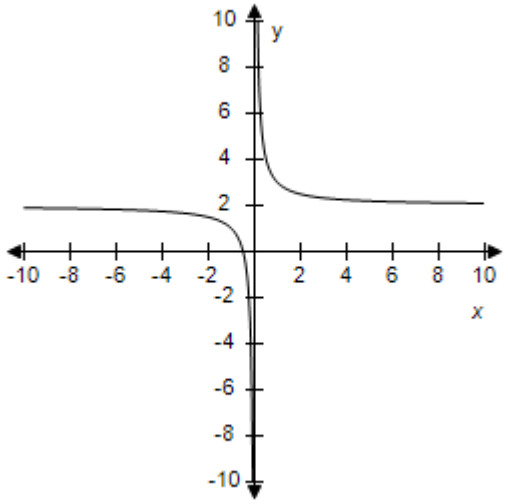

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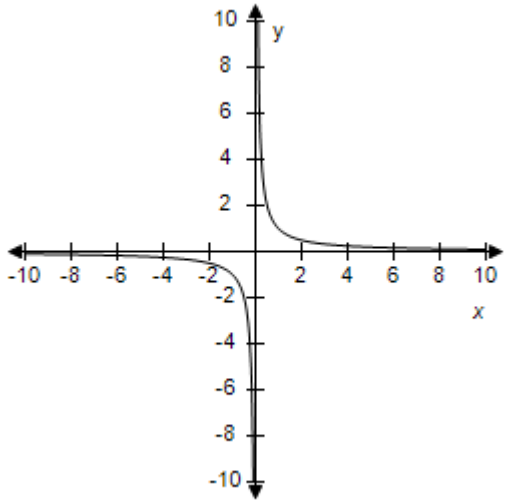

ANSWER: a

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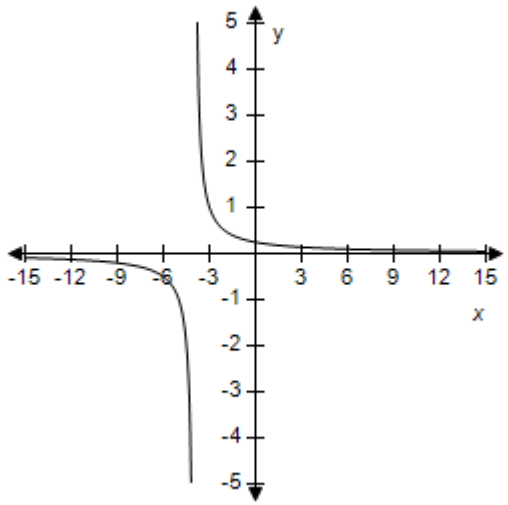
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.36
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 9:53 AM

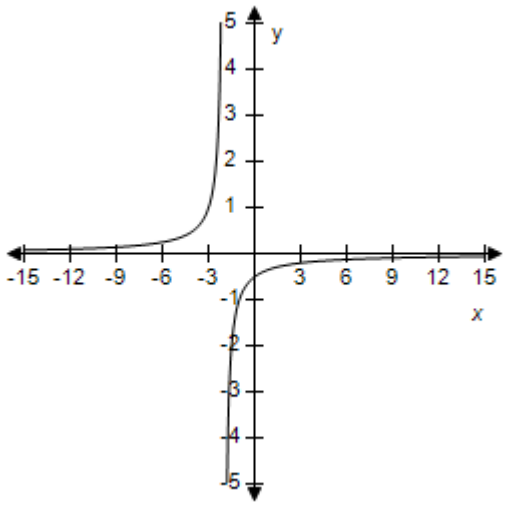
20. Select the correct graph of the given function.

$$f(x) = \frac{1}{x+1}$$

a.



b.



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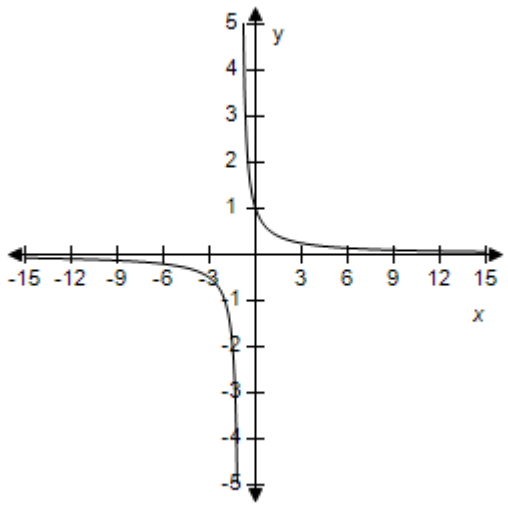

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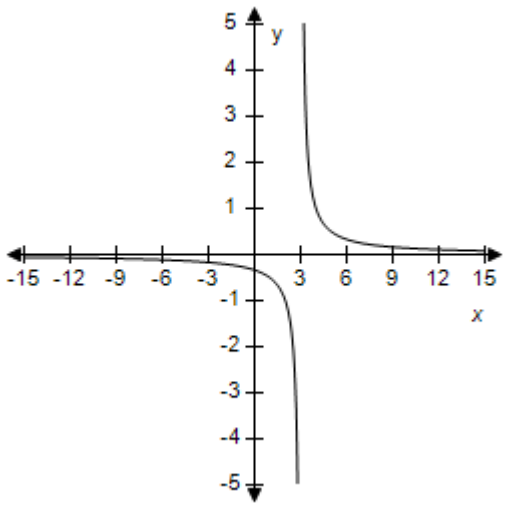

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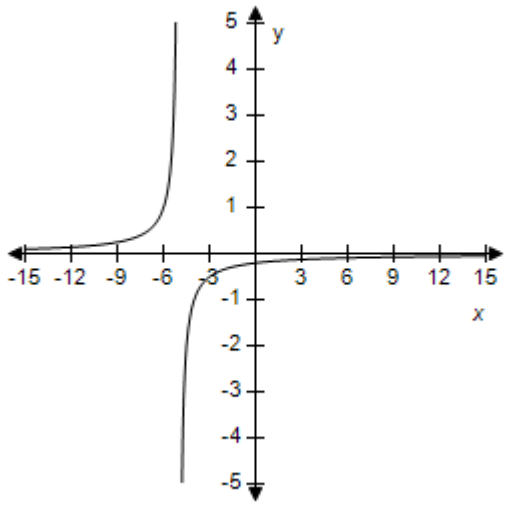
e.

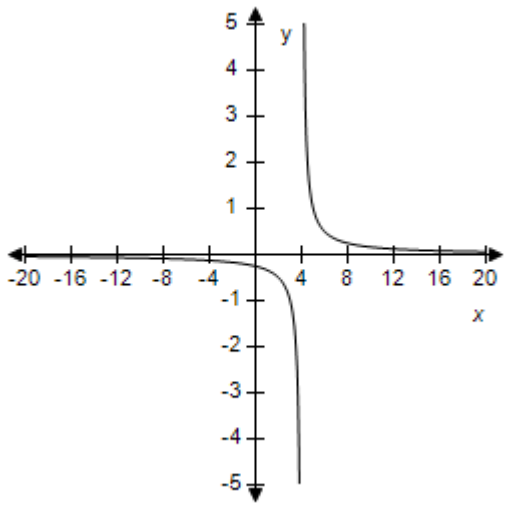


ANSWER: c
POINTS: 1
REFERENCES: 2.4.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 9:58 AM

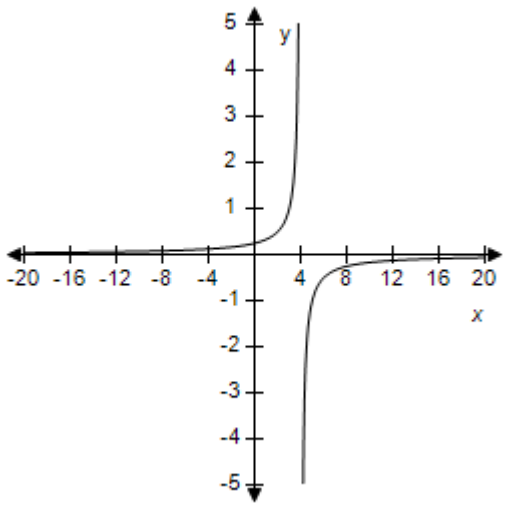
21. Select the correct graph of the given function.

$$f(x) = \frac{1}{x-4}$$

a.



b.



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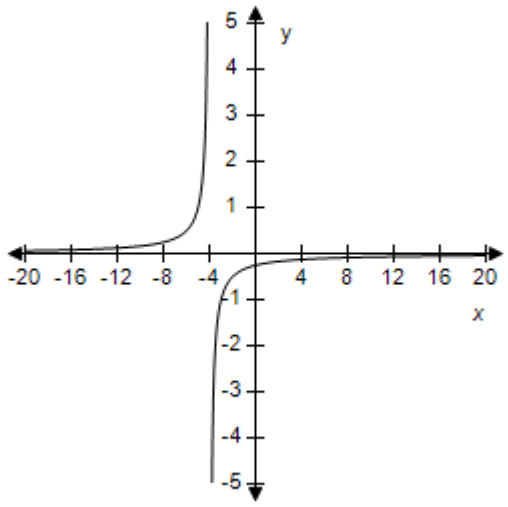
c.



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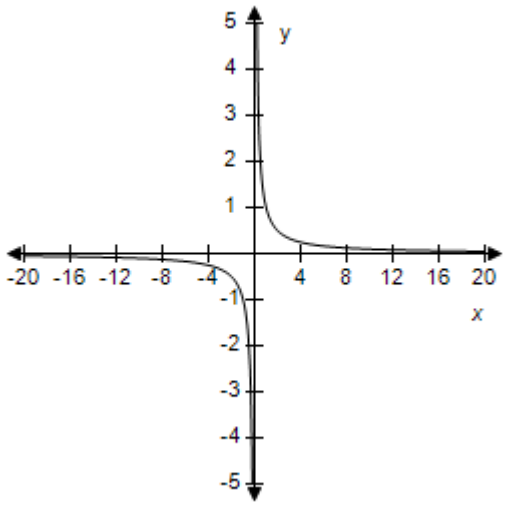

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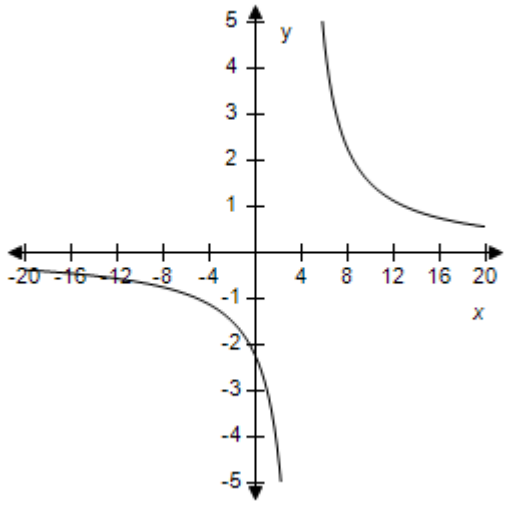

ANSWER: a
POINTS: 1
REFERENCES: 2.4.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:00 AM

22. Select the correct graph of the given function.

$f(x) = |x| - 2$

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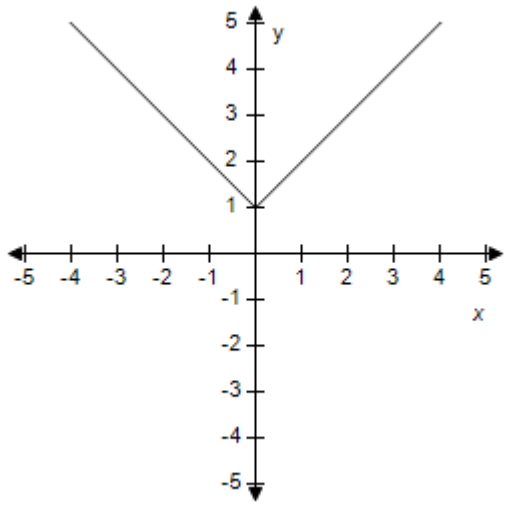
a.



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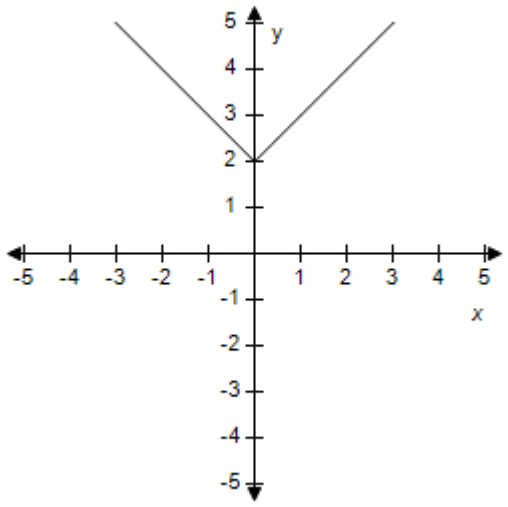

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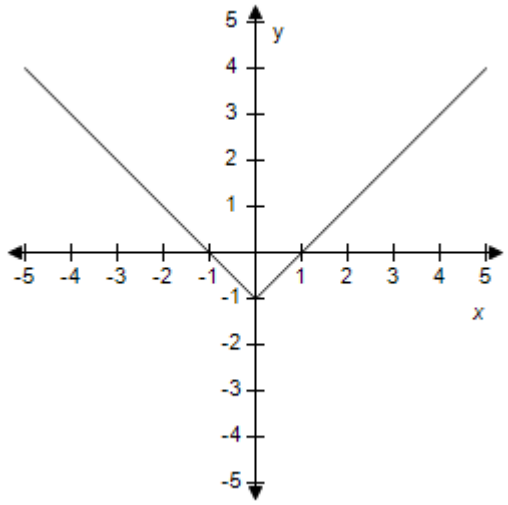

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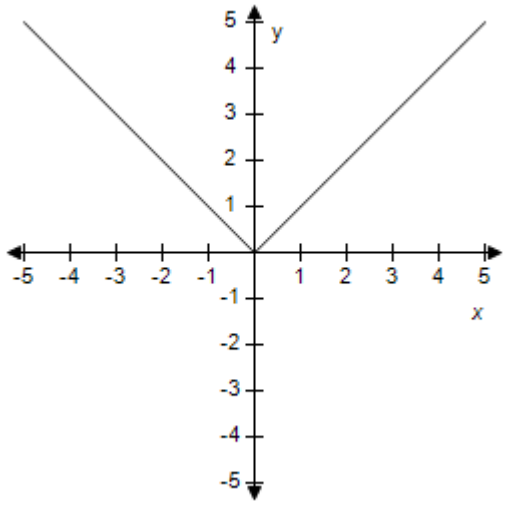

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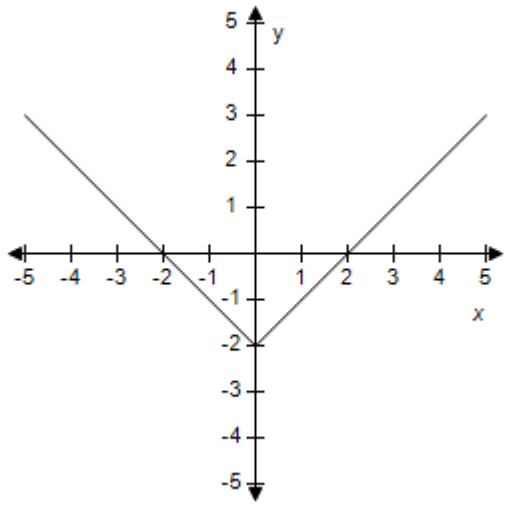

ANSWER: e

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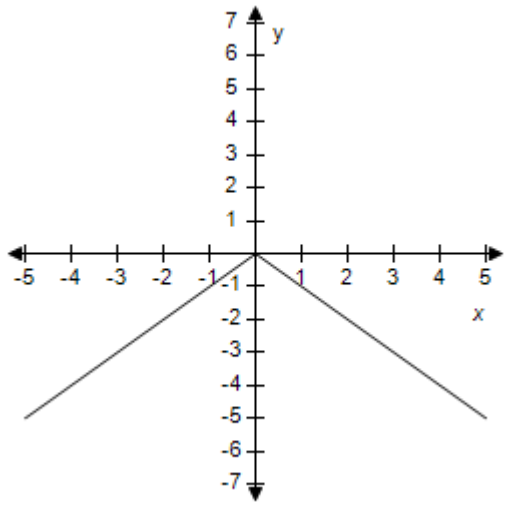
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/29/2014 1:01 AM

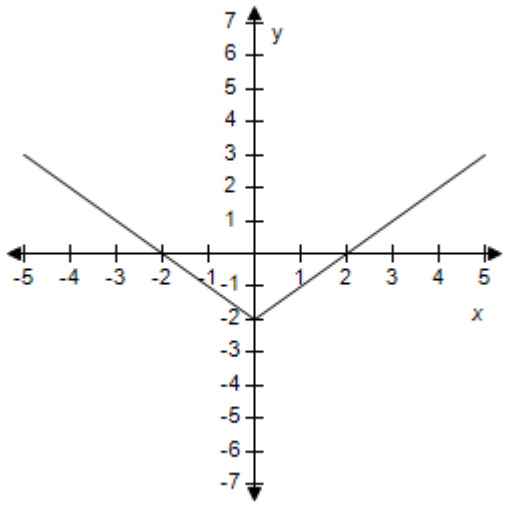
23. Select the correct graph of the given function.

$f(x) = 2 - |x|$

a.



b.



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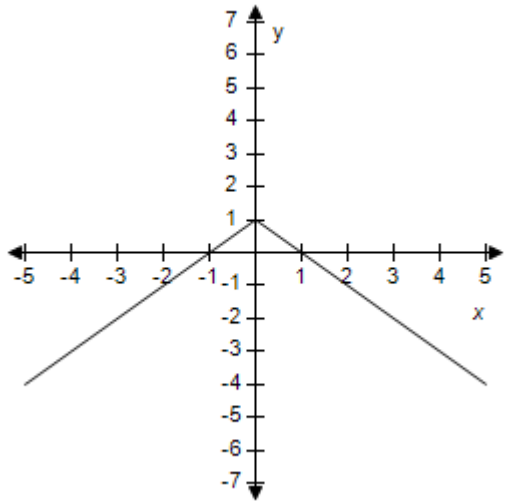

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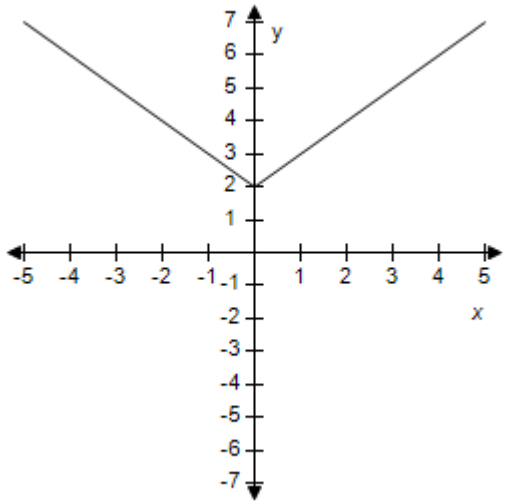

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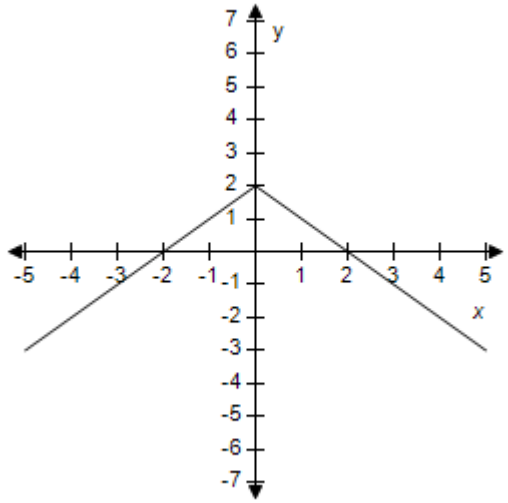
e.

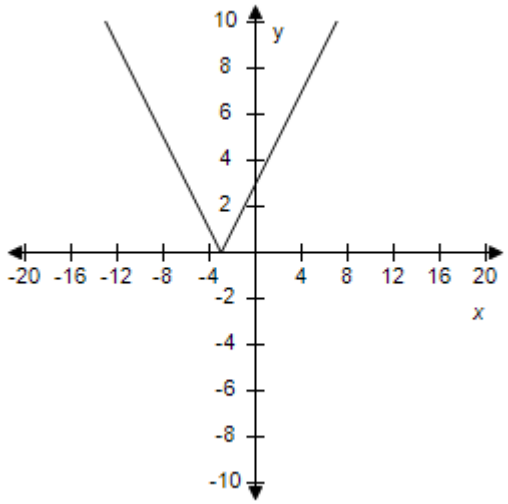


ANSWER: e
POINTS: 1
REFERENCES: 2.4.40
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/29/2014 1:09 AM

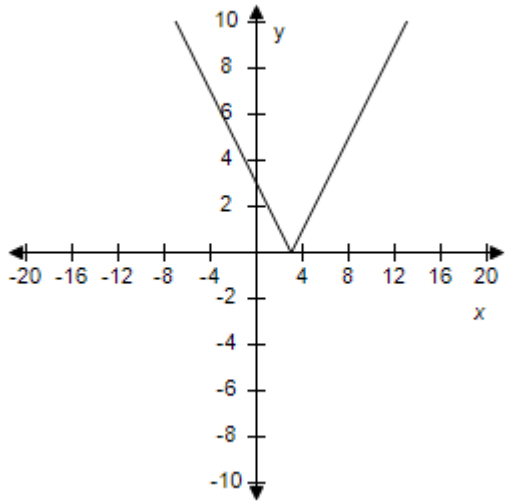
24. Select the correct graph of the given function.

$f(x) = |x + 3|$

a.



b.



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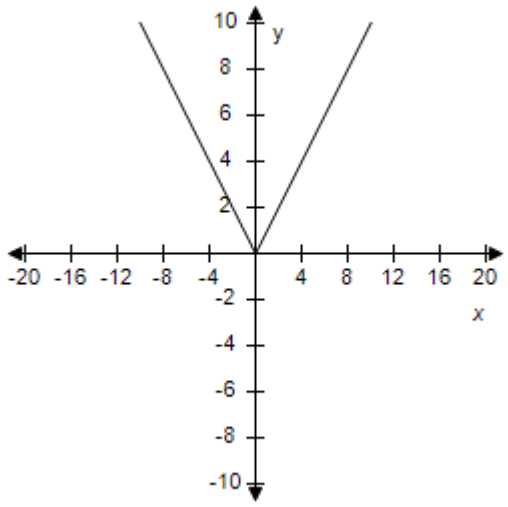
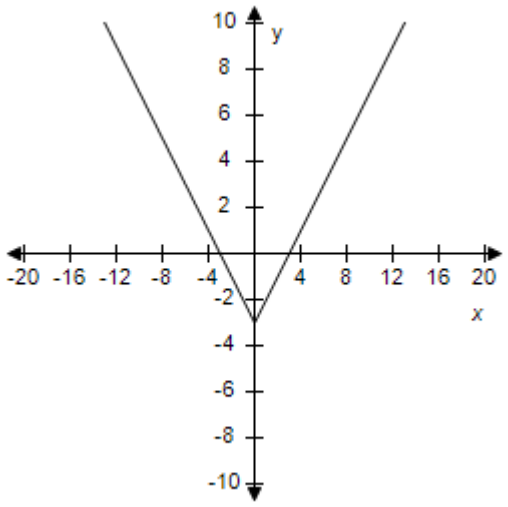
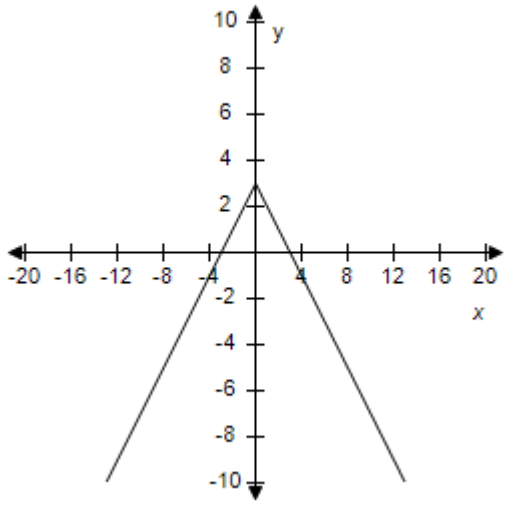
c.



d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 2.4.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:02 AM

25. Select the correct graph of the given function.

$f(x) = |x - 6|$

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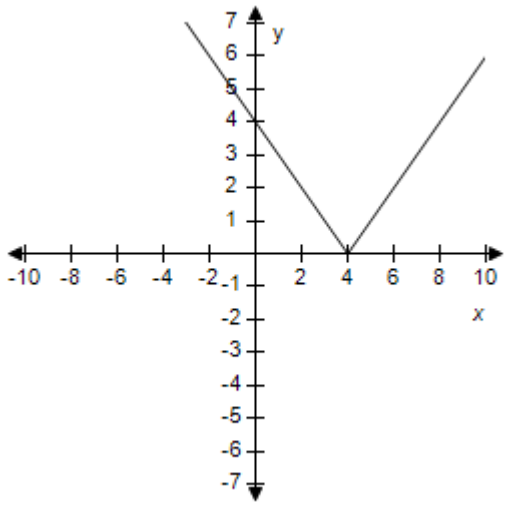
a.



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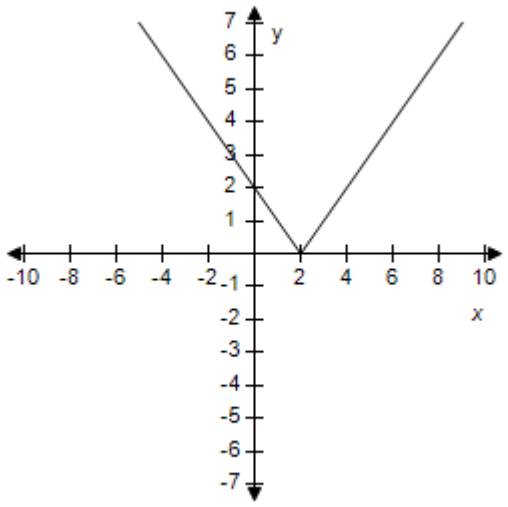

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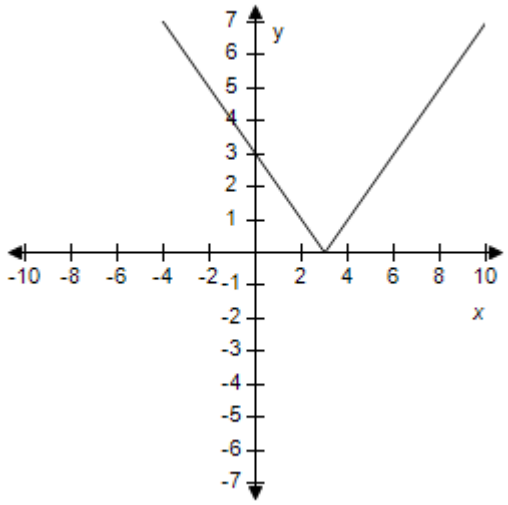

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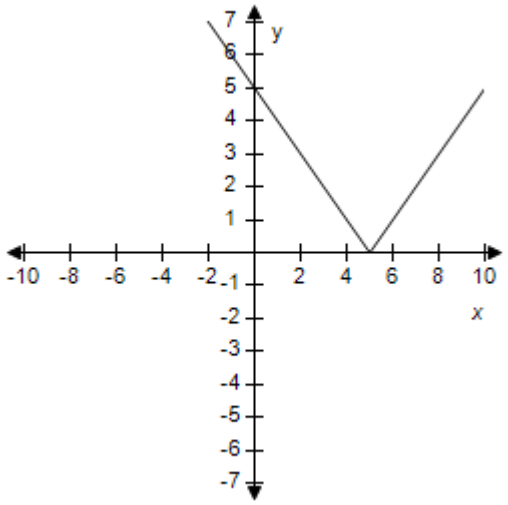

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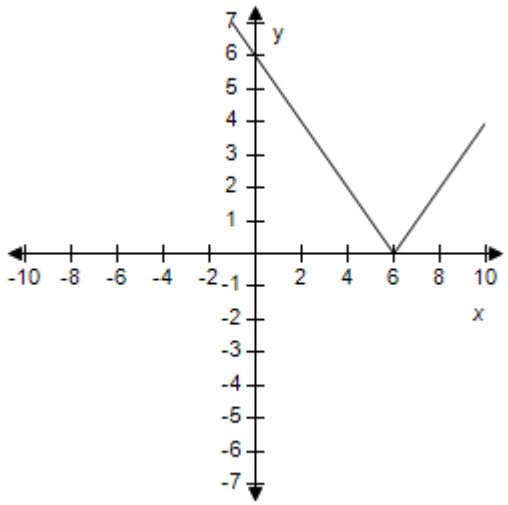

ANSWER: e

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POINTS: 1
REFERENCES: 2.4.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/29/2014 1:32 AM

26. Evaluate the function $f(x) = [[x]]$ for $x = 9.2$.

a. $f(x) = 2$
b. $f(x) = 10$
c. $f(x) = 9$
d. $f(x) = -9$
e. $f(x) = 11$

ANSWER: c
POINTS: 1
REFERENCES: 2.4.43a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:04 AM

27. Evaluate the function $h(x) = 2[[x]]$ for $x = -4$.

a. $h(x) = -8$
b. $h(x) = -6$
c. $h(x) = 4$
d. $h(x) = -4$
e. $h(x) = -2$

ANSWER: a
POINTS: 1
REFERENCES: 2.4.44a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:05 AM

28. Evaluate the function $h(x) = [[x + 9]]$ for $x = -4$.

a. $h(x) = 13$
b. $h(x) = 5$

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c. $h(x) = 9$
d. $h(x) = -13$
e. $h(x) = -5$

ANSWER: b
POINTS: 1
REFERENCES: 2.4.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:05 AM

29. Evaluate the function $f(x) = 2[[x]] + 7$ for $x = -7$.

a. $f(x) = -21$
b. $f(x) = 2$
c. $f(x) = -2$
d. $f(x) = -7$
e. $f(x) = 7$

ANSWER: d
POINTS: 1
REFERENCES: 2.4.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:06 AM

30. Evaluate the function $f(x) = [[3x + 1]]$ for $x = 4$.

a. $f(x) = -4$
b. $f(x) = 4$
c. $f(x) = 11$
d. $f(x) = 13$
e. $f(x) = 12$

ANSWER: d
POINTS: 1
REFERENCES: 2.4.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:06 AM

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Section 1.6 - A Library of Parent Functions

31. Evaluate the function $h(x) = \left[\left[\frac{1}{2}x + 9\right]\right]$ for $x = 6$.

a. $h(x) = 9$
b. $h(x) = 3$
c. $h(x) = -12$
d. $h(x) = 12$
e. $h(x) = -3$

ANSWER: d
POINTS: 1
REFERENCES: 2.4.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:07 AM

32. Evaluate the function $f(x) = 3[[3x - 1]] + 5$ for $x = 6$.

a. $f(x) = 51$
b. $f(x) = -6$
c. $f(x) = 56$
d. $f(x) = 6$
e. $f(x) = 46$

ANSWER: c
POINTS: 1
REFERENCES: 2.4.49
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:07 AM

33. Select the graph of the function $f(x) = 3[[x]]$.

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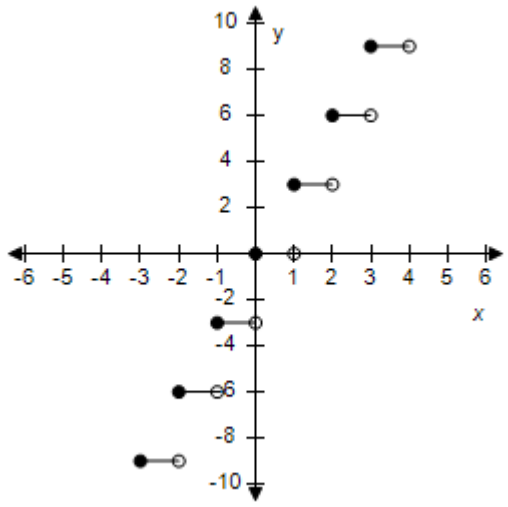
a.



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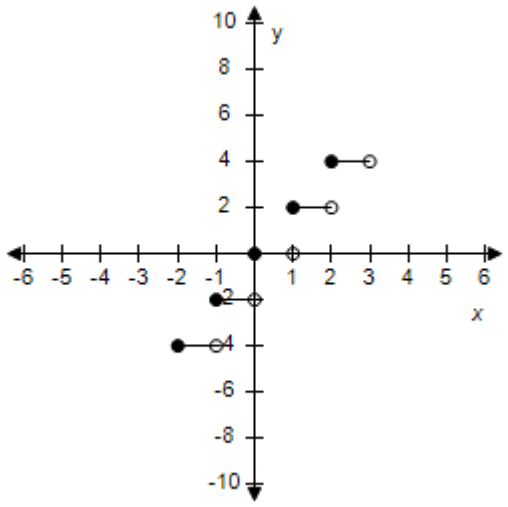

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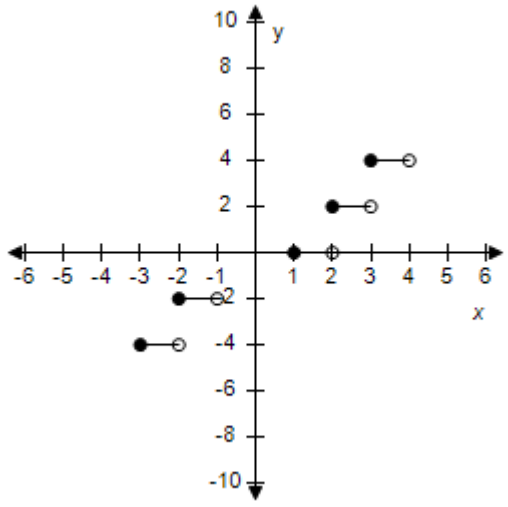

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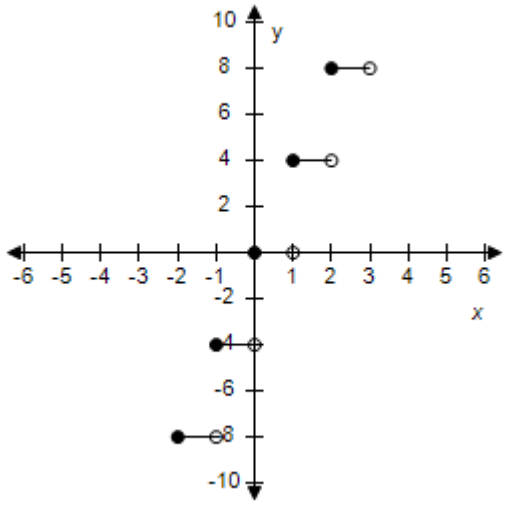
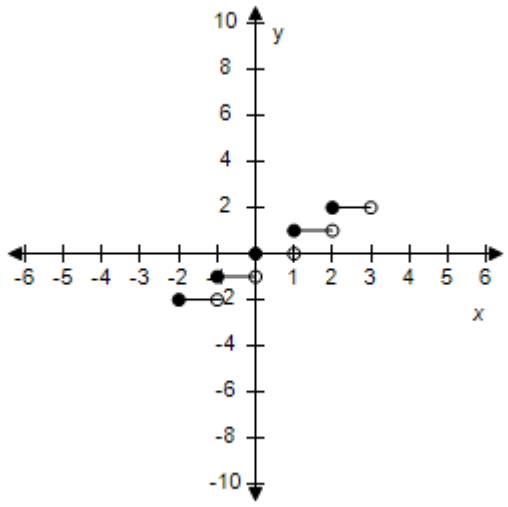


e.



ANSWER: a

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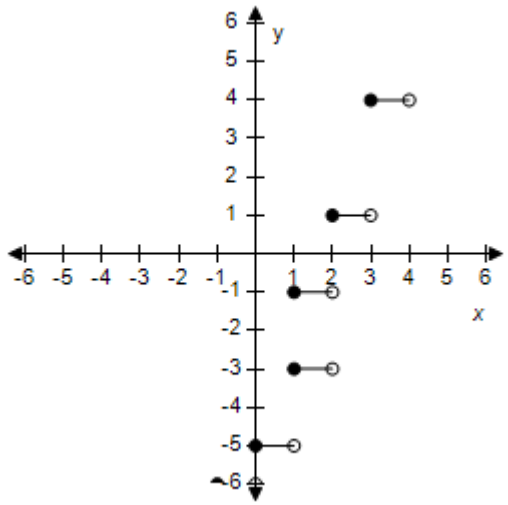
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 11:45 AM

34. Select the graph of the function: $f(x) = [[x]] - 4$.

a.



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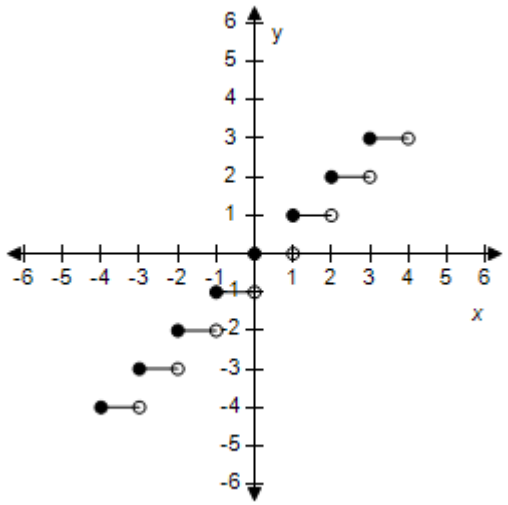

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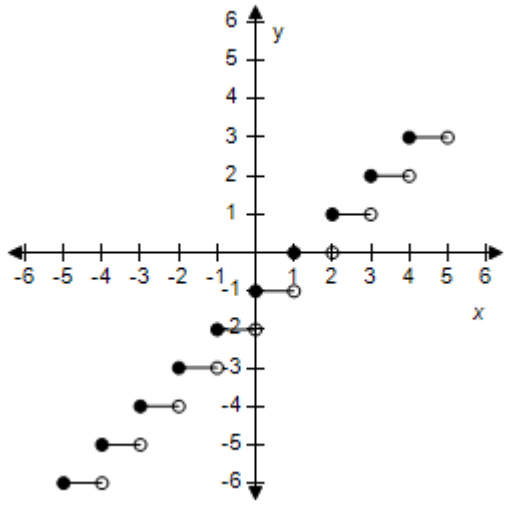

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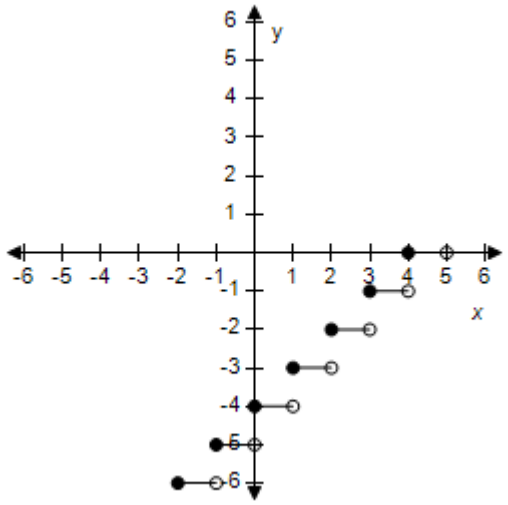

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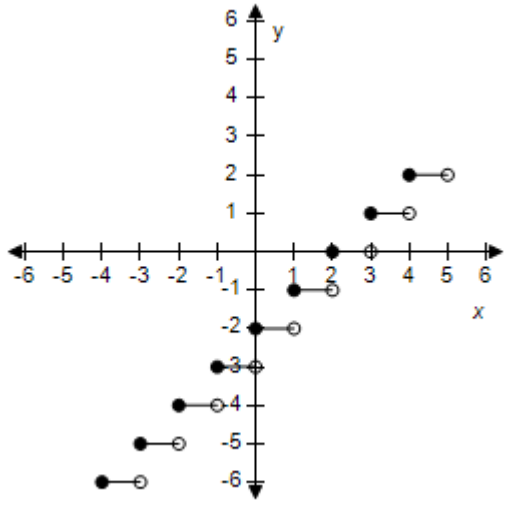
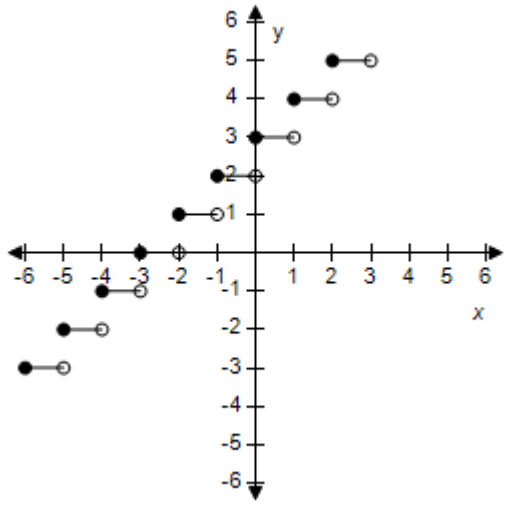
e.



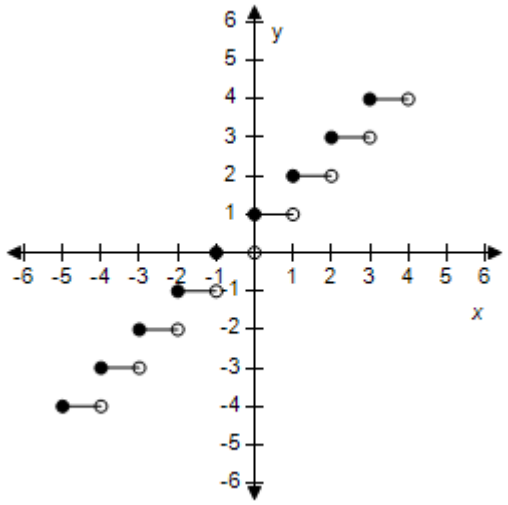
ANSWER: d
POINTS: 1
REFERENCES: 2.4.53
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:12 AM

35. Select the graph of the function: $f(x) = [[x + 3]]$.

a.



b.



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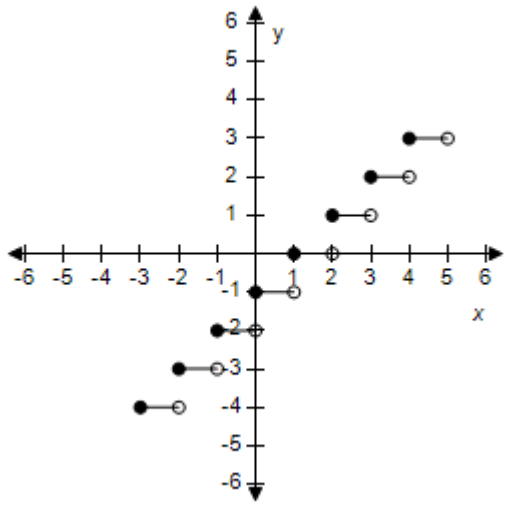
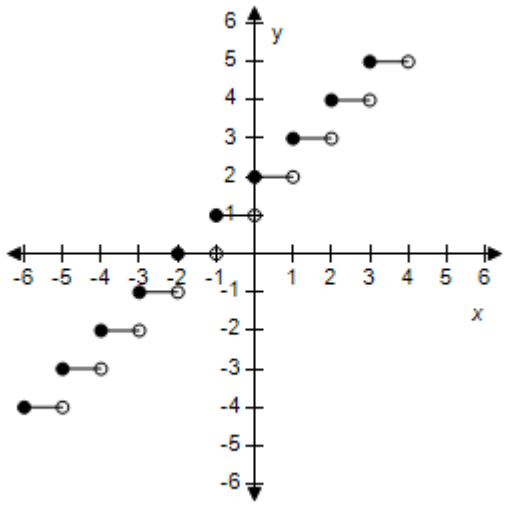
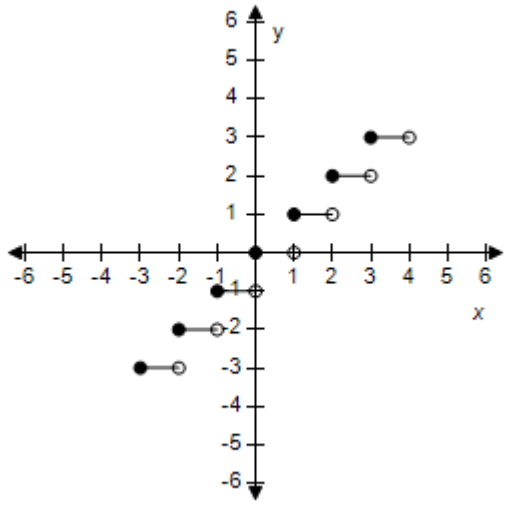
c.



d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 2.4.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:13 AM

36. Select the graph of the function $f(x) = [[x - 4]]$.

a.

b.

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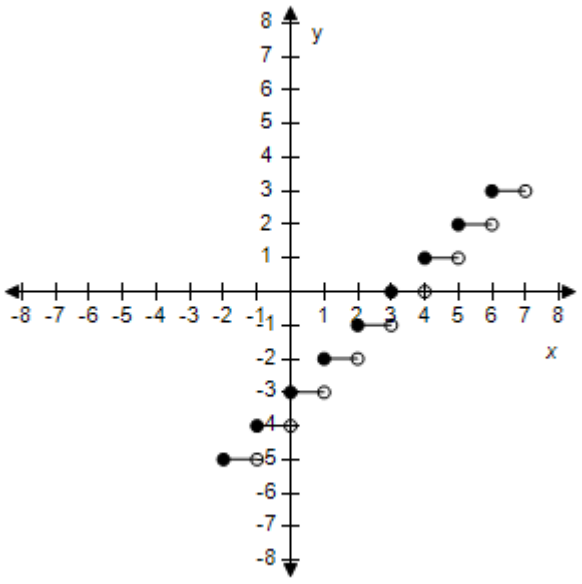

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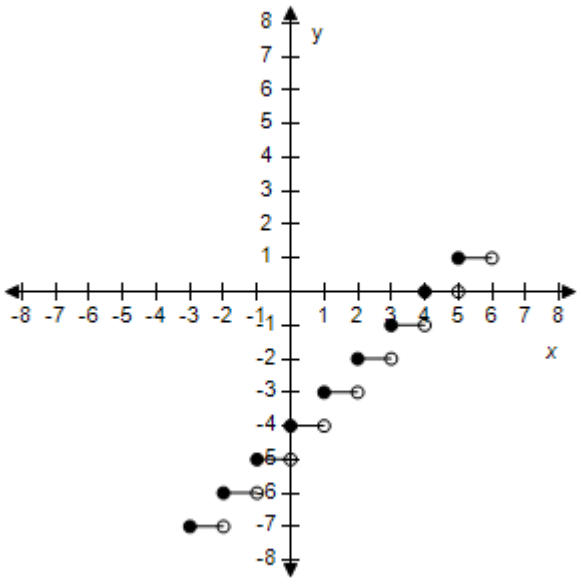

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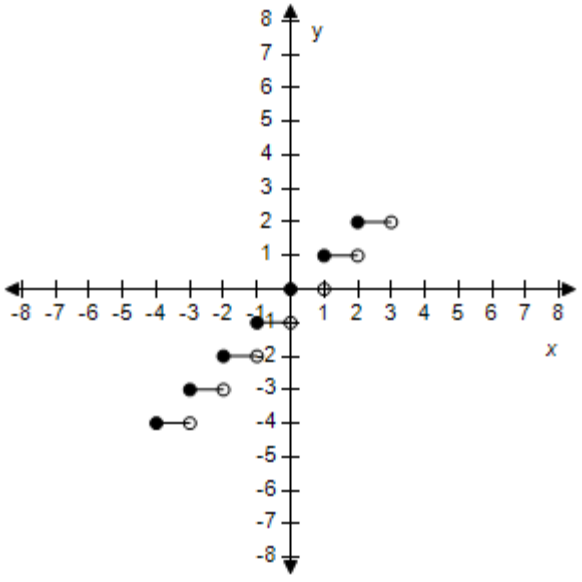
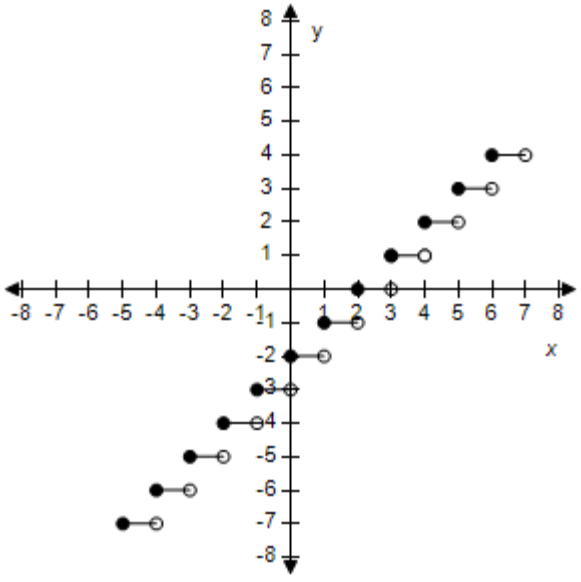


e.



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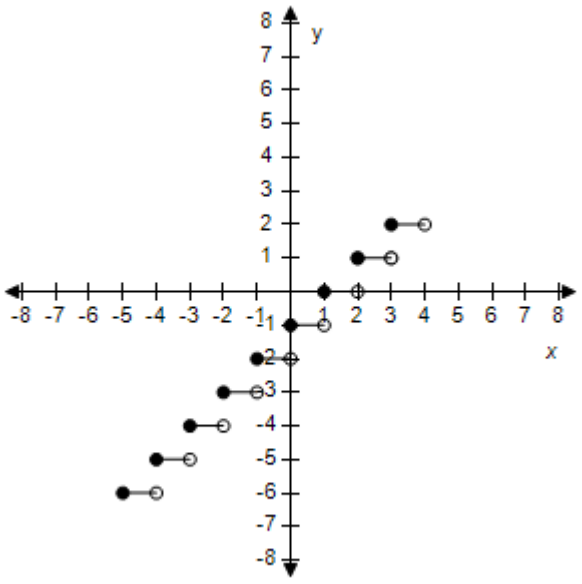

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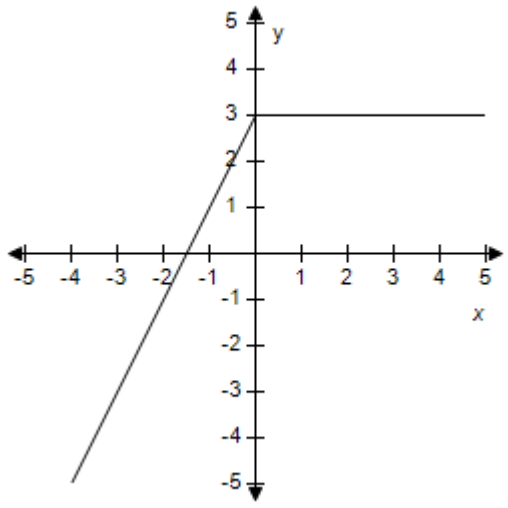
POINTS: 1
REFERENCES: 2.4.56
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:16 AM

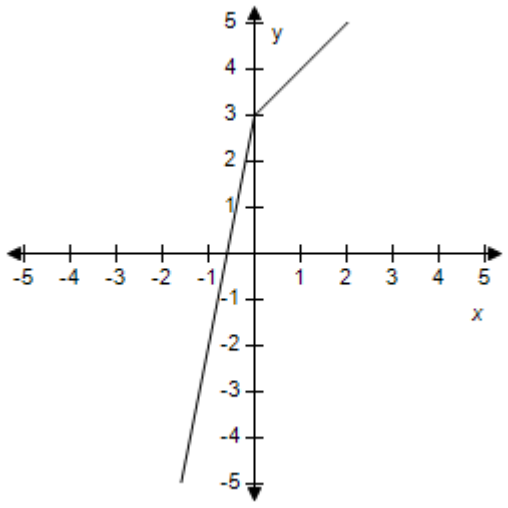
37. Select the graph of the function.

$$f(x)=\begin{cases}5x+3, & x<0\\ 3-x, & x\geq 0\end{cases}$$

a.



b.



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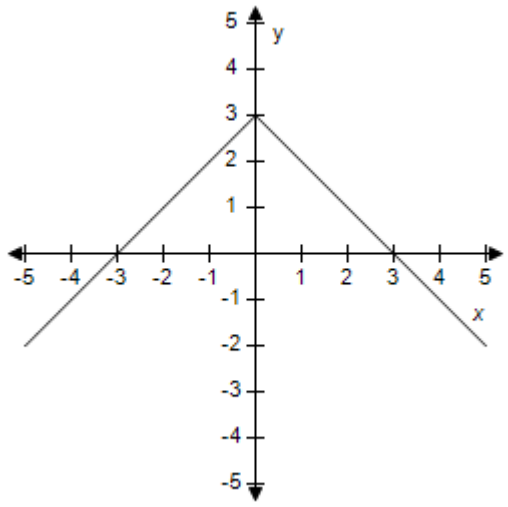
c.



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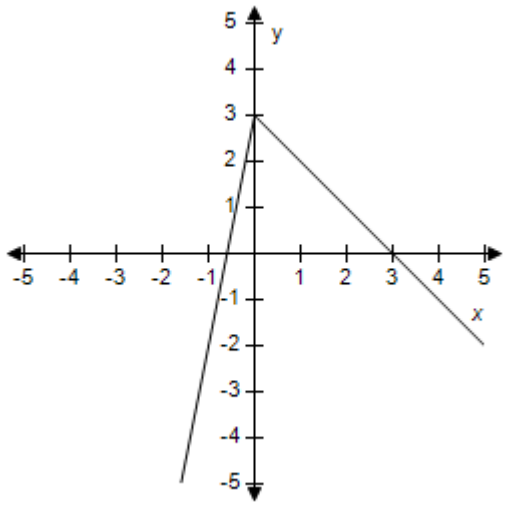

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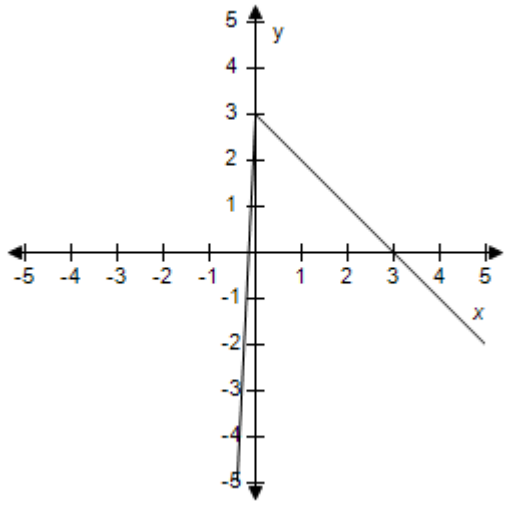

ANSWER: d
POINTS: 1
REFERENCES: 2.4.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 11:54 AM

38. Select the graph of the function.

$$f(x)=\begin{cases}3-x^2, & x<0\\ x^2+5, & x\geq 0\end{cases}$$

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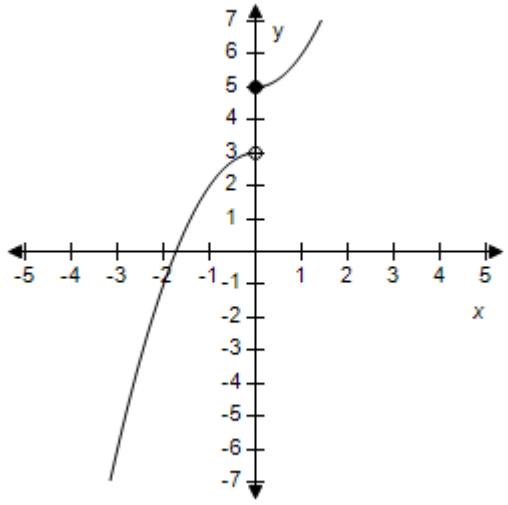
a.



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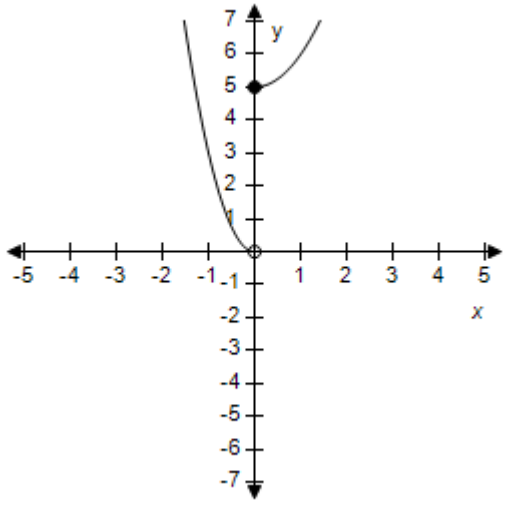
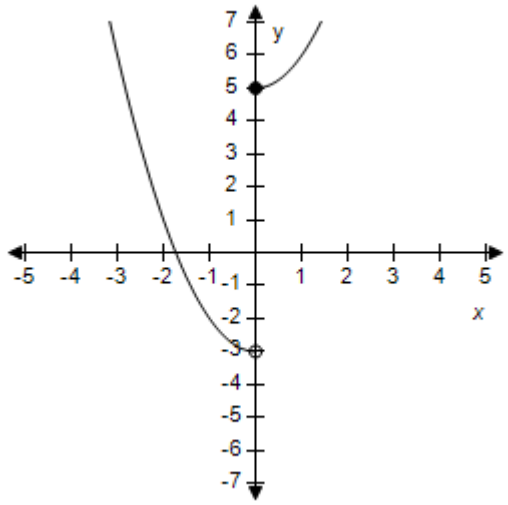


c.



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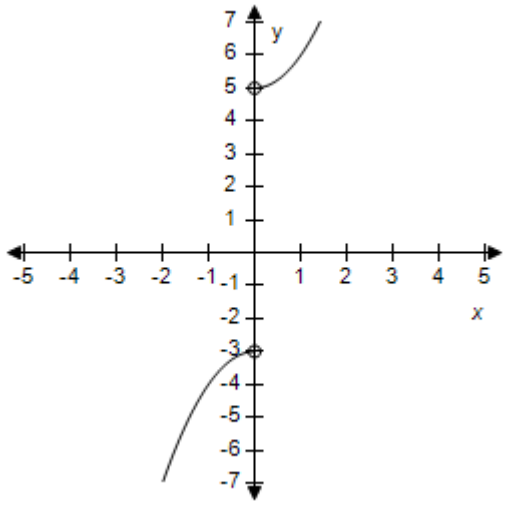

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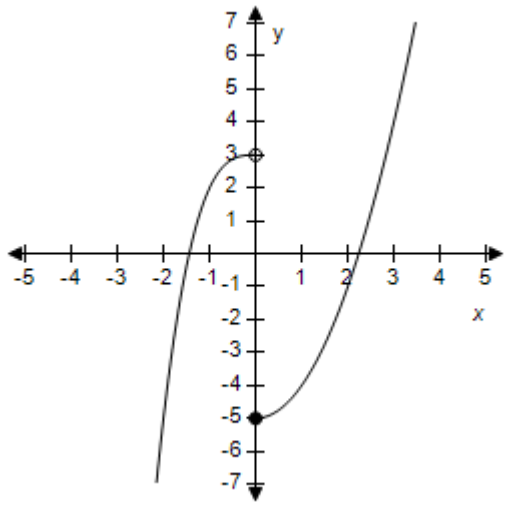

ANSWER: a

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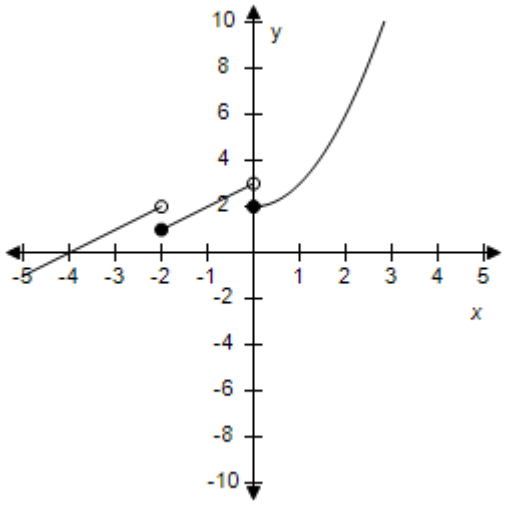
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 2.4.62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 11:55 AM

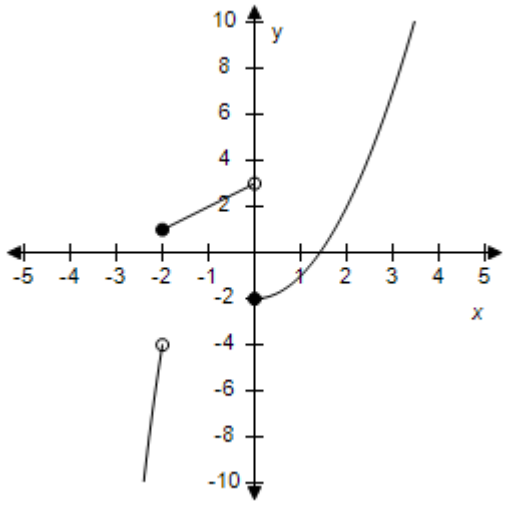
39. Select the graph of the function.

$$f(x)=\begin{cases}4-x^2, & x<-2\\ 3+x, & -2\le x<0\\ x^2+2, & x\ge 0\end{cases}$$

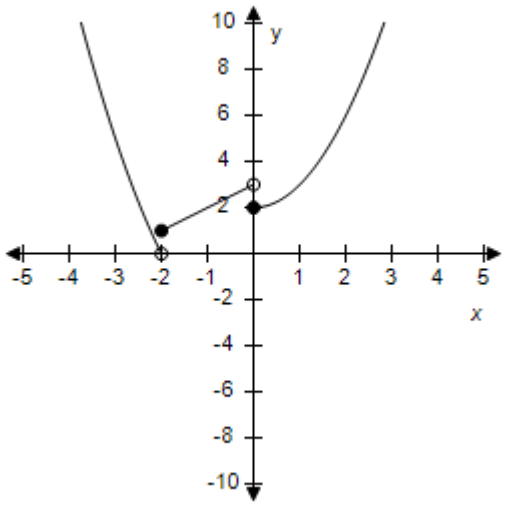
a.



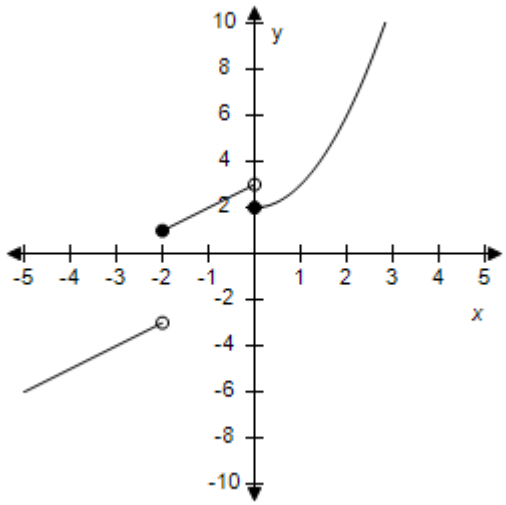
b.



c.



d.



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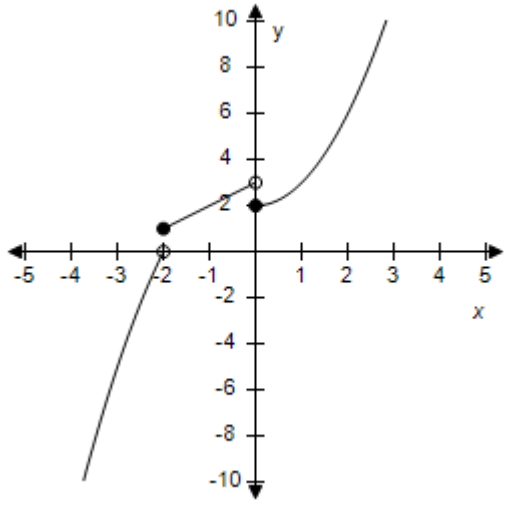
e.



ANSWER: e
POINTS: 1
REFERENCES: 2.4.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 11:58 AM

40. Select the graph of the function.

$$f(x)=\begin{cases}4+x^2, & x<-2\\ 3+x, & -2\le x<2\\ x^2+8, & x\ge 2\end{cases}$$

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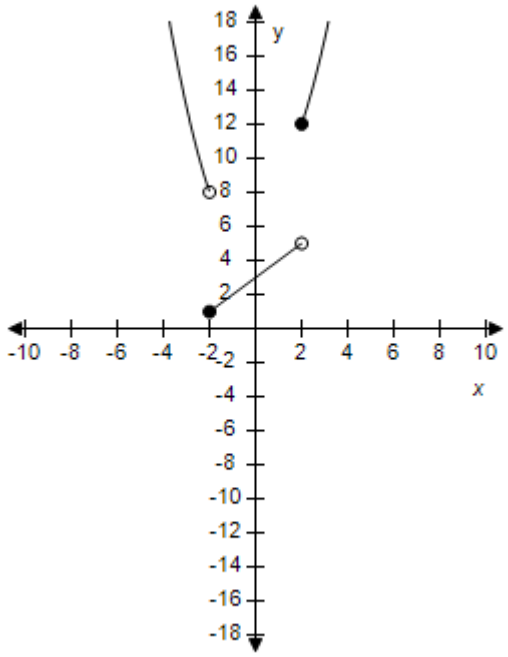
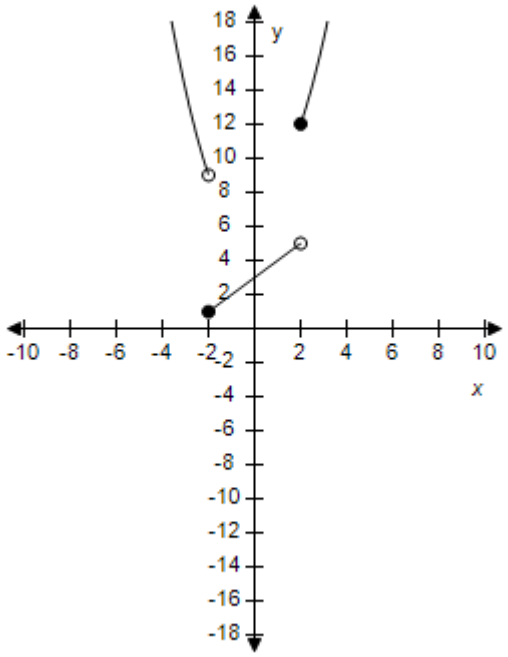
a.



b.



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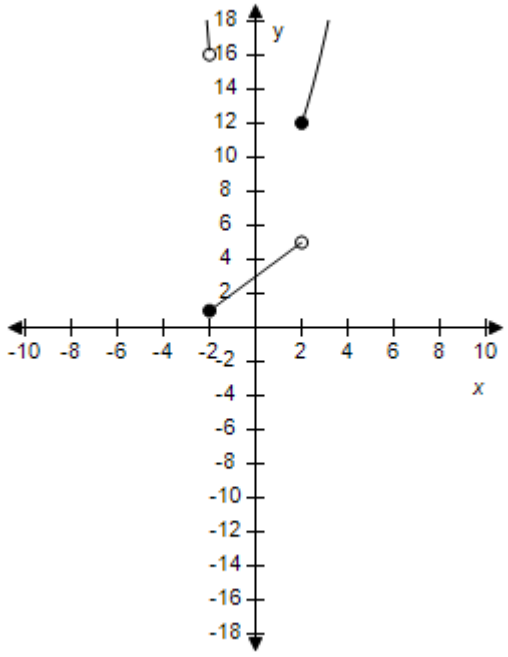

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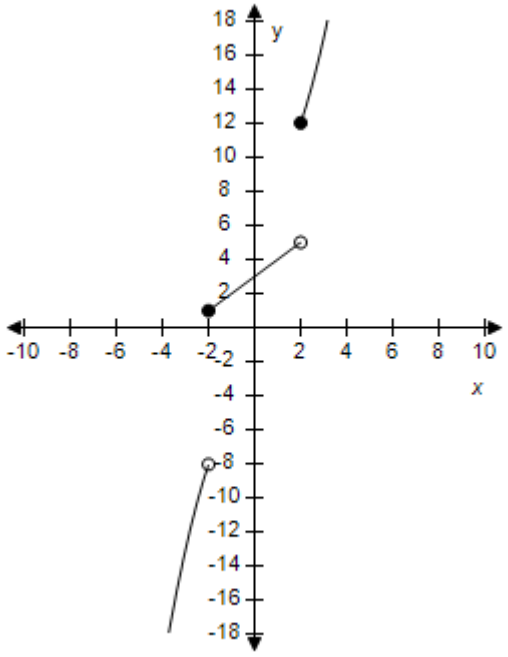

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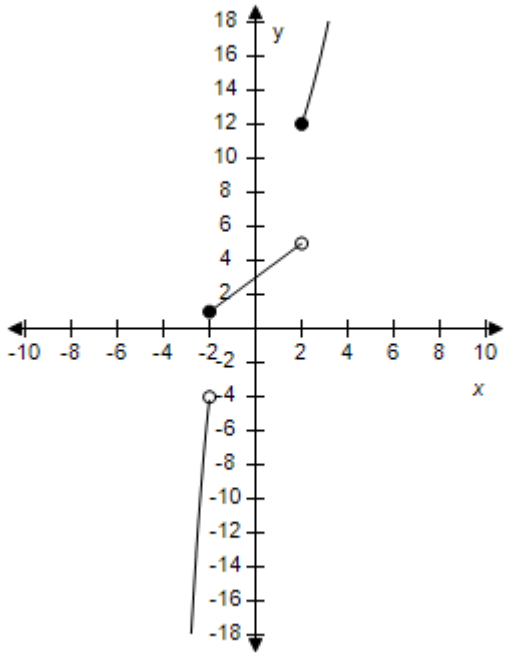
e.



ANSWER: a
POINTS: 1
REFERENCES: 2.4.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 11:59 AM

41. The cost of sending an overnight package from Los Angeles to Miami is $26.30 for a package weighing up to but not including 1 pound and $4.00 for each additional pound or portion of a pound. A model for the total cost C (in dollars) of sending the package is

$C = 26.30 + 4.00[[x]]$, $x > 0$, where x is the weight in pounds.

Select the graph of the model.

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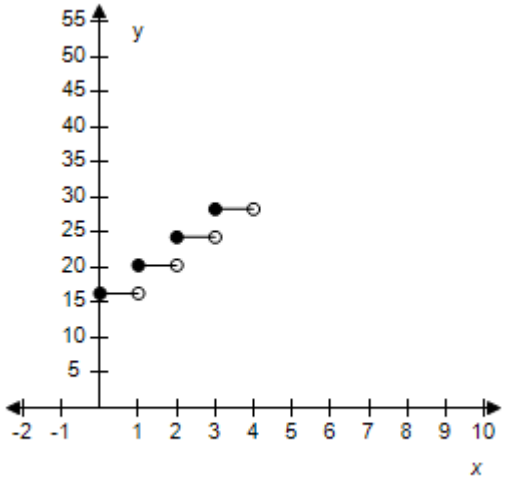
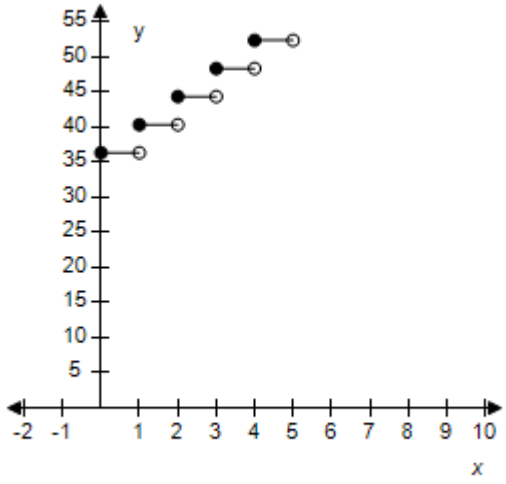
a.



b.



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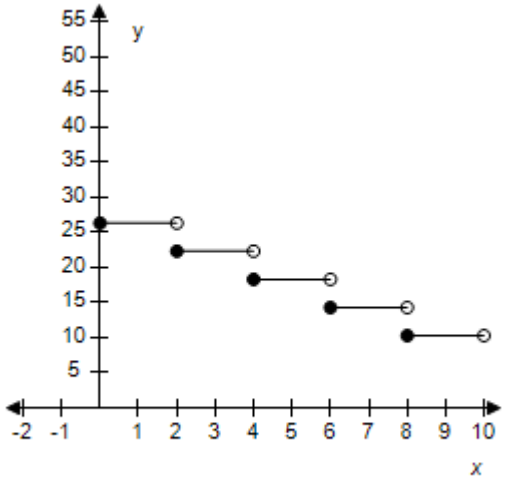

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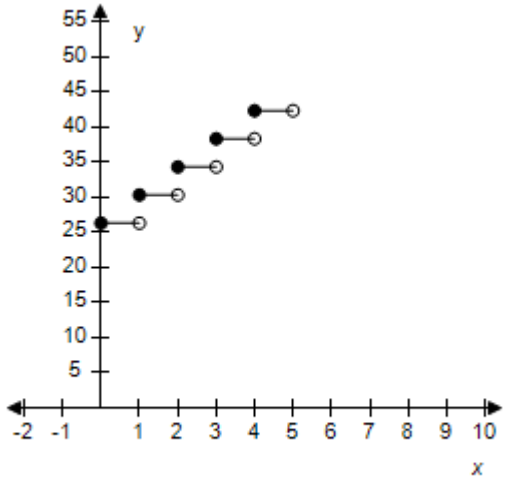
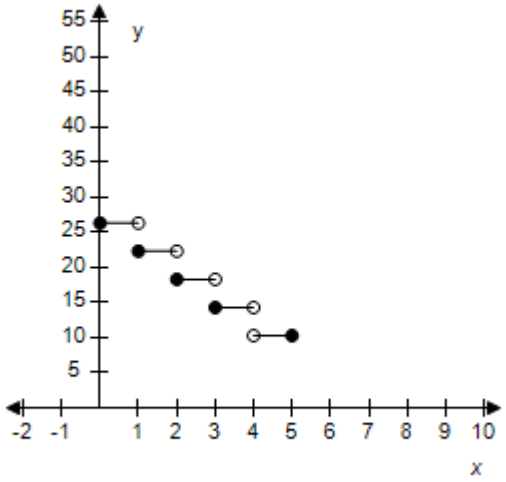


e.



ANSWER: d

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POINTS: 1
REFERENCES: 2.4.69a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 10:21 AM

42. The cost of sending an overnight package from Los Angeles to Miami is $26.40 for a package weighing up to but not including 1 pound and $3.25 for each additional pound or portion of a pound. A model for the total cost C (in dollars) of sending the package is

$C = 26.40 + 3.25[[x]]$, $x > 0$, where x is the weight in pounds.

Determine the cost of sending a package that weighs 5.25 pounds.

a. $45.65
b. $44.65
c. $43.65
d. $46.65
e. $42.65

ANSWER: e
POINTS: 1
REFERENCES: 2.4.69b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 1:16 PM

43. The cost of sending an overnight package from Los Angeles to Miami is $25.00 for a package weighing up to but not including 1 pound and $3.50 for each additional pound or portion of a pound. Use the greatest integer function to create a model for the cost C of overnight delivery of a package weighing x pounds, $x > 0$.

a. $C = 25.00 - 3.50[[x]]$, $x > 0$
b. $C = 25.00 + 3.50[[x]]$, $x > 0$
c. $C = -25.00 + 3.50[[x]]$, $x > 0$
d. $C = -25.00 - 3.50\ [[x]]$, $x > 0$
e. $C = 25.00[[x]] + 3.50$, $x > 0$

ANSWER: b
POINTS: 1
REFERENCES: 2.4.70a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM

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Section 1.6 - A Library of Parent Functions

DATE MODIFIED: 5/12/2015 10:23 AM

44. A mechanic is paid $13.00 per hour for regular time and time-and-a-half for overtime. The weekly wage function is given by

$$W(h)=\begin{cases}13h, & 0<h\le 40\\ 21(h-40)+520, & h>40\end{cases}$$

where h is the number of hours worked in a week.

Evaluate $W(30)$, $W(50)$.

a. $W(30) = 410$, $W(50) = 750$
b. $W(30) = 430$, $W(50) = 770$
c. $W(30) = 400$, $W(50) = 740$
d. $W(30) = 390$, $W(50) = 730$
e. $W(30) = 420$, $W(50) = 760$

ANSWER: d
POINTS: 1
REFERENCES: 2.4.71a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 1:21 PM

45. The table shows the monthly revenue y (in thousands of dollars) of a landscaping business for each month of the year 2008, with $x = 1$ representing January.

x	y
1	5.4
2	5.5
3	6.5
4	8.6
5	11.7
6	15.8
7	12.2
8	10.2
9	8.3
10	6.3
11	4.3
12	2.4

A mathematical model that represents these data is:

$$f(x)=\begin{cases}0.505x^2-1.47x+6.4, & 1\le x\le 6\\ -1.97x+26.0, & 6<x\le 12\end{cases}$$

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Find $f(3)$ and $f(9)$.

a. $f(3) = 8.770, f(9) = 7.29$
b. $f(3) = 9.270, f(9) = 7.54$
c. $f(3) = 6.535, f(9) = 8.27$
d. $f(3) = 8.770, f(9) = 7.04$
e. $f(3) = 8.770, f(9) = 6.79$

ANSWER: c
POINTS: 1
REFERENCES: 2.4.73b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 1:28 PM

46. Write the linear function f such that it has the indicated values.
$f(-1) = -5, f(-9) = -6$

a. $f(x) = -\frac{3}{4}x + \frac{17}{3}$
b. $f(x) = 8x + 3$
c. $f(x) = \frac{1}{8}x - \frac{41}{8}$
d. $f(x) = \frac{1}{8}x - \frac{39}{8}$
e. $f(x) = -\frac{4}{3}x - \frac{11}{3}$

ANSWER: d
POINTS: 1
REFERENCES: 2.4.12
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 10/1/2014 4:54 AM
DATE MODIFIED: 5/24/2021 1:32 PM

47. Evaluate the function for the indicated values.

$f(x) = 2[[x + 7]] - 5$

(i) $f(7)$ (ii) $f(-46.70)$ (iii) $f(\frac{7}{6})$

a. (i) 23 (ii) –83 (iii) 13
b. (i) 23 (ii) –83 (iii) 11
c. (i) 24 (ii) –85 (iii) 13

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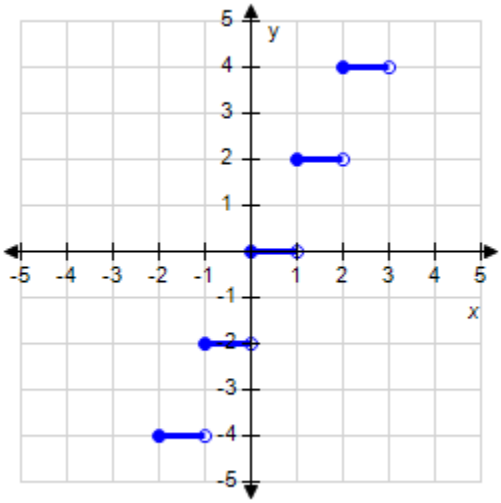
d. (i) 24 (ii) –85 (iii) 11
e. (i) 23 (ii) –85 (iii) 11

ANSWER: e
POINTS: 1
REFERENCES: 2.4.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 1:40 PM

48. Which function does the graph represent?



a. $g(x) = 3[[x]]$
b. $g(x) = 2[[x]]$
c. $g(x) = [[x–2]]$
d. $g(x) = [[2x]]$
e. $g(x) = [[3x]]$

ANSWER: b
POINTS: 1
REFERENCES: 2.4.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 1:51 PM

49. Which graph represents the function?

$g(x) = 2[[x]]$

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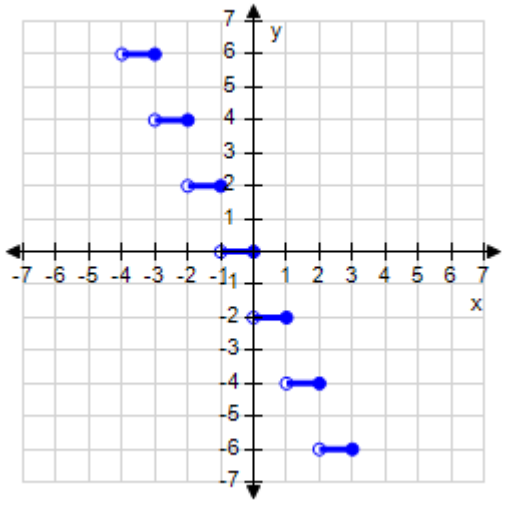
a.



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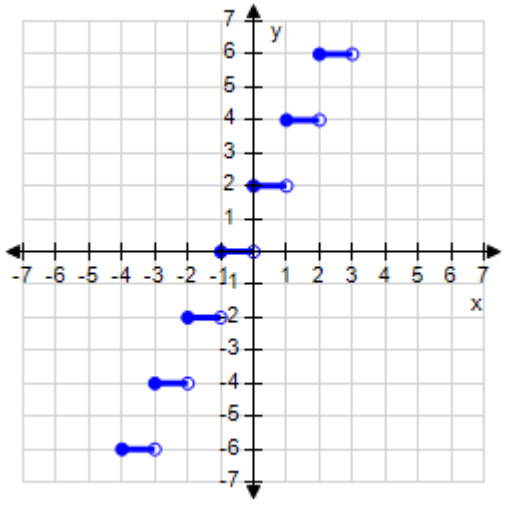
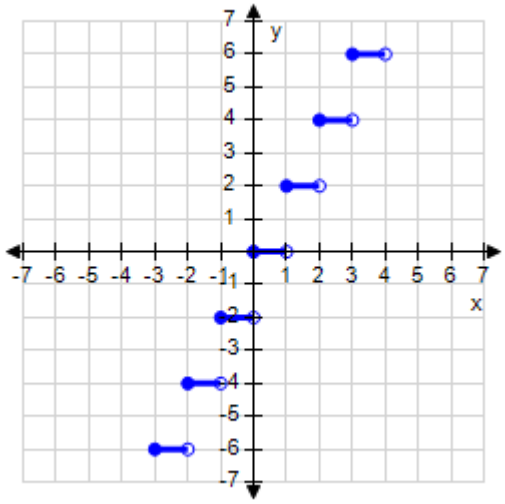
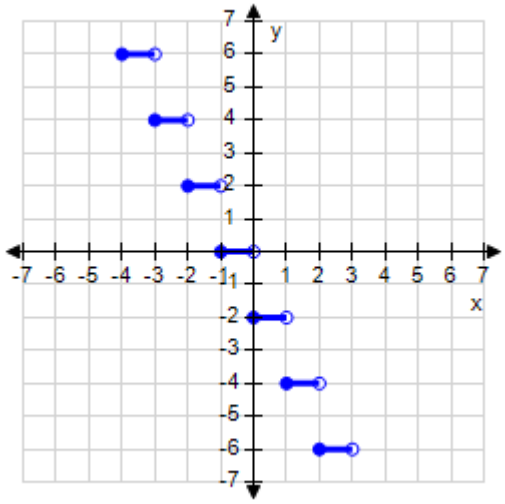


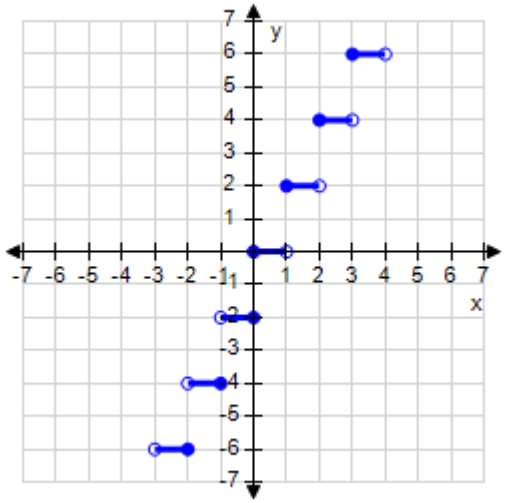
c.



d.



e.



ANSWER: c

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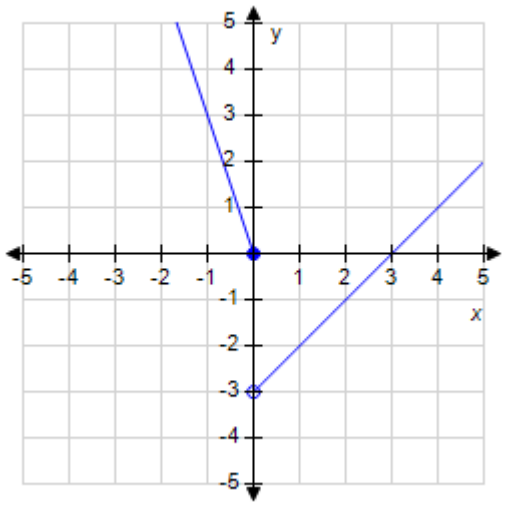
Section 1.6 - A Library of Parent Functions

POINTS: 1
REFERENCES: 35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/1/2014 7:29 AM
DATE MODIFIED: 5/15/2015 2:26 AM

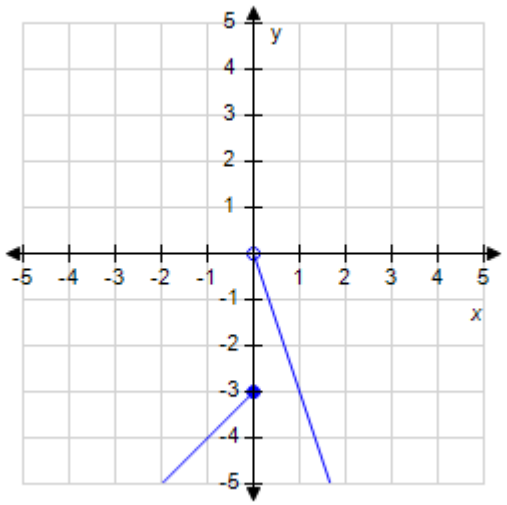
50. Which graph represents the function?

$$f(x) = \begin{cases} -3x, & x < 0 \\ x - 3, & x \geq 0 \end{cases}$$

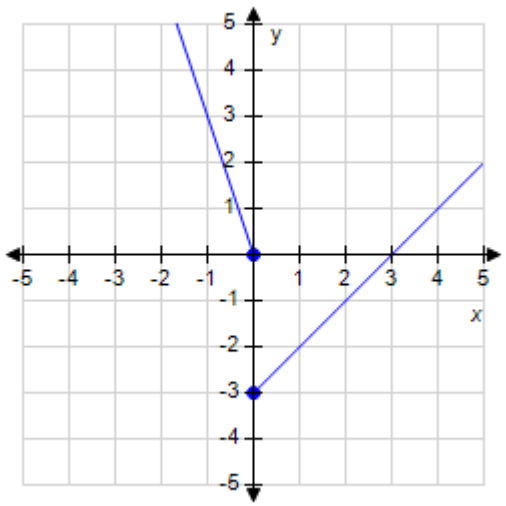
a.



b.



c.



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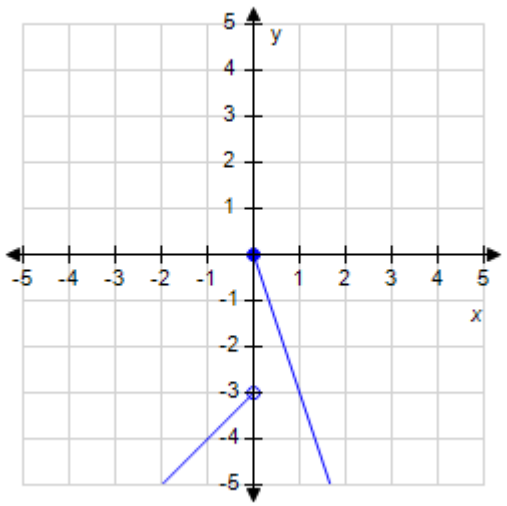

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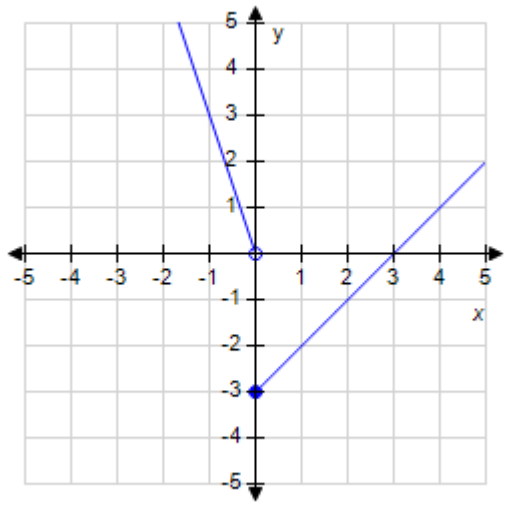
e.



ANSWER: e
POINTS: 1
REFERENCES: 2.4.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/24/2021 2:05 PM

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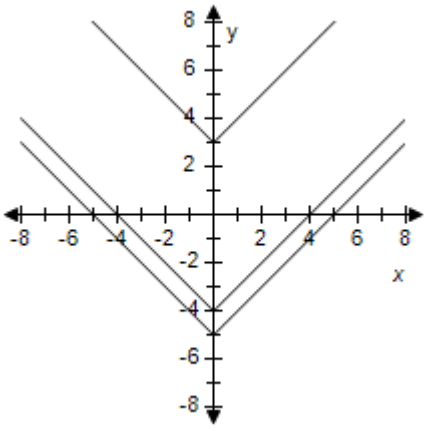
Section 1.7 - Transformations of Funtions

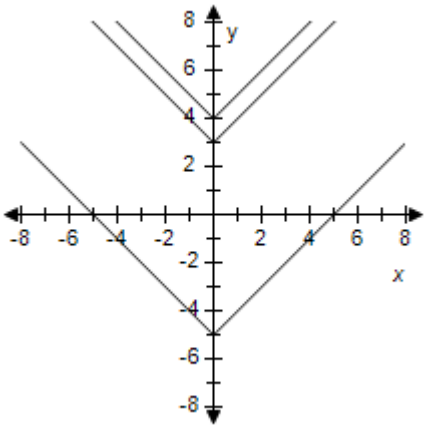
1. For following function, select (on the same set of coordinate axes) a graph for $c = -5,\ 3$ and 4.

$f(x) = |x| + c$

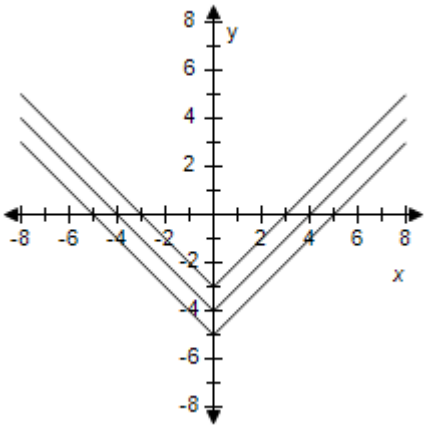
a.



b.



c.



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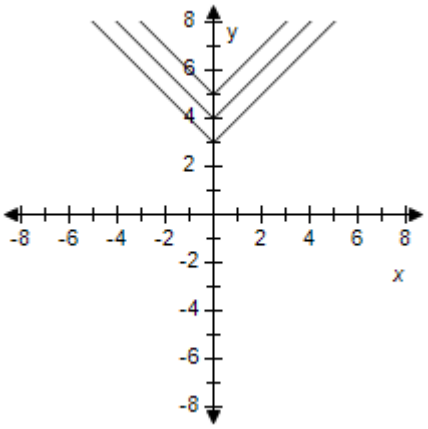
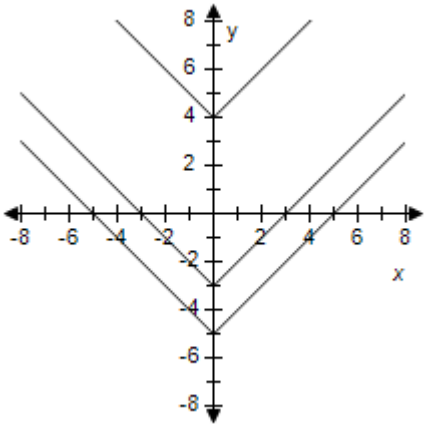


e.



ANSWER: b
POINTS: 1
REFERENCES: 2.5.7a

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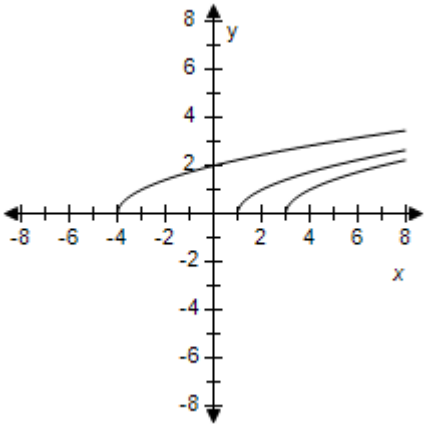
Section 1.7 - Transformations of Funtions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 8:18 AM

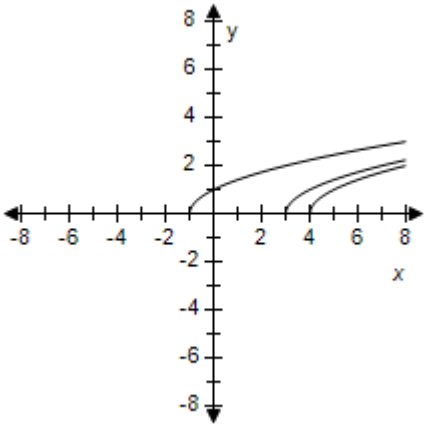
2. For following function, select (on the same set of coordinate axes) a graph for $c = 3, 4$ and 1.

$f(x) = \sqrt{x+c}$

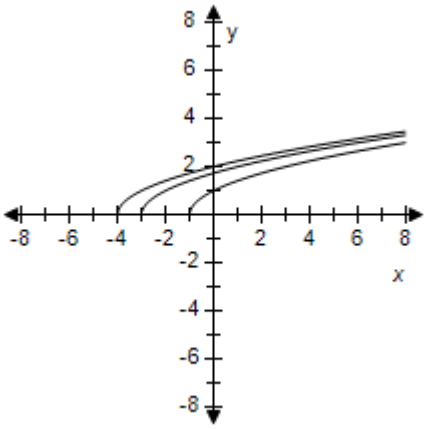
a.



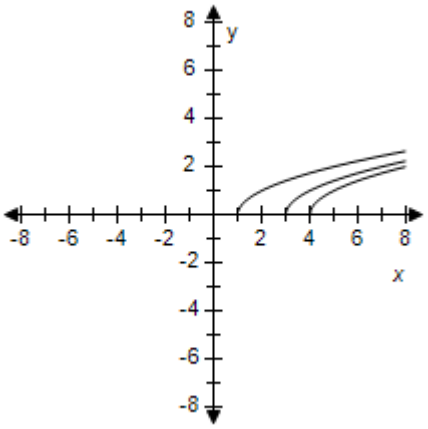
b.



c.



d.



e.

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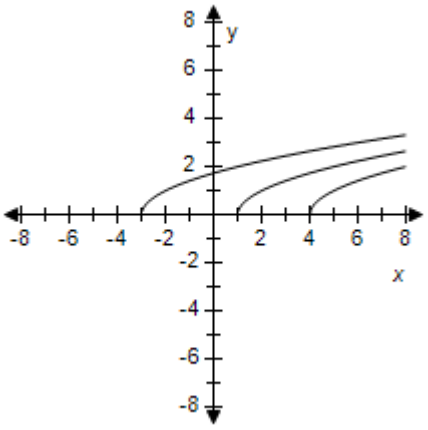
Section 1.7 - Transformations of Funtions

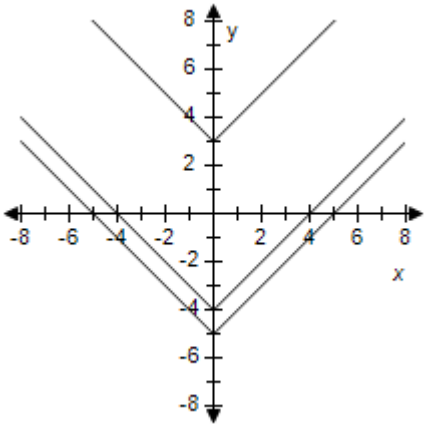


ANSWER: c
POINTS: 1
REFERENCES: 2.5.8b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 8:20 AM

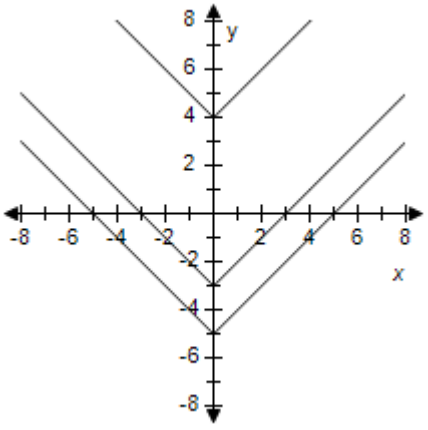
3. For following function, select (on the same set of coordinate axes) a graph for $c = -5,\ 3 \text{ and } 4$.

$f(x) = |x - c|$

a.



b.



c.

d.

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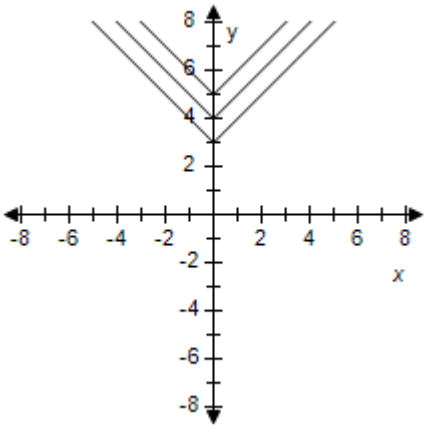
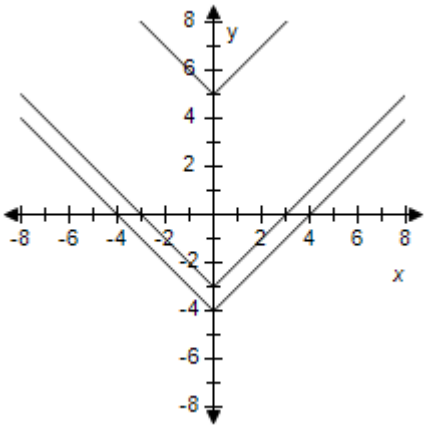
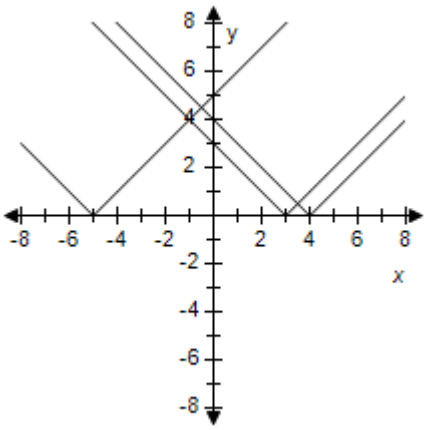
Section 1.7 - Transformations of Funtions





e.



ANSWER: e
POINTS: 1
REFERENCES: 2.5.7b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 8:23 AM

4. For following function, select (on the same set of coordinate axes) a graph of function for $c = 3,\ 1 \text{ and } -3$.

$$f(x) = \begin{cases} x^2 + c, & x < 0 \\ -x^2 + c, & x \geq 0 \end{cases}$$

a. b.

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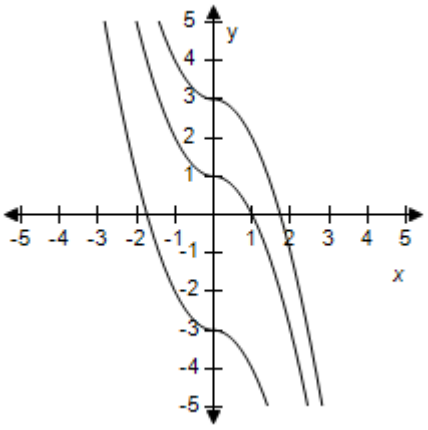
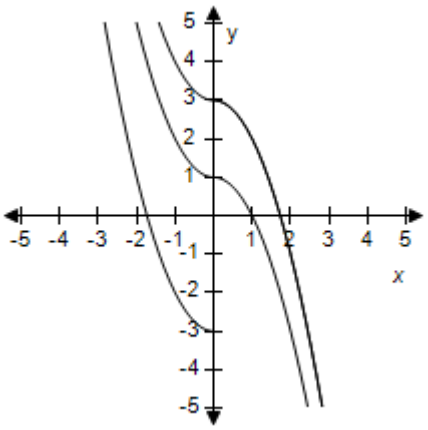
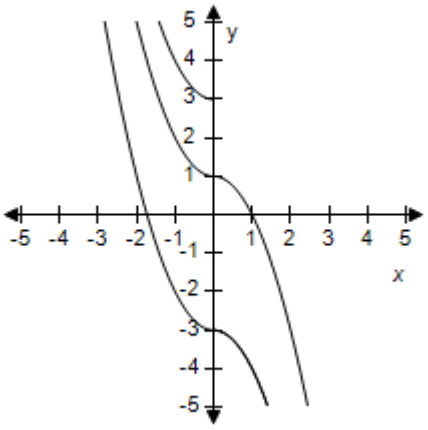


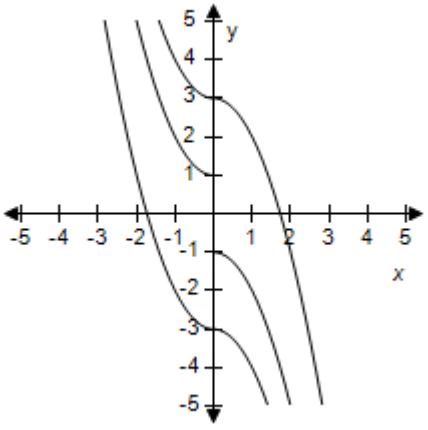
c.



d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 2.5.10a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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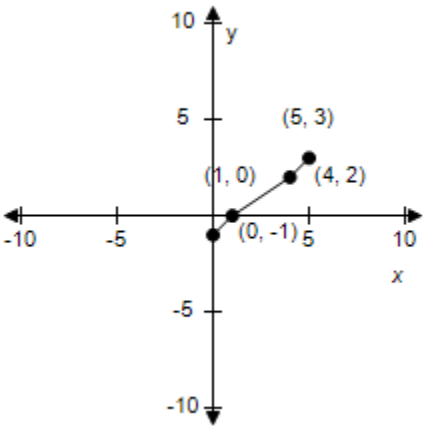
Section 1.7 - Transformations of Funtions

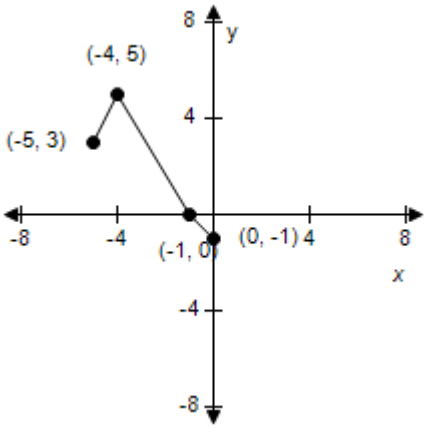
DATE MODIFIED: 5/15/2015 12:31 AM

5. Use the given graph of f to select the graph for the following function.

$y = f(-x)$



a.



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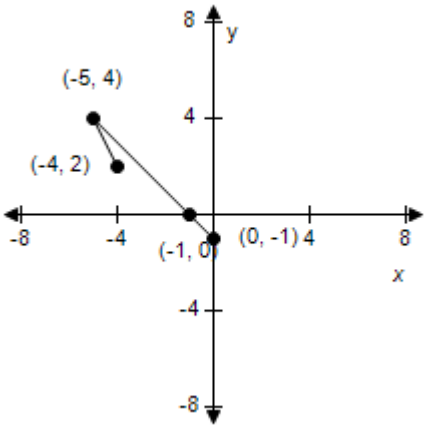
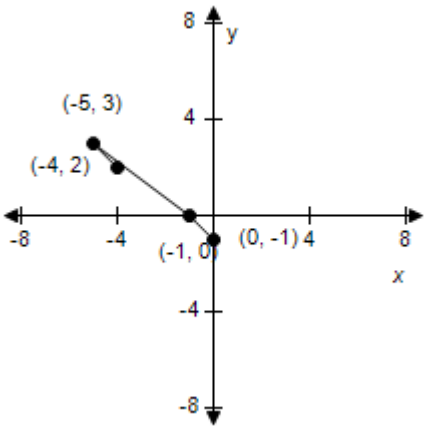
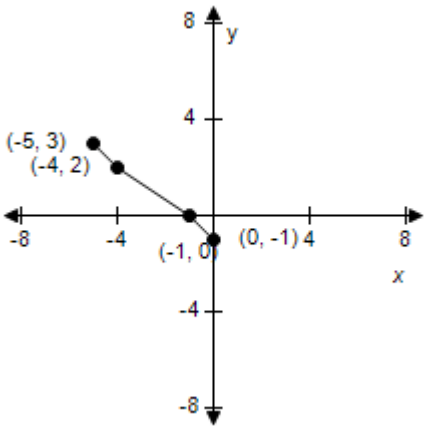


c.



d.



e.

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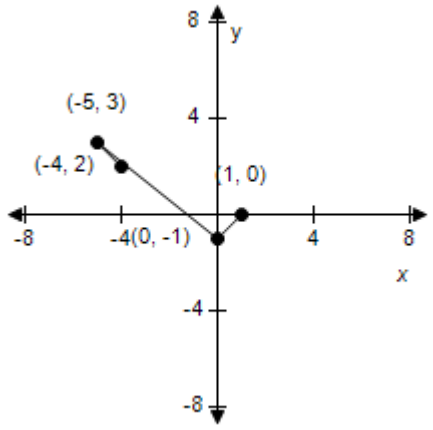
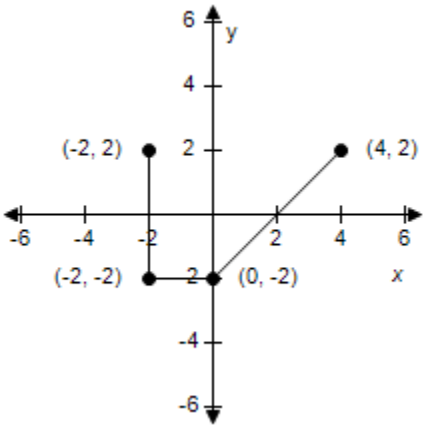
Section 1.7 - Transformations of Funtions



ANSWER: d
POINTS: 1
REFERENCES: 2.5.11f
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 12:37 AM

6. Use the given graph of f to select the graph for the following function.

$y = f(2x)$



a.

b.

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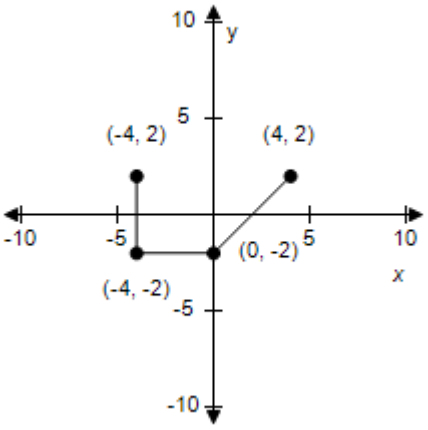

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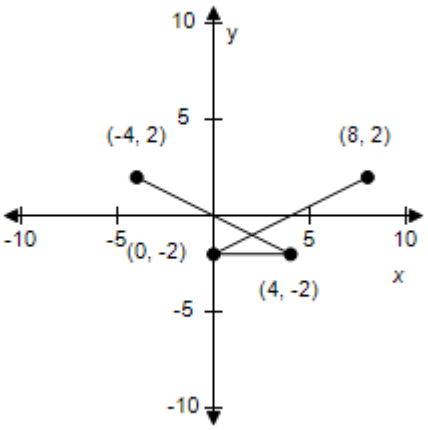
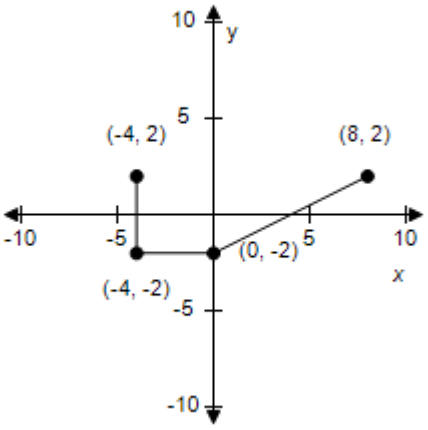
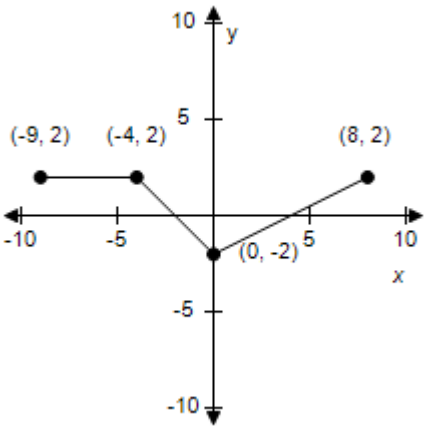
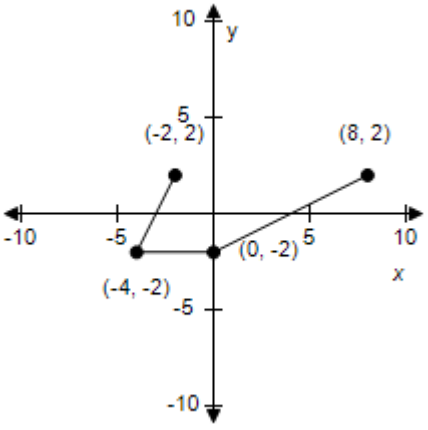


d.





e.



ANSWER: b
POINTS: 1
REFERENCES: 2.5.12g
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM

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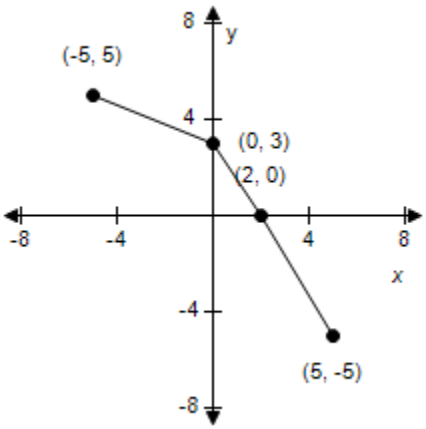
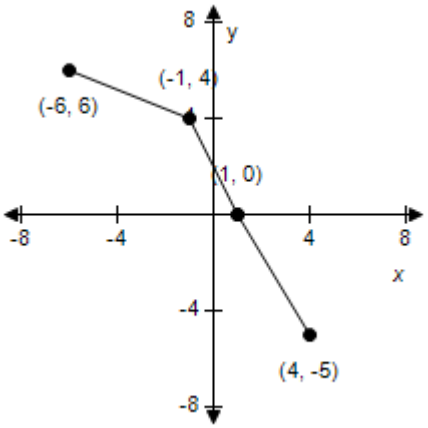
7. Use the given graph of f to select the graph for following function.

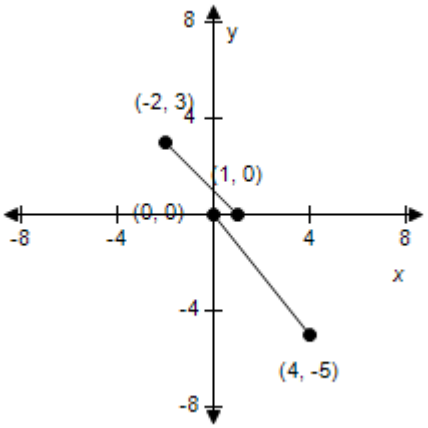
$y = f(x+1)$



a.

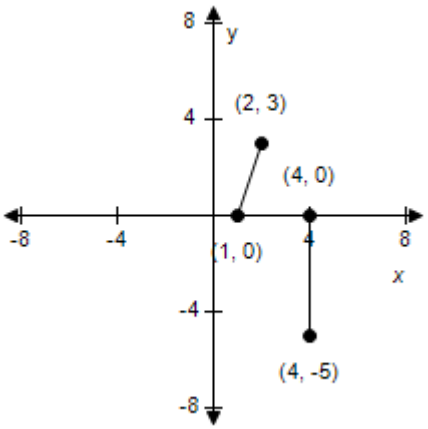
b.

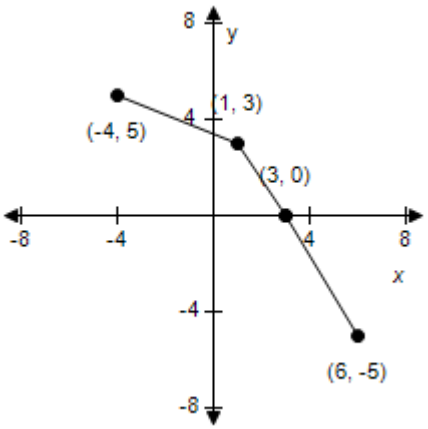




c.

d.





e.

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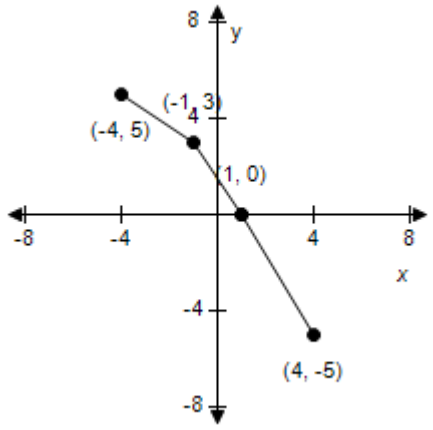
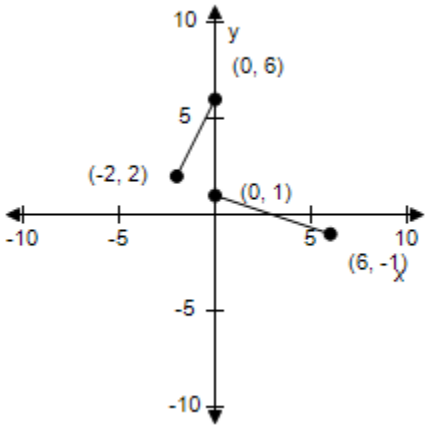
Section 1.7 - Transformations of Funtions



ANSWER: d
POINTS: 1
REFERENCES: 2.5.13d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 8:58 AM

8. Use the given graph of *f* to select the graph for following function.

$$y = \frac{1}{2}f(x)$$



a. b.

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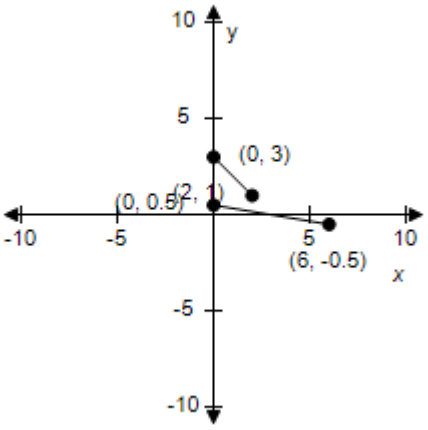

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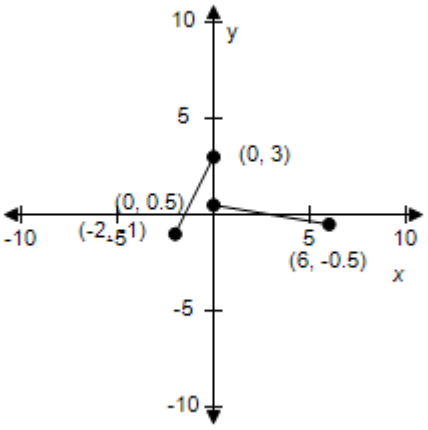
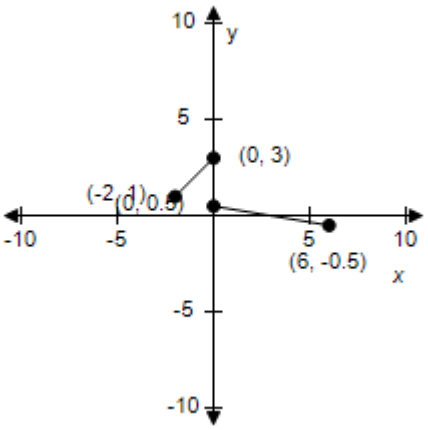


d.



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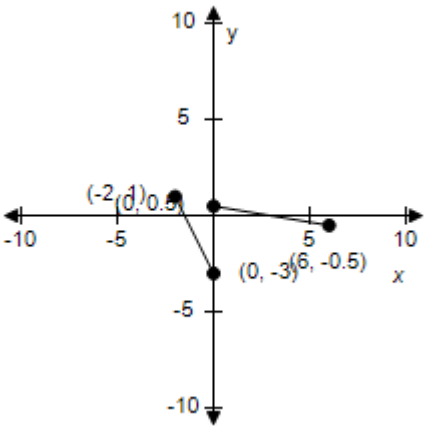

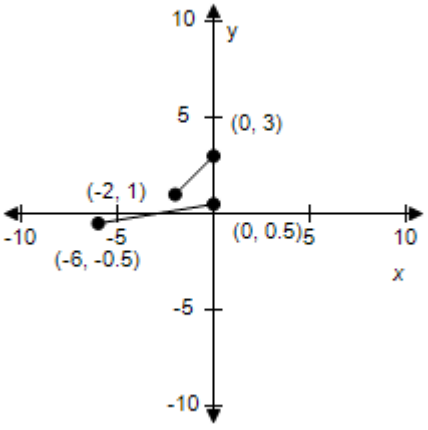

ANSWER: c
POINTS: 1
REFERENCES: 2.5.14c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.7 - Transformations of Funtions

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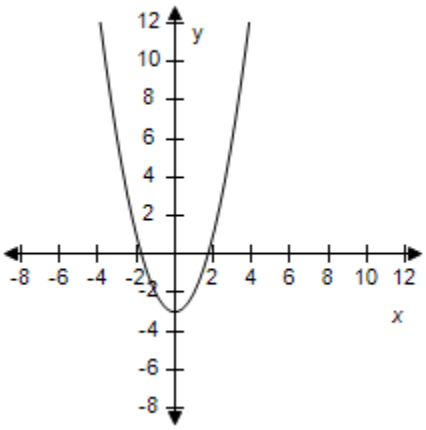
9. Use the graph of $f(x) = x^2$ to write an equation for the function whose graph is shown.



a. $y = x^2 + 3$

b. $y = x^2 + 4$

c. $y = -x^2$

d. $y = x^2 - 3$

e. $y = x^2 - 4$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.15a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 1:07 AM

10. Use the graph of $f(x) = x^2$ to write an equation for the function whose graph is shown.

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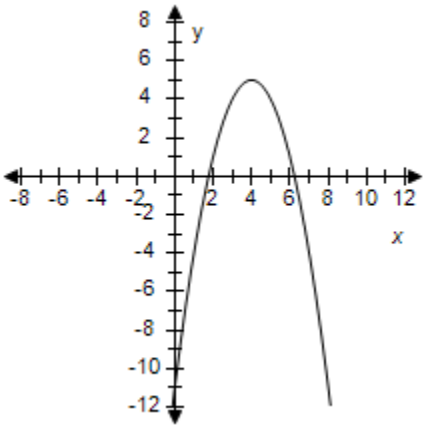
Section 1.7 - Transformations of Funtions



a. $y = -(x-4)^2 + 5$

b. $y = -(x-4)^2 - 5$

c. $y = (x+4)^2 + 5$

d. $y = (x-4)^2 + 5$

e. $y = -(x+4)^2 + 5$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.15c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Use the graph of $f(x) = x^3$ to write an equation for the function whose graph is shown.

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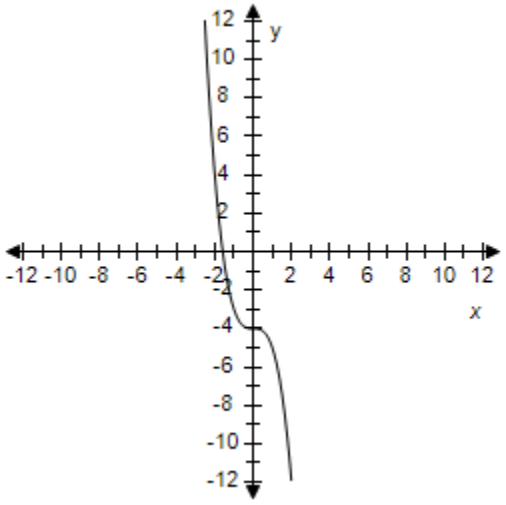
Section 1.7 - Transformations of Funtions



a. $y = -5 + x^3$

b. $y = -5 - x^3$

c. $y = -6 + x^3$

d. $y = -4 + x^3$

e. $y = -4 - x^3$

ANSWER: e
POINTS: 1
REFERENCES: 2.5.16a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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12. Use the graph of $f(x) = x^3$ to write an equation for the function whose graph is shown.

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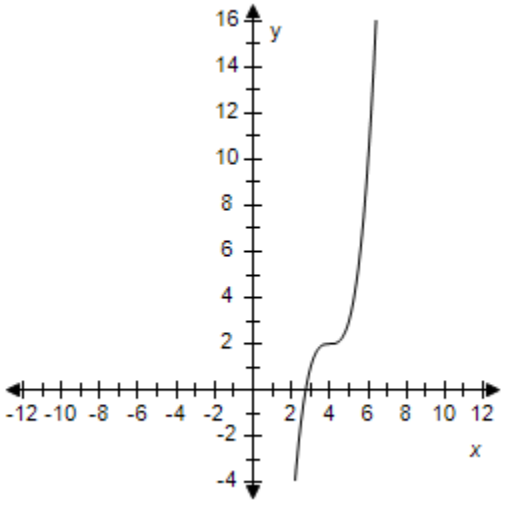
Section 1.7 - Transformations of Funtions



a. $y = (x-4)^3 - 1$

b. $y = (x+4)^3 + 2$

c. $y = (x+4)^3 - 2$

d. $y = (x-4)^3 + 2$

e. $y = (x-4)^3 + 1$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.16b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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13. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.

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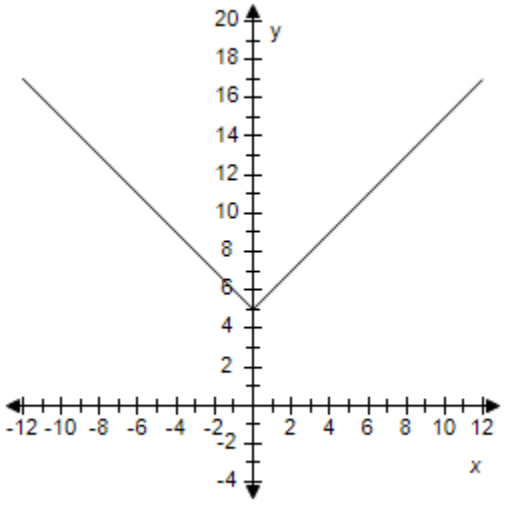

a. $y = |x| + 6$

b. $y = |x| - 5$

c. $y = |x| - 6$

d. $y = |x| + 7$

e. $y = |x| + 5$

ANSWER: e
POINTS: 1
REFERENCES: 2.5.17a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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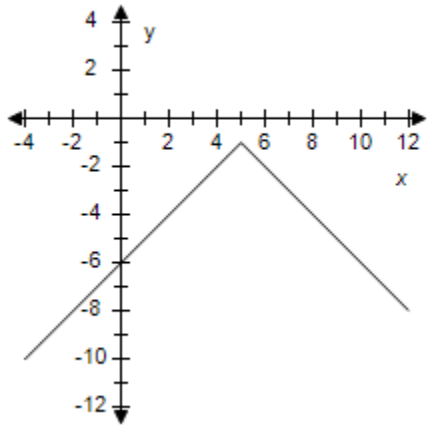
14. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.



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a. $y = -|x+5|-1$

b. $y = |x+5|+1$

c. $y = -|x-5|+1$

d. $y = -|x-5|-1$

e. $y = |x-5|-1$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.17d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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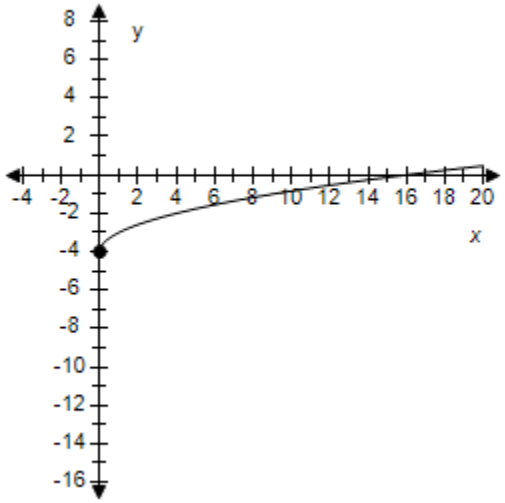
15. Use the graph of $f(x) = \sqrt{x}$ to write an equation for the function whose graph is shown.



a. $y = \sqrt{x}+6$

b. $y = \sqrt{x}-5$

c. $y = \sqrt{x}+5$

d. $y = \sqrt{x}-4$

e. $y = \sqrt{x}+4$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.18a

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Section 1.7 - Transformations of Funtions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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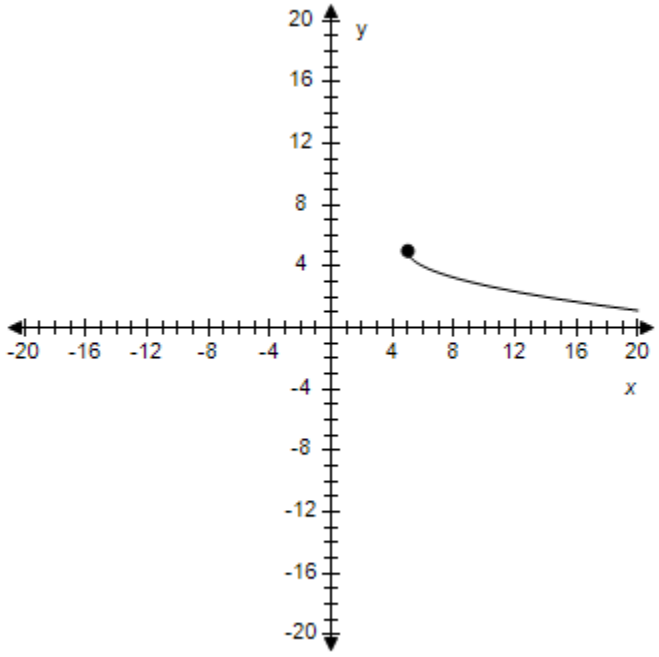
16. Use the graph of $f(x) = \sqrt{x}$ to write an equation for the function whose graph is shown.



a. $y = \sqrt{x} + 5$

b. $y = -\sqrt{x-5} + 5$

c. $y = \sqrt{x+5} + 5$

d. $y = -\sqrt{x} - 5$

e. None of the above

ANSWER: b
POINTS: 1
REFERENCES: 2.5.18c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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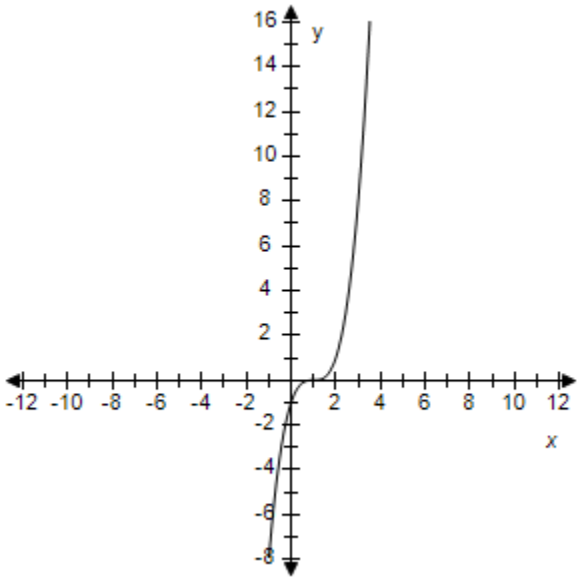
Section 1.7 - Transformations of Funtions

17. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.



a. Horizontal shift of $y = x^3; y = (x-1)^3$

b. Vertical shift of $y = x^2; y = (x-1)^2$

c. Vertical shift of $y = x^2; y = (x+1)^2$

d. Horizontal shift of $y = x^2; y = (x+1)^2$

e. Vertical shift of $y = x^3; y = (x+1)^3$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.19
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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18. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.

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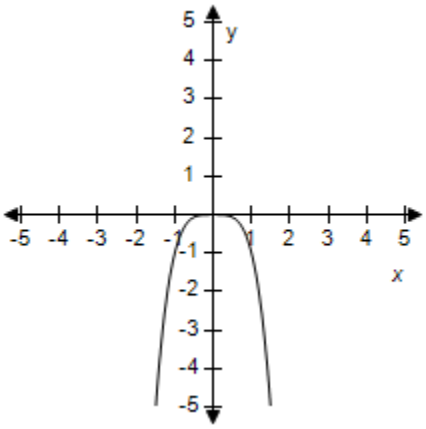

a. Horizontal shift of the x-axis of $y = x^4;\ y = -x^4$

b. Vertical shift of the y-axis of $y = x^4;\ y = -x^4$

c. Reflection in the x-axis of $y = x^4;\ y = -x^4$

d. Horizontal shift of the y-axis of $y = x^4;\ y = -x^4$

e. Vertical shift of the x-axis of $y = x^4;\ y = -x^4$

ANSWER:	c
POINTS:	1
REFERENCES:	2.5.21
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:18 PM
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19. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.

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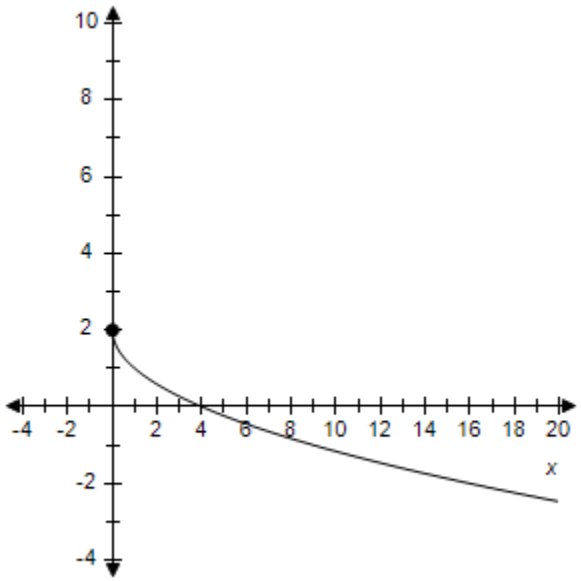
Section 1.7 - Transformations of Funtions



a. Reflection in the x-axis and vertical shift of $y=\sqrt{x}; y=2-\sqrt{x}$

b. Reflection in the y-axis and vertical shift of $y=\sqrt{x}; y=2+\sqrt{x}$

c. Reflection in the x-axis and vertical shift of $y=\sqrt{x}; y=2+\sqrt{x}$

d. Horizontal shift of x-axis and vertical shift of $y=\sqrt{x}; y=2+\sqrt{x}$

e. Horizontal shift of x-axis and vertical shift of $y=\sqrt{x}; y=2-\sqrt{x}$

ANSWER:	a
POINTS:	1
REFERENCES:	2.5.23
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:18 PM
DATE MODIFIED:	5/14/2021 9:51 AM

20. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.

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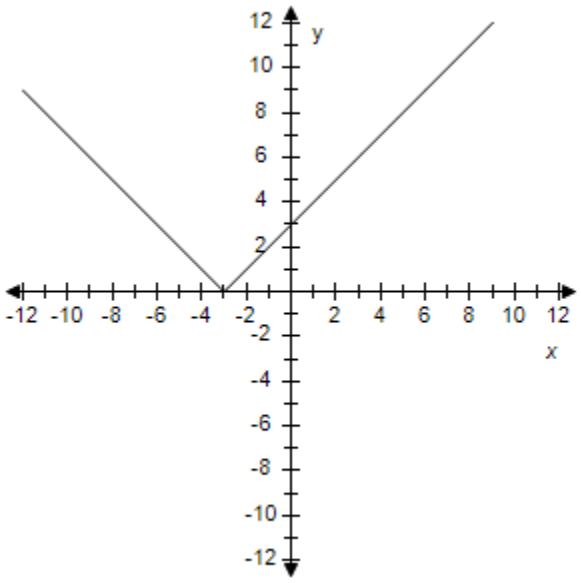
Section 1.7 - Transformations of Funtions



a. Reflection in the x-axis of $y = |x-3|;\ y = -|x-3|$

b. Horizontal shift of x-axis of $y = |x|;\ y = |x+3|$

c. Reflection in the y-axis of $y = |x|;\ y = -|x-3|$

d. Horizontal shift of x-axis of $y = |x+3|;\ y = -|x+3|$

e. Reflection in the y-axis of $y = |x+3|;\ y = -|x+3|$

ANSWER: b
POINTS: 1
REFERENCES: 2.5.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 9:33 AM

21. Identify the parent function f. The parent function is related to g.

$g(x) = 4+x^2$

a. Absolute Value Function, $f(x) = |x|$

b. Constant Function, $f(x) = 4$

c. Identity Function, $f(x) = x$

d. Quadratic Function, $f(x) = x^2$

e. Cubic Function, $f(x) = x^3$

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Section 1.7 - Transformations of Funtions

ANSWER: d
POINTS: 1
REFERENCES: 2.5.25a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/30/2014 8:33 AM

22. The parent function $f(x) = x^2$ is related to g. Describe the sequence of transformations from f to g.

$g(x) = 3 - x^2$

a. Reflection in the y-axis and vertical shift 3 units upward.
b. Reflection in the y-axis and horizontal shift 3 units to the right.
c. Reflection in the x-axis and vertical shift 3 units upward.
d. Reflection in the x-axis and vertical shift 3 units downward.
e. Reflection in the y-axis and vertical shift 3 units downward.

ANSWER: c
POINTS: 1
REFERENCES: 2.5.25b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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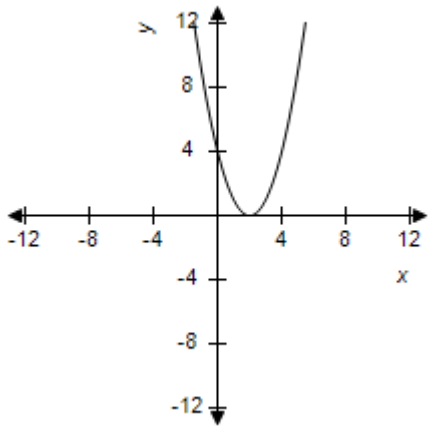
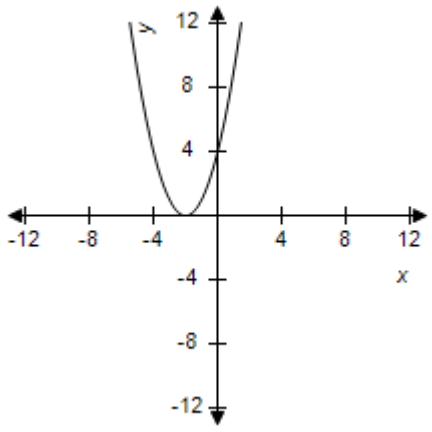
23. Select the graph of g.

$g(x) = (x - 2)^2$

a.



b.



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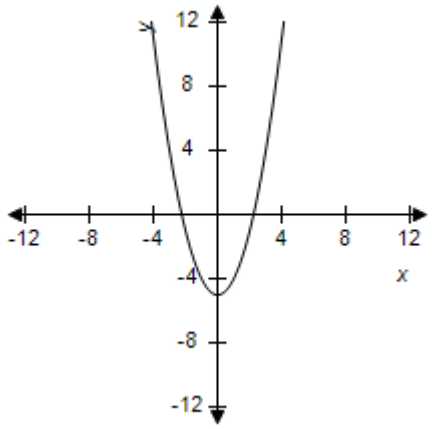
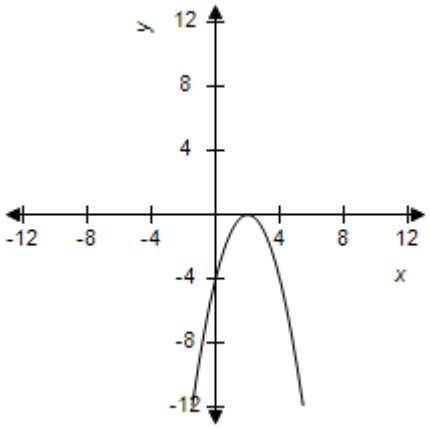
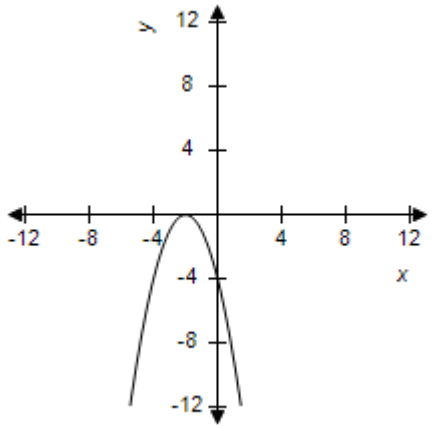
c.



d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 2.5.26c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/30/2014 8:41 AM

24. The parent function $f(x) = x^3$ is related to g. Use function notation to write g in terms of f.

$g(x) = x^3 + 4$

a. $g(x) = x^3 + f(x)$
b. $g(x) = x^3 - f(x)$
c. $g(x) = f(x) - 4$
d. $g(x) = x^3$

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e. $g(x) = f(x) + 4$

ANSWER: e
POINTS: 1
REFERENCES: 2.5.27d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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25. Function g is related to the parent function. Identify the parent function f.

$g(x) = -x^3 - 2$

a. Identity Function, $f(x) = x$
b. Cubic Function, $f(x) = x^3$
c. Absolute Value Function, $f(x) = |x|$
d. Quadratic Function, $f(x) = x^2$
e. Constant Function, $f(x) = 2$

ANSWER: b
POINTS: 1
REFERENCES: 2.5.28a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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26. Select the graph of g.

$g(x) = \frac{2}{3}x^2 + 1$

a. b.

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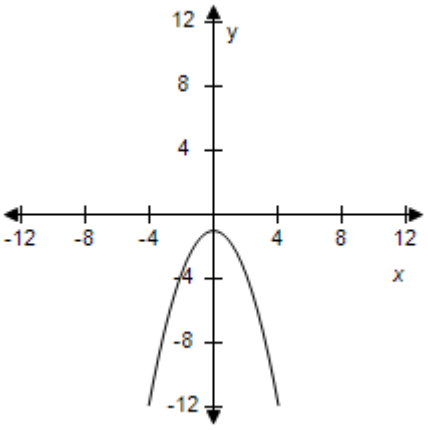
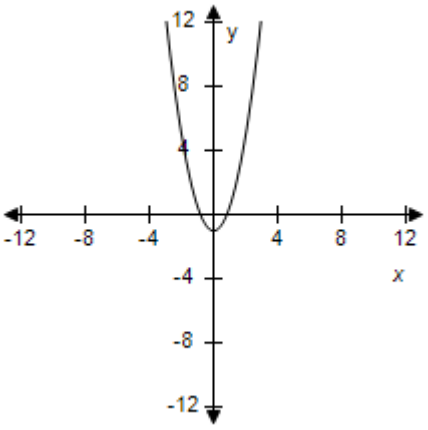
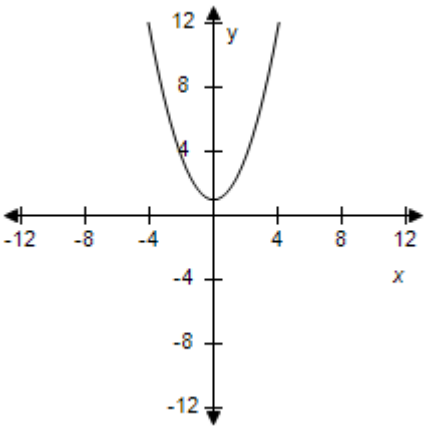


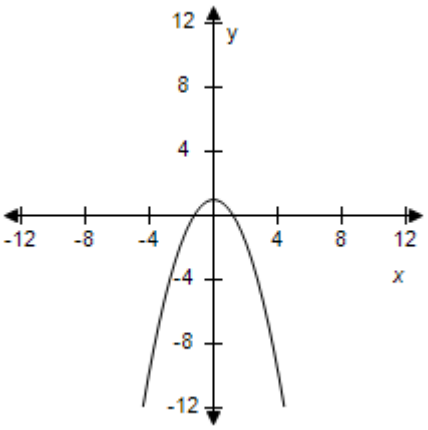
c.

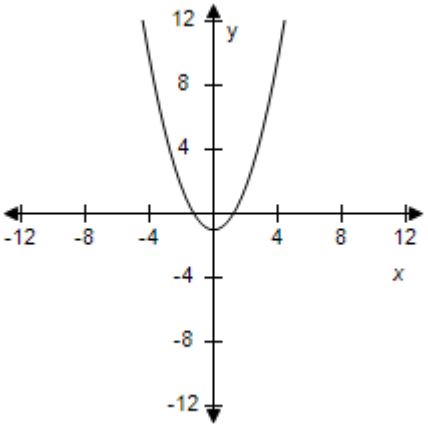


d.



e.





ANSWER: c
POINTS: 1
REFERENCES: 2.5.29c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.7 - Transformations of Funtions

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27. The parent function $f(x)=x^2$ is related to g. Use function notation to write g in terms of f.

$g(x) = 2-(x+6)^2$

a. $g(x) = 2+f(x-6)$
b. $g(x) = 2-f(x-6)$
c. $g(x) = 2+f(x+6)$
d. $g(x) = 2-f(x+6)$
e. $g(x) = -2-f(x-6)$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.31d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 12:14 PM

28. Function g is related to the parent function. Identify the parent function f.

$g(x) = \sqrt{6x}$

a. Square Root Function, $f(x) = \sqrt{x}$
b. Identity Function, $f(x) = x$
c. Quadratic Function, $f(x) = x^2$
d. Cubic Function, $f(x) = x^3$
e. Reciprocal Function, $f(x) = \frac{1}{x}$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.35a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 12:17 PM

29. The parent function $f(x)=x^3$ is related to g. Use function notation to write g in terms of f.

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$g(x) = (x-1)^3 + 1$

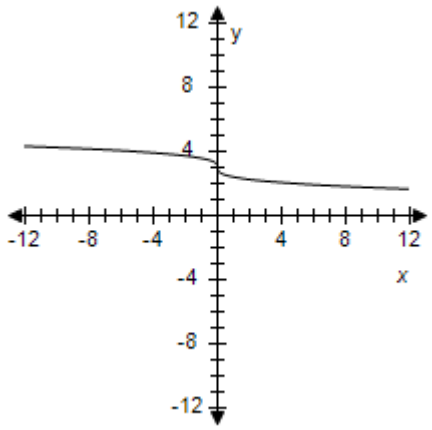
a. $g(x) = f(x-1) - 1$
b. $g(x) = f(x+1) + 1$
c. $g(x) = f(x-1) + 1$
d. $g(x) = f(x+1) - 1$
e. None of the above

ANSWER: c
POINTS: 1
REFERENCES: 2.5.37d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 12:17 PM

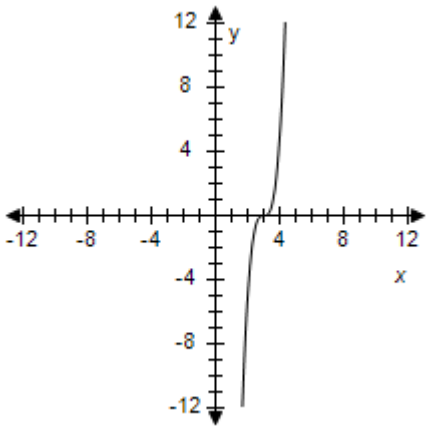
30. Select the graph of g.

$g(x) = 5(x-3)^3$

a.



b.



c.

d.

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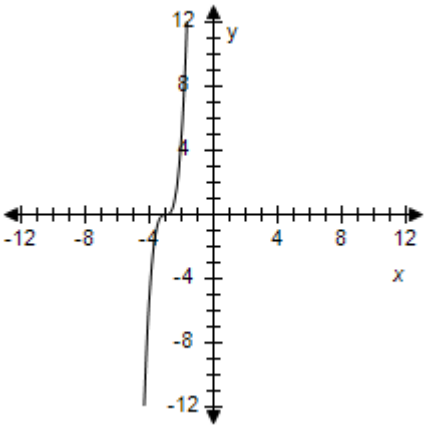
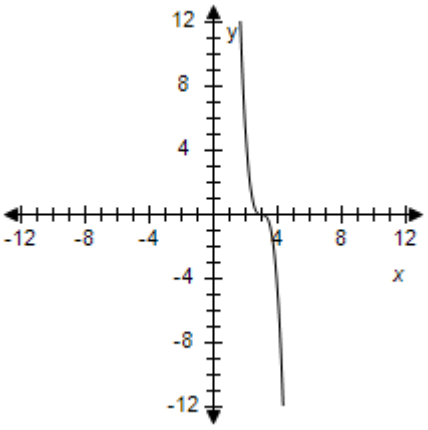
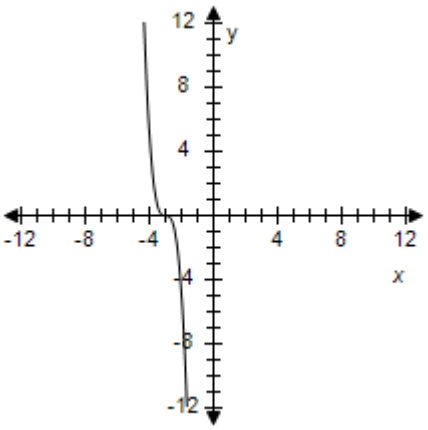




e.



ANSWER: b
POINTS: 1
REFERENCES: 2.5.39c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 9:57 AM

31. The parent function $f(x) = |x|$ is related to g. Describe the sequence of transformations from f to g.

$g = -|x| - 5$

a. Reflection in the y-axis and vertical shift five units downward.
b. Reflection in the x-axis and vertical shift five units downward.
c. Reflection in the x-axis and vertical shift five units upward.
d. Reflection in the y-axis and vertical shift five units upward.
e. Reflection in the x-axis and horizontal shift five units to the right.

ANSWER: b

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POINTS: 1
REFERENCES: 2.5.41b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 10:31 AM

32. Function g is related to the parent function. Identify the parent function f.

$g(x) = -|x+3| + 6$

a. Reciprocal Function, $f(x) = \frac{1}{x}$
b. Quadratic Function, $f(x) = x^2$
c. Absolute Value Function, $f(x) = |x|$
d. Cubic Function, $f(x) = x^3$
e. Constant Function, $f(x) = 3$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.43a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 12:22 PM

33. The parent function $f(x) = |x|$ is related to g. Use function notation to write g in terms of f.

$g(x) = -5|x-5|-3$

a. $g(x) = 5f(x-5)-3$
b. $g(x) = -5f(x-5)+3$
c. $g(x) = -5f(x-5)-3$
d. $g(x) = 5f(x+5)+3$
e. $g(x) = -5f(x+5)-3$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.45d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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34. Function g is related to the parent function. Identify the parent function f.

$g(x) = 4 - [[x]]$

a. Quadratic Function, $f(x) = x^2$
b. Greatest Integer Function, $f(x) = [[x]]$
c. Constant Function, $f(x) = 4$
d. Square Root Function, $f(x) = \sqrt{x}$
e. Absolute Value Function, $f(x) = |x|$

ANSWER: b
POINTS: 1
REFERENCES: 2.5.47a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/12/2015 12:25 PM

35. The parent function $f(x) = \sqrt{x}$ is related to g. Describe the sequence of transformations from f to g.

$g(x) = \sqrt{x-3}$

a. Horizontal stretch and vertical shift three units downward.
b. Vertical shift three units downward.
c. Vertical stretch by a factor of 3.
d. Horizontal stretch and vertical shift three units upward.
e. Horizontal shift three units to the right.

ANSWER: e
POINTS: 1
REFERENCES: 2.5.49b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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36. Select the graph of g.

$g(x) = \sqrt{3-x} - 3$

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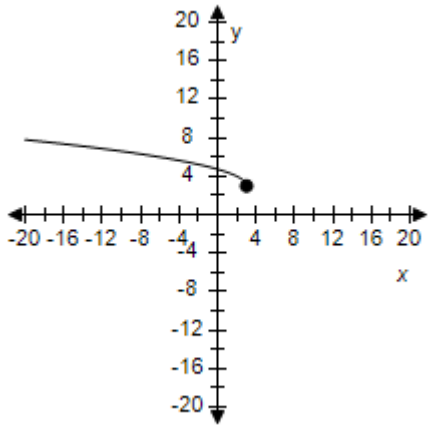
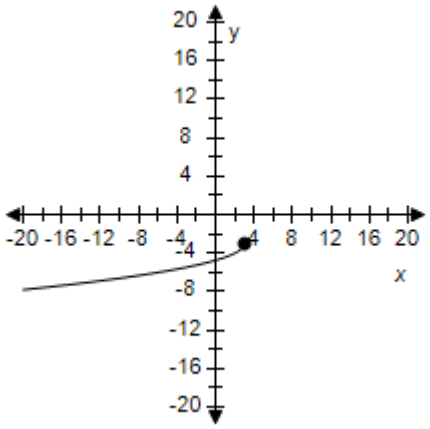
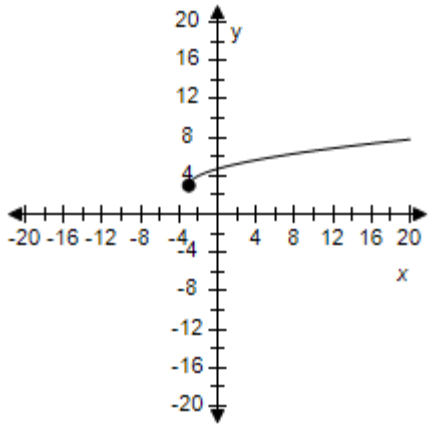
a.



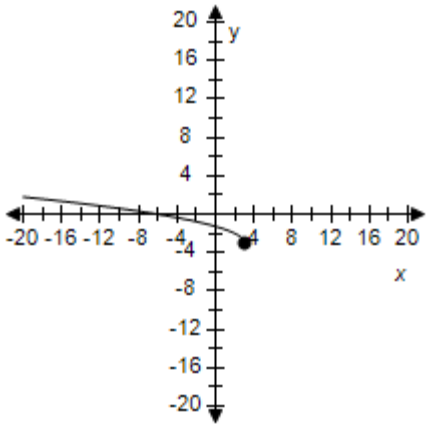
b.



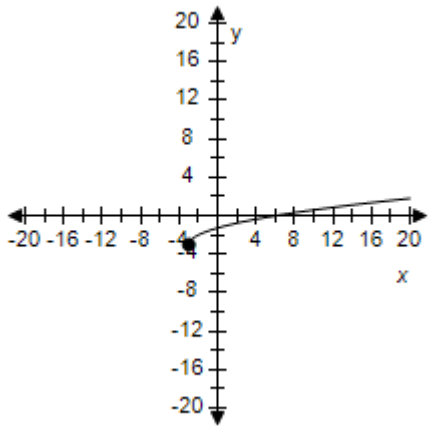
c.



d.



e.



ANSWER: d
POINTS: 1
REFERENCES: 2.5.51c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.7 - Transformations of Funtions

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37. The parent function $f(x) = \sqrt{x}$ is related to g. Use function notation to write g in terms of f.

$g(x) = \sqrt{\frac{1}{2}x - 4}$

a. $g(x) = f\left(\frac{1}{2}x\right) - 4$

b. $g(x) = f\left(\frac{1}{2}\right) + 4$

c. $g(x) = f\left(\frac{1}{2}x\right) + 4$

d. $f(x) = g\left(\frac{1}{2}x\right) - 4$

e. $g(x) = f\left(\frac{1}{2}\right) - 4$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.53d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:03 AM

38. Write an equation for the function that is described by the given characteristics.

The shape of $f(x) = x^2$, but shifted three units to the right and five units downward.

a. $g(x) = (x - 3)^2 - 5$

b. $g(x) = (x^2 - 3) - 5$

c. $g(x) = (x + 3)^2 - 5$

d. $g(x) = (x + 3)^2 + 5$

e. $g(x) = (x - 3)^2 + 5$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.55
QUESTION TYPE: Multi-Mode (Multiple choice)

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HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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39. Write an equation for the function that is described by the given characteristics.

The shape of $f(x) = x^3$, but shifted 12 units to the right.

a. $g(x) = (x + 12)$
b. $g(x) = -(x - 12)^3$
c. $g(x) = (x + 12)^3$
d. $g(x) = (x - 12)^3$
e. $g(x) = -(x + 12)^3$

ANSWER: d
POINTS: 1
REFERENCES: 2.5.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:08 AM

40. Write an equation for the function that is described by the given characteristics.

The shape of $f(x) = \sqrt{x}$, but shifted five units to the left and reflected in both the *x*-axis and the *y*-axis.

a. $g(x) = \sqrt{-x + 5}$
b. $g(x) = -\sqrt{x + 5}$
c. $g(x) = -\sqrt{-x + 5}$
d. $g(x) = \sqrt{x + 5}$
e. $g(x) = -\sqrt{-x - 5}$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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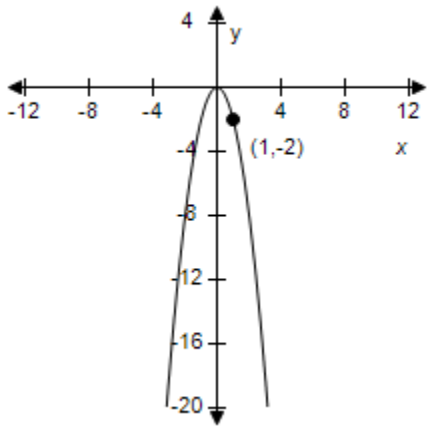
41. Use the graph of $f(x) = x^2$ to write an equation for the function whose graph is shown.



a. $y = -2x^2$

b. $y = x^2$

c. $y = -\frac{x^2}{2}$

d. $y = \frac{x^2}{2}$

e. $y = 2x^2$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.63a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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42. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.

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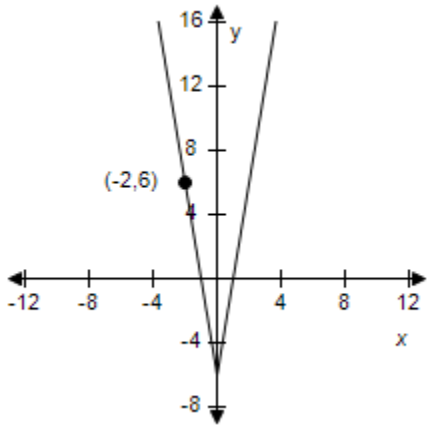


a. $y = 6|x| - 6$

b. $y = -6|x| - 6$

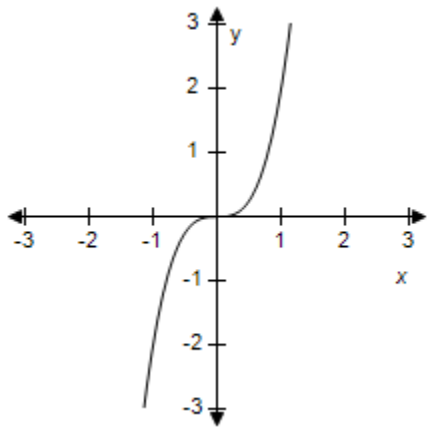
c. $y = 6|x - 6|$

d. $y = 6|x| + 6$

e. $y = -6|x| + 6$

ANSWER: a
POINTS: 1
REFERENCES: 2.5.65b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:17 AM

43. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.



a. Vertical stretch of $y = x^2;\ y = 2x^2$

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b. Horizontal stretch of $y = x^3;\ y = 2x^3$

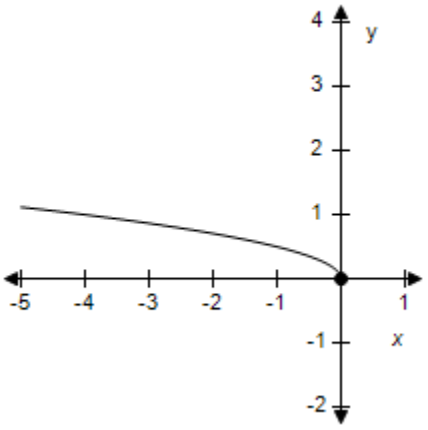
c. Vertical stretch of $y = x^3;\ y = 2x^3$

d. Vertical stretch of $y = x^3;\ y = -2x^3$

e. Horizontal stretch of $y = x^3;\ y = -2x^3$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.67
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 1:49 AM

44. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.



a. Reflection in the *y*-axis and vertical shrink of $y = \sqrt{x};\ y = \frac{1}{2}\sqrt{-x}$.

b. Reflection in the *y*-axis and vertical shrink of $y = \sqrt{-x};\ y = \frac{1}{2}\sqrt{x}$.

c. Reflection in the *y*-axis and vertical shrink of $y = \sqrt{-x};\ y = -\frac{1}{2}\sqrt{x}$.

d. Reflection in the *y*-axis and vertical shrink of $y = \sqrt{x};\ y = -\frac{1}{2}\sqrt{-x}$.

e. Reflection in the *y*-axis and vertical shrink of $y = \sqrt{x};\ y = \frac{1}{2}\sqrt{x}$.

ANSWER: a
POINTS: 1
REFERENCES: 2.5.71

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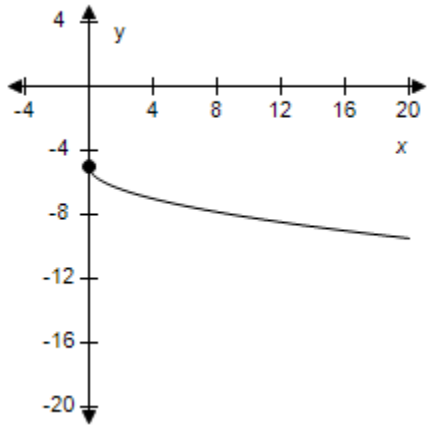
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 1:50 AM

45. Use the viewing window shown to select a possible equation for the transformation of the parent function.



a. $y = \sqrt{x} - 5$

b. $y = -\sqrt{x} + 5$

c. $y = -\sqrt{x} - 5$

d. $y = \sqrt{x} + 5$

e. $y = -\sqrt{x} - 6$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.75
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 1:51 AM

46. Determine whether the statement is true or false. Justify your answer.

The graphs of $f(x) = |x| + 5$ and $f(x) = |-x| + 5$ are identical.

a. False. $|x| \neq |-x|$

b. True. $|x| = |-x|$

ANSWER: b

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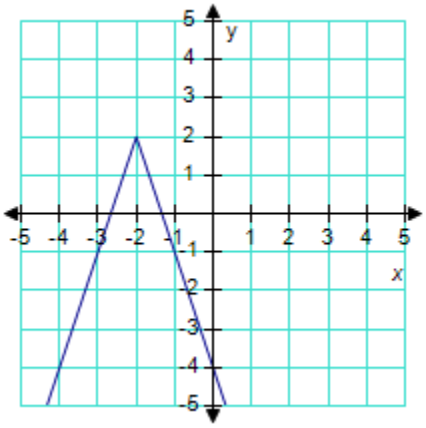
POINTS: 1
REFERENCES: 2.5.83
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/1/2014 6:56 AM

47. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.



a. $f(x) = -3|x-2|+2$
b. $f(x) = -3|x+2|+2$
c. $f(x) = |-3x+2|+2$
d. $f(x) = -3|x+2|-2$
e. $f(x) = |-3x-2|+2$

ANSWER: b
POINTS: 1
REFERENCES: 2.5.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.128 - Write equations for transformations of common functions
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 1:54 AM

48. Describe the sequence of transformations from the related common function $f(x) = x^3$ to g.

$g(x) = 2(x-4)^3$

a. Vertical shift 4 units upward; then vertical shrink by a factor of 2.
b. Horizontal shift 4 units to the left; then vertical shrink by a factor of 2.

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c. Horizontal shift 4 units to the right; then vertical stretch by a factor of 2.
d. Vertical shift 4 units downward; then vertical shrink by a factor of 2.
e. Horizontal shift 4 units to the left; then vertical stretch by a factor of 2.

ANSWER: c
POINTS: 1
REFERENCES: 2.5.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.129 - Recognize transformed graphs of common functions
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:40 AM

49. Write an equation for the function that is described by the following characteristics.

The shape of $f(x) = x^2$, but shifted five units down, six units to the left, and then reflected in the x-axis.

a. $g(x) = 6 - (x + 5)^2$
b. $g(x) = -(x + 6)^2 - 5$
c. $g(x) = 5 - (x + 6)^2$
d. $g(x) = -(x + 5)^2 - 6$
e. $g(x) = 5 - (x - 6)^2$

ANSWER: c
POINTS: 1
REFERENCES: 2.5.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.128 - Write equations for transformations of common functions
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:42 AM

50. Write an equation for the function that is described by the following characteristics.

The shape of $f(x) = [[x]]$, but reflected in the y-axis, shifted eightunits down.

a. $g(x) = [[-x]] + 8$
b. $g(x) = -[[x - 8]]$
c. $g(x) = -[[x + 8]]$
d. $g(x) = [[-x]] - 8$
e. $g(x) = -[[x]] + 8$

ANSWER: d

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POINTS: 1
REFERENCES: 2.5.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.128 - Write equations for transformations of common functions
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/14/2021 11:46 AM

51. Describe the sequence of transformations from the related common function $f(x) = x^3$ to g.

$g(x) = 2(x - 8)^3$

a. Horizontal shift 8 units to the right; then vertical stretch by a factor of 2.
b. Horizontal shift 8 units to the left; then vertical stretch by a factor of 2.
c. Horizontal shift 8 units to the left; then vertical shrink by a factor of 2.
d. Vertical shift 8 units upward; then vertical shrink by a factor of 2.
e. Vertical shift 8 units downward; then vertical shrink by a factor of 2.

ANSWER: a
POINTS: 1
REFERENCES: 42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.129 - Recognize transformed graphs of common functions
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52. Describe the sequence of transformations from the related common function $f(x) = \sqrt{x}$ to g.

$g(x) = -\sqrt{x} + 3$

a. Reflection in the x-axis; then vertical shift 3 units downward.
b. Reflection in the x-axis; then vertical shift 3 units upward.
c. Reflection in the y-axis; then vertical shift 3 units upward.
d. Reflection in the y-axis; then horizontal shift 3 units to the right.
e. Reflection in the y-axis; then horizontal shift 3 units to the left.

ANSWER: b
POINTS: 1
REFERENCES: 43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.7 - Transformations of Funtions

LEARNING OBJECTIVES: PREC.LARS.16.129 - Recognize transformed graphs of common functions
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Section 1.8 - Combinations of Functions: Composite Functions

1. Find $(f + g)(x)$.

$f(x) = x + 4, g(x) = x - 4$

a. $2x$
b. $4x$
c. $-4x$
d. $-2x$
e. $2x + 8$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.9a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Find $(f - g)(x)$.

$f(x) = x + 3, g(x) = x - 3$

a. $2x - 6$
b. 6
c. $2x - 3$
d. $2x + 6$
e. $2x$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.9b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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3. Find $(f + g)(x)$.

$f(x) = 2x - 3, g(x) = 4 - x$

a. $3x - 1$
b. $2x - 1$
c. $2x + 1$
d. $3x + 1$
e. $x + 1$

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ANSWER: e
POINTS: 1
REFERENCES: 2.6.10a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Find $(f - g)(x)$.

$f(x) = 2x - 2,\ g(x) = 4 - x$

a. $3x - 6$
b. $2x + 6$
c. $2x - 6$
d. $x - 6$
e. $3x + 6$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.10b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 9/26/2014 5:18 AM

5. Find $(fg)(x)$.

$f(x) = x^2,\ g(x) = 7x - 7$

a. $7x^3 + 7x^2$
b. $7x^3 - 7x^2$
c. $7x^2 - 7x^3$
d. $7x^2 + 7x^3$
e. $7x - 7x^2$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.11c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.8 - Combinations of Functions: Composite Functions

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6. Find $(f / g)(x)$. What is the domain of f / g?

$f(x) = x^2,\ g(x) = 7x - 3$

a. $-\dfrac{x^2}{7x-3}$; all real numbers x.

b. $\dfrac{7x+3}{x^2}$; all real numbers x except $x = 0$

c. $\dfrac{x^2}{7x-3}$; all real numbers x except $x = \dfrac{3}{7}$

d. $\dfrac{7x-3}{x^2}$; all real numbers x except $x = 0$

e. $\dfrac{x^2}{7x+3}$; all real numbers x except $x = \dfrac{7}{3}$

ANSWER: c
POINTS: 1
REFERENCES: 2.6.11d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 9/26/2014 5:37 AM

7. Find $(f + g)(x)$.

$f(x) = x^2 + 4,\ g(x) = \sqrt{7-x}$

a. $x^2 + 4 - \sqrt{7-x}$

b. $x^2 + 4 + \sqrt{7-x}$

c. $x^2 - 4 + \sqrt{7+x}$

d. $x^2 - 4 - \sqrt{7-x}$

e. $x^2 - 4 + \sqrt{7-x}$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.13a

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Section 1.8 - Combinations of Functions: Composite Functions

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STUDENT ENTRY MODE: Basic
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8. Find $(f-g)(x)$.

$f(x)=x^2+3, g(x)=\sqrt{5-x}$

a. $x^2+3+\sqrt{5-x}$

b. $x^2-3+\sqrt{5-x}$

c. $x^2-3+\sqrt{5+x}$

d. $x^2+3-\sqrt{5-x}$

e. $x^2-3-\sqrt{5-x}$

ANSWER: d
POINTS: 1
REFERENCES: 2.6.13b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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9. Find $(fg)(x)$.

$f(x)=\frac{1}{x^2}, g(x)=\frac{1}{x^4}$

a. $\frac{1}{x^4}$

b. $\frac{1}{x^2}$

c. $\frac{1}{x^6}$

d. x^6

e. $\frac{x^4}{x^2}$

ANSWER: c

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POINTS: 1
REFERENCES: 2.6.15c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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10. Find $(f/g)(x)$.

$f(x)=\frac{1}{x^2}, g(x)=\frac{1}{x^4}$

a. $\frac{1}{x^2}$
b. x^6
c. $\frac{1}{x^4}$
d. $\frac{1}{x^6}$
e. x^2

ANSWER: e
POINTS: 1
REFERENCES: 2.6.15d
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/15/2015 9:37 AM

11. Evaluate the indicated function for $f(x)=x^2+2$ and $g(x)=x-4$.

$(f+g)(3)$

a. 12
b. –10
c. 7
d. 14
e. 10

ANSWER: e
POINTS: 1
REFERENCES: 2.6.17

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Section 1.8 - Combinations of Functions: Composite Functions

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12. Evaluate the indicated function for $f(x)=x^2+2$ and $g(x)=x-5$.

$(f-g)(-4)$

a. 19
b. 27
c. –27
d. 64
e. 9

ANSWER: b
POINTS: 1
REFERENCES: 2.6.18
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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13. Evaluate the indicated function for $f(x)=x^2+3$ and $g(x)=x-6$.

$(f-g)(0)$

a. 48
b. 39
c. 9
d. 0
e. –39

ANSWER: c
POINTS: 1
REFERENCES: 2.6.19
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.8 - Combinations of Functions: Composite Functions

14. Evaluate the indicated function for $f(x)=x^2+3$ and $g(x)=x-4$.

$(f-g)(3t)$

a. $9t^2+3t+7$
b. $6t+7$
c. $9t^2+3t-7$
d. $9t^2-3t-7$
e. $9t^2-3t+7$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Evaluate the indicated function for $f(x)=x^2+5$ and $g(x)=x-2$.

$(fg)(5)$

a. 92
b. 90
c. –86
d. 89
e. 91

ANSWER: b
POINTS: 1
REFERENCES: 2.6.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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16. Evaluate the indicated function for $f(x)=x^2+5$ and $g(x)=x-4$.

$(f/g)(5)$

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a. 30
b. $\frac{5}{34}$
c. $\frac{32}{3}$
d. $\frac{2}{31}$
e. $\frac{34}{5}$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Evaluate the indicated function for $f(x)=x^2+6$ and $g(x)=x-5$.

$(f/g)(-4)-g(6)$

a. $-\frac{5}{26}$
b. $-\frac{31}{9}$
c. $-\frac{9}{13}$
d. $-\frac{13}{9}$
e. $-\frac{9}{31}$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Find $f \circ g$.

$f(x)=x^4, g(x)=x-3$

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a. x^4

b. $(x-3)^4$

c. $(x+3)^4$

d. x^4-3

e. x^4+3

ANSWER: b
POINTS: 1
REFERENCES: 2.6.37a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Find $g \circ f$.

$f(x)=x^4, g(x)=x-3$

a. x^4-3

b. x^4

c. $(x-3)^4$

d. x^4+3

e. $(x+3)^4$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.37b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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20. Find $g \circ g$.

$g(x)=x-2$

a. $(x-2)^2$

b. x^2-2

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c. $x+4$
d. $-x-4$
e. $x-4$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.37c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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21. Find $f \circ g$ and the domain of the composite function.

$f(x)=\sqrt{x+3}, g(x)=x^2$

a. $(x+3)^2$

Domain of $f \circ g$: all real numbers x

b. $\sqrt{x^2+3}$

Domain of $f \circ g$: all real numbers x

c. $-\sqrt{(x+3)^2}$

Domain of $f \circ g$: all real numbers x

d. $(x-3)^2$

Domain of $f \circ g$: all real numbers x

e. $\sqrt{(x-3)^2}$

Domain of $f \circ g$: all real numbers x

ANSWER: b
POINTS: 1
REFERENCES: 2.6.41a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Find $g \circ f$ and the domain of the composite function.

$f(x)=x^2+4, g(x)=\sqrt{x}$

a. $(x+4)^4$

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Domain of $g \circ f$: all real numbers x

b. $(x-4)^4$

Domain of $g \circ f$: all real numbers x

c. $\sqrt{x^2+4}$

Domain of $g \circ f$: all real numbers x

d. $\sqrt{(x-4)^4}$

Domain of $g \circ f$: all real numbers x

e. $\sqrt{(x+4)^4}$

Domain of $g \circ f$: all real numbers x

ANSWER: c
POINTS: 1
REFERENCES: 2.6.43b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. Find $f \circ g$ and the domain of the composite function.

$f(x) = |x|, g(x) = x+3$

a. $|(x-3)^3|$

Domain of $f \circ g$: all real numbers x

b. $\sqrt{(x+3)^3}$

Domain of $f \circ g$: all real numbers x

c. $|x+3|$

Domain of $f \circ g$: all real numbers x

d. $|(x+3)^3|$

Domain of $f \circ g$: all real numbers x

e. $|x-3|$

Domain of $f \circ g$: all real numbers x

ANSWER: c
POINTS: 1
REFERENCES: 2.6.45a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.8 - Combinations of Functions: Composite Functions

STUDENT ENTRY MODE: Basic
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24. Find $g \circ f$ and the domain of the composite function.

$f(x) = |x|, g(x) = x + 5$

a. $|x - 5|$

Domain of $g \circ f$: all real numbers x

b. $x - 5$

Domain of $g \circ f$: all real numbers x

c. $|x| - 5$

Domain of $g \circ f$: all real numbers x

d. $|x| + 5$

Domain of $g \circ f$: all real numbers x

e. $|x + 5|$

Domain of $g \circ f$: all real numbers x

ANSWER: d
POINTS: 1
REFERENCES: 2.6.45b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Find $f \circ g$ and the domain of the composite function.

$f(x) = \frac{1}{x}, g(x) = x + 7$

a. $\frac{1}{x} + 7$

Domain of $f \circ g$: all real numbers x except $x = 0$

b. $-\frac{1}{x + 7}$

Domain of $f \circ g$: all real numbers x except $x = -7$

c. $\frac{1}{x + 7}$

Domain of $f \circ g$: all real numbers x except $x = -7$

d. $\frac{1}{x} - 7$

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Domain of $f \circ g$: all real numbers x except $x = 0$

e. $\dfrac{1}{x-7}$

Domain of $f \circ g$: all real numbers x except $x = 7$

ANSWER: c
POINTS: 1
REFERENCES: 2.6.47a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Find $g \circ f$ and the domain of the composite function.

$f(x) = \dfrac{1}{x}, g(x) = x + 5$

a. $\dfrac{1}{x+5}$

Domain of $g \circ f$: all real numbers x except $x = -5$

b. $\dfrac{1}{x} - 5$

Domain of $g \circ f$: all real numbers x except $x = 0$

c. $\dfrac{1}{x} + 5$

Domain of $g \circ f$: all real numbers x except $x = 0$

d. $-\dfrac{1}{x+5}$

Domain of $g \circ f$: all real numbers x except $x = -3$

e. $\dfrac{1}{x-5}$

Domain of $g \circ f$: all real numbers x except $x = 5$

ANSWER: c
POINTS: 1
REFERENCES: 2.6.47b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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27. The research and development department of an automobile manufacturer has determined that when a driver

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is required to stop quickly to avoid an accident, the distance (in feet) the car travels during the driver's reaction time is given by $R(x) = \frac{5}{2}x$, where x is the speed of the car in miles per hour. The distance (in feet) traveled while the driver is braking is given by $B(x) = \frac{1}{11}x^2$. Find the function that represents the total stopping distance T.

a. $T = -\frac{5}{2}x + \frac{1}{11}x^2$

b. $T = \frac{5}{2}x - \frac{1}{11}x^2$

c. $T = \frac{5}{2}x^2 + \frac{1}{11}x^2$

d. $T = -\frac{5}{2}x - \frac{1}{11}x^2$

e. $T = \frac{5}{2}x + \frac{1}{11}x^2$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.61a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. A pebble is dropped into a calm pond, causing ripples in the form of concentric circles. The radius (in feet) of the outer ripple is $r(t) = 0.2t$, where t is the time in seconds after the pebble strikes the water. The area of the circle is given by the function $A(r) = \pi r^2$. Find and interpret $(A \circ r)(t)$.

a. $(A \circ r)(t) = 0.2\pi t$; $(A \circ r)(t)$ represents the area of the circle at time t.

b. $(A \circ r)(t) = 0.2\pi t^2$; $(A \circ r)(t)$ represents the area of the circle at time t.

c. $(A \circ r)(t) = 0.04\pi t$; $(A \circ r)(t)$ represents the area of the circle at time t.

d. $(A \circ r)(t) = 0.04\pi t^2$; $(A \circ r)(t)$ represents the area of the circle at time t.

e. $(A \circ r)(t) = 0.04\pi t^3$; $(A \circ r)(t)$ represents the area of the circle at time t.

ANSWER: d
POINTS: 1
REFERENCES: 2.6.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.8 - Combinations of Functions: Composite Functions

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29. From 2003 through 2008, the sales R_1 (in thousands of dollars) for one of two restaurants owned by the same parent company can be modeled by

$R_1 = 480 - 6t - 0.6t^2,\ t = 3, 4, 5, 6, 7, 8$

where $t = 3$ represents 2003. During the same six-year period, the sales R_2 (in thousands of dollars) for the second restaurant can be modeled by

$R_2 = 259 + 0.77t,\ t = 3, 4, 5, 6, 7, 8$

Write a function R_3 that represents the total sales of the two restaurants owned by the same parent company.

a. $R_3 = 739 – 5.23t^2 - 0.6t$

b. $R_3 = 739 – 5.23t + 0.6t^2$

c. $R_3 = 221 – 6.77t^2 - 0.6t$

d. $R_3 = 739 – 5.23t^2 + 0.6t$

e. $R_3 = 739 – 5.23t - 0.6t^2$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.62a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. The total numbers of Navy personnel N (in thousands) and Marines personnel M (in thousands) from 2000 through 2007 can be approximated by the models

$N(t) = 0.193t^3 - 3.88t^2 + 15.9t + 370$ and $M(t) = 0.033t^3 - 0.21t^2 + 1.7t + 171$

where t represents the year, with $t = 0$ corresponding to 2000.

Find and interpret $(N + M)(t)$.

a. $(N + M)(t) = 0.226t^3 + 4.09t^2 - 17.6t - 541$, which represents the total number of Navy and Marines personnel combined.

b. $(N + M)(t) = 0.226t^3 + 4.09t^2 + 17.6t + 541$, which represents the total number of Navy and Marines personnel combined.

c. $(N + M)(t) = 0.226t^3 - 4.09t^2 - 17.6t - 541$, which represents the total number of Navy and Marines

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personnel combined.

d. $(N+M)(t) = 0.226t^3 - 4.09t^2 + 17.6t + 541$, which represents the total number of Navy and Marines personnel combined.

e. $(N+M)(t) = 0.226t^2 - 4.09t^3 - 17.6t + 541$, which represents the total number of Navy and Marines personnel combined.

ANSWER: d
POINTS: 1
REFERENCES: 2.6.65a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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31. The total numbers of Navy personnel N (in thousands) and Marines personnel M (in thousands) from 2000 through 2007 can be approximated by the models

$N(t) = 0.194t^3 - 7.88t^2 + 12.9t + 375$ and $M(t) = 0.031t^3 - 0.25t^2 + 6.7t + 173$

where t represents the year, with $t = 0$ corresponding to 2000.
Find and interpret $(N-M)(t)$.

a. $(N-M)(t) = 0.163t^3 + 7.63t^2 - 6.2t + 202$, which represents the difference between the number of Navy personnel and the number of Marines personnel.

b. $(N-M)(t) = 0.163t^3 - 7.63t^2 - 6.2t - 202$, which represents the difference between the number of Navy personnel and the number of Marines personnel.

c. $(N-M)(t) = 0.163t^3 - 7.63t^2 - 6.2t + 202$, which represents the difference between the number of Navy personnel and the number of Marines personnel.

d. $(N-M)(t) = 0.163t^3 + 7.63t^2 + 6.2t + 202$, which represents the difference between the number of Navy personnel and the number of Marines personnel.

e. $(N-M)(t) = 0.163t^3 - 7.63t^2 + 6.2t + 202$, which represents the difference between the number of Navy personnel and the number of Marines personnel.

ANSWER: e
POINTS: 1
REFERENCES: 2.6.65b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. The number of people playing tennis T (in millions) in the United States from 2000 through 2007 can be

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approximated by the function

$$T(t) = 0.0236t^4 - 0.3401t^3 + 6.556t^2 - 2.86t + 26.8$$

and the U.S. population P (in millions) from 2000 through 2007 can be approximated by the function $P(t) = 5.78t + 221.5$, where t represents the year, with $t = 0$ corresponding to 2000.

Find $h(t) = \dfrac{T(t)}{P(t)}$.

a. $h(t) = \dfrac{0.0236t^4 - 0.3401t^3 - 6.556t^2 - 2.86t + 26.8}{5.78t + 221.5}$

b. $h(t) = \dfrac{0.0236t^4 - 0.3401t^3 + 6.556t^2 - 2.86t + 26.8}{5.78t + 221.5}$

c. $h(t) = \dfrac{0.0236t^4 - 0.3401t^3 - 6.556t^2 - 2.86t - 26.8}{5.78t - 221.5}$

d. $h(t) = \dfrac{0.0236t^4 - 0.3401t^3 + 6.556t^2 - 2.86t + 26.8}{5.78t - 221.5}$

e. $h(t) = \dfrac{0.0236t^4 + 0.3401t^3 + 6.556t^2 - 2.86t + 26.8}{5.78t + 221.5}$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.66a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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33. The number of people playing tennis T (in millions) in the United States from 2000 through 2007 can be approximated by the function

$$T(t) = 0.0235t^4 - 0.3401t^3 + 2.556t^2 - 6.86t + 23.8$$

and the U.S. population P (in millions) from 2000 through 2007 can be approximated by the function $P(t) = 5.8t + 224.5$, where t represents the year, with $t = 0$ corresponding to 2000.

Evaluate the function $h(t) = \dfrac{0.0235t^4 - 0.3401t^3 + 2.556t^2 - 6.86t + 23.8}{5.8t + 224.5}$ for $t = 0$ and 3.

a. $h(0) = 0.1060$, $h(3) = 0.0783$
b. $h(0) = 0.3060$, $h(3) = 0.2783$
c. $h(0) = –0.2060$, $h(3) = –0.1783$

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d. $h(0) = 0.1783$, $h(3) = 0.2060$

e. $h(0) = -0.1060$, $h(3) = -0.0783$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.66b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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34. The spread of a contaminant is increasing in a circular pattern on the surface of a lake. The radius of the contaminant can be modeled by $r(t) = 2.25\sqrt{t}$, where r is the radius in meters and t is the time in hours since contamination.

Find a function that gives the area A of the circular contaminant in terms of the time since the spread began.

a. $A \circ r(t) = 5.0625\pi\sqrt{t}$

b. $A \circ r(t) = 2.25\pi t$

c. $A \circ r(t) = 5.0625t$

d. $A \circ r(t) = 5.0625\sqrt{t}$

e. $A \circ r(t) = 5.0625\pi t$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.72a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. The number N of bacteria in a refrigerated food is given by $N(T) = 10T^2 - 20T + 600,\ 1 \le T \le 20$ where T is the temperature of the food in degrees Celsius. When the food is removed from refrigeration, the temperature of the food is given by $T(t) = 3t + 2,\ 0 \le t \le 6$ where t is the time in hours.
Find the bacteria count after 0.5 hour.

a. About 565 bacteria
b. About 793 bacteria
c. About 653 bacteria
d. About 390 bacteria
e. About 705 bacteria

ANSWER: c

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Section 1.8 - Combinations of Functions: Composite Functions

POINTS: 1
REFERENCES: 2.6.73b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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36. The weekly cost C of producing x units in a manufacturing process is given by $C(x) = 30x + 750$. The number of units x produced in t hours is given by $x(t) = 70t$.

Find the cost of the units produced in 6 hours.

a. 11,855
b. 11,850
c. 11,846
d. 13,350
e. 11,854

ANSWER: d
POINTS: 1
REFERENCES: 2.6.74b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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37. Determine whether the statement is true or false.

If $f(x) = x + 1$ and $g(x) = 5x$, then $(f \circ g)(x) = (g \circ f)(x)$.

a. False
b. True

ANSWER: a
POINTS: 1
REFERENCES: 5.6.77
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. The suggested retail price of a new hybrid car is p dollars. The dealership advertises a factory rebate of $2000.

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Select a function R in terms of p giving the cost of the hybrid car after receiving the rebate from the factory.

a. $R(p) = 2000 - p$
b. $R(p) = p - 2000$
c. $R(p) = p + 2000$
d. $R(p) = p + 1000$
e. $R(p) = p - 1000$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.76a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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39. Consider the functions $f(x) = x^3$ and $g(x) = \sqrt{x}$.

Find f / g.

a. $x^3\sqrt{x}$
b. $\dfrac{\sqrt{x}}{x^2}$
c. $\dfrac{\sqrt{x}}{x^3}$
d. $\dfrac{x^2\sqrt{x}}{x}$
e. $x^2\sqrt{x}$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.84a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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40. Find $(f + g)(x)$.

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Section 1.8 - Combinations of Functions: Composite Functions

$f(x) = x^2 - 2x - 1$

$g(x) = -3x^2 + x - 1$

a. $(f+g)(x) = 4x^4 - 3x^2$

b. $(f+g)(x) = 2x^2 - x + 2$

c. $(f+g)(x) = -2x^4 - x^2 - 2$

d. $(f+g)(x) = 4x^2 - 3x$

e. $(f+g)(x) = -2x^2 - x - 2$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.11
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/26/2014 6:18 AM
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41. Find $(f/g)(x)$.

$f(x) = x^2 - 4x \quad g(x) = 7 - x$

a. $(f/g)(x) = \dfrac{x^2 - 4x}{7 - x}, x \neq 0$

b. $(f/g)(x) = \dfrac{x - 4}{7}, x \neq 0$

c. $(f/g)(x) = \dfrac{x^2}{7} + 4, x \neq 0$

d. $(f/g)(x) = \dfrac{x^2 - 4x}{7 - x}, x \neq 7$

e. $(f/g)(x) = \dfrac{x^2 - 4x}{7 - x}, x \neq -7$

ANSWER: d
POINTS: 1
REFERENCES: 2.6.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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42. Find $(fg)(x)$.

$f(x) = \sqrt{3x} \quad g(x) = \sqrt{5x + 7}$

a. $(fg)(x) = \sqrt{8x + 7}$

b. $(fg)(x) = \sqrt{15x^2 + 7}$

c. $(fg)(x) = \sqrt{15x^2 + 21x}$

d. $(fg)(x) = x\sqrt{15} + \sqrt{21x}$

e. $(fg)(x) = x\sqrt{15+21x}$

ANSWER: c
POINTS: 1
REFERENCES: 2.6.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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43. Evaluate the indicated function for $f(x) = x^2 - 7$ and $g(x) = x + 8$.

$(f - g)(t + 8)$

a. $t^2 + 15t + 57$

b. $t^2 + 15t + 41$

c. $t^2 + 17t + 41$

d. $t^2 - t + 41$

e. $t^2 + 17t + 57$

ANSWER: b
POINTS: 1
REFERENCES: 2.6.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. Find $(f - g)(x)$.

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Section 1.8 - Combinations of Functions: Composite Functions

$f(x) = -\dfrac{6x}{7x-6}$ $\quad g(x) = -\dfrac{4}{x}$

a. $(f-g)(x) = \dfrac{-6x+34}{7x-6}$

b. $(f-g)(x) = \dfrac{-6x^2+28x+24}{7x^2-6x}$

c. $(f-g)(x) = \dfrac{-3x+2}{3x-3}$

d. $(f-g)(x) = \dfrac{-6x^2+28x-24}{7x^2-6x}$

e. $(f-g)(x) = \dfrac{-6x+22}{7x-6}$

ANSWER: d
POINTS: 1
REFERENCES: 2.6.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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45. Evaluate the indicated function for $f(x) = x^2 - 6$ and $g(x) = x + 4$.
$(fg)(1)$

a. 15
b. –35
c. –23
d. –25
e. –33

ANSWER: d
POINTS: 1
REFERENCES: 2.6.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. Find $g \circ f$.

$f(x) = x - 9 \quad g(x) = x^2$

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a. $(g \circ f)(x) = x^2 - 18x + 81$

b. $(g \circ f)(x) = x^2 - 81$

c. $(g \circ f)(x) = x^2 - 9x + 81$

d. $(g \circ f)(x) = x^2 - 9$

e. $(g \circ f)(x) = x^2 + 81$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.44b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/1/2014 2:28 AM

47. Find $f \circ g$.

$f(x) = -2x - 9 \quad g(x) = x + 5$

a. $(f \circ g)(x) = -2x - 19$

b. $(f \circ g)(x) = -3x - 14$

c. $(f \circ g)(x) = -2x^2 - 19x - 45$

d. $(f \circ g)(x) = -3x - 4$

e. $(f \circ g)(x) = -2x - 4$

ANSWER: a
POINTS: 1
REFERENCES: 2.6.43a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. Find $f \circ g$.

$f(x) = x + 3 \qquad g(x) = \dfrac{1}{x^2 - 9}$

a. $(f \circ g)(x) = \dfrac{1}{x^2}$

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b. $(f \circ g)(x) = \dfrac{4}{x^2 - 9}$

c. $(f \circ g)(x) = \dfrac{3x^2 - 2}{x^2 - 9}$

d. $(f \circ g)(x) = \dfrac{1}{x^2 + 6x}$

e. $(f \circ g)(x) = \dfrac{3x^2 - 26}{x^2 - 9}$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.48a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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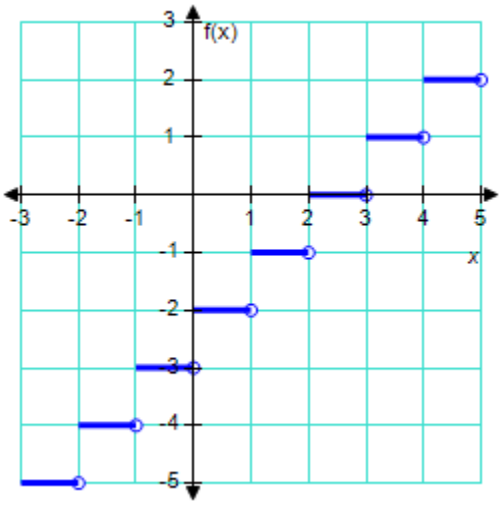
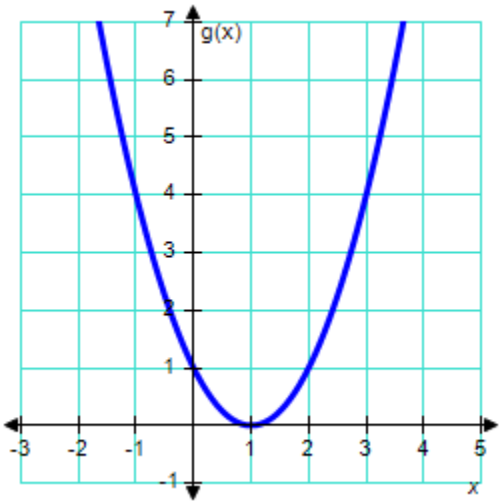
49. Use the graphs of f and g to evaluate the function.





$(f \circ g)(3)$

a. 1
b. –2
c. 4
d. –1
e. 2

ANSWER: e
POINTS: 1
REFERENCES: 2.6.52a

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Section 1.8 - Combinations of Functions: Composite Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. The monthly cost C of running the machinery in a factory for t hours is given by

$C(t) = 40t + 400$

The number of hours t needed to produce x products is given by
$t(x) = 6x$.
Find the equation representing the cost C of manufacturing x products.

a. $C(x) = 46x + 440$
b. $C(x) = 240x + 16{,}000$
c. $C(x) = 40x + 406$
d. $C(x) = 46x + 400$
e. $C(x) = 240x + 400$

ANSWER: e
POINTS: 1
REFERENCES: 2.6.74a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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51. Let $f(x) = 2x + 1$, $g(x) = 3x - 2$. Find the function.

$(f - g)(x)$

a. $(f - g)(x) = \dfrac{2x + 1}{3x - 2}$
b. $(f - g)(x) = 3 - x$
c. $(f - g)(x) = 6x^2 - x - 2$
d. $(f - g)(x) = 5x - 1$
e. none of the above

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic

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Section 1.8 - Combinations of Functions: Composite Functions

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52. Let $f(x) = 2x - 1$, $g(x) = 3x - 2$. Find the domain of the function.

$(f+g)(x)$

a. $(-\infty, \infty)$
b. $[0, \infty)$
c. $(-\infty, 0]$
d. $(-\infty, 0)$
e. $(0, \infty)$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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53. Let $f(x) = \frac{1}{x}$, $g(x) = x + 5$. Find the composite function which expresses the given correspondence correctly.

$\frac{1}{x+5}$

a. $(g \circ g)(x)$
b. $(g \circ f)(x)$
c. $(f \circ f)(x)$
d. $(f \circ g)(x)$
e. none of the above

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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54. Find $f \circ g$.

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Section 1.8 - Combinations of Functions: Composite Functions

$f(x) = |x^2 + 1| \quad g(x) = 9 - x$

a. $(f \circ g)(x) = |x^2 - 18x + 82|$

b. $(f \circ g)(x) = |x^2 + 82|$

c. $(f \circ g)(x) = |8 - x^2|$

d. $(f \circ g)(x) = |10 - x^2|$

e. $(f \circ g)(x) = 9 - |x^2 + 1|$

ANSWER: a
POINTS: 1
REFERENCES: 55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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55. Let $f(x) = x^2 - 1$, $g(x) = 3x - 2$. Find the value of the function.

$(f+g)(5)$

ANSWER: 37
POINTS: 1
QUESTION TYPE: Numeric Response
HAS VARIABLES: True
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56. Let $f(x) = 2x + 1$, $g(x) = 3x - 2$. Find the function.

$(f-g)(x)$

Please give the answer as a simplified expression (not an equation).
ANSWER: $-x+3$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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57. Let $f(x) = \sqrt{x+1}$, $g(x) = x^2 - 1$. Find the composite function.

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Section 1.8 - Combinations of Functions: Composite Functions

$(f \circ g)(x)$

Please give the answer as a simplified expression (not an equation).

ANSWER: $|x|$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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58. Let $f(x) = 3x$, $g(x) = x + 1$. Find the composite function.

$(f \circ g)(x)$

Please give the answer as an expression (not an equation).

ANSWER: $3x + 3$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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Let $f(x) = x^2 + x$, $g(x) = x^2 - 1$. Match the equivalent expressions.

Choose the correct letter for each question.
a. $(f / g)(x), x \neq \pm 1$

b. $(f \cdot g)(x)$

QUESTION TYPE: Matching
HAS VARIABLES: False
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59. $x^4 + x^3 - x^2 - x$

ANSWER: b
POINTS: 1

60. $\dfrac{x^2 + x}{x^2 - 1}$

ANSWER: a
POINTS: 1

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Section 1.9 - Inverse Functions

1. Find the inverse function of f informally.

$f(x) = 9x$

a. $f^{-1}(x) = 9 - x$
b. $f^{-1}(x) = 9 + x$
c. $f^{-1}(x) = \frac{1}{9}x$
d. $f^{-1}(x) = x - 9$
e. $f^{-1}(x) = \frac{9}{x}$

ANSWER: c
POINTS: 1
REFERENCES: 2.7.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Find the inverse function of f informally.

$f(x) = x - 5$

a. $f^{-1}(x) = -(x + 5)$
b. $f^{-1}(x) = \frac{5}{x}$
c. $f^{-1}(x) = \frac{x}{5}$
d. $f^{-1}(x) = 5 - x$
e. $f^{-1}(x) = x + 5$

ANSWER: e
POINTS: 1
REFERENCES: 2.7.10
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Find the inverse function of f informally.

$f(x) = x^5$

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Section 1.9 - Inverse Functions

a. $f^{-1}(x) = 5\sqrt{x}$

b. $f^{-1}(x) = \sqrt[5]{x}$

c. $f^{-1}(x) = \dfrac{1}{\sqrt[5]{x}}$

d. $f^{-1}(x) = \left(\sqrt[5]{x}\right)^5$

e. $f^{-1}(x) = -\sqrt[5]{x}$

ANSWER: b
POINTS: 1
REFERENCES: 2.7.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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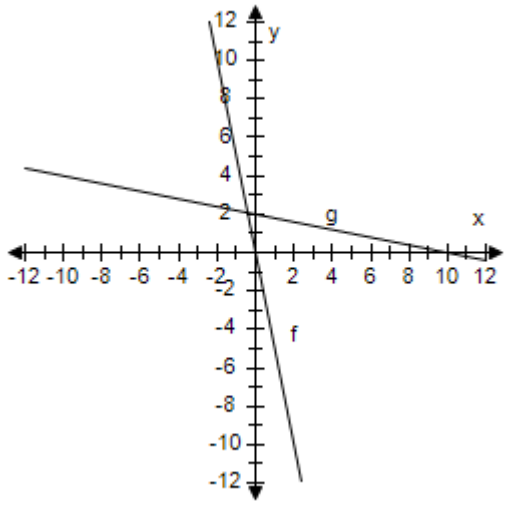
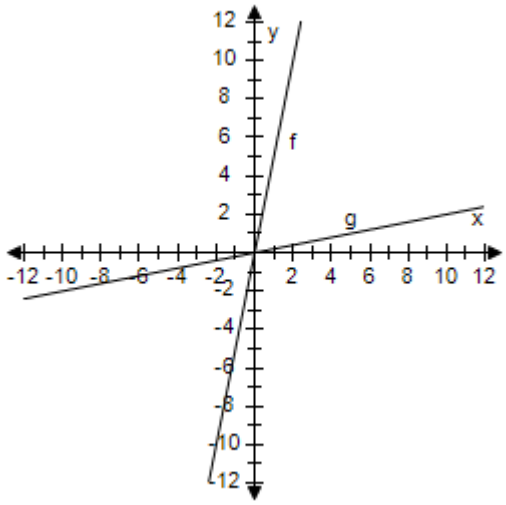
4. Select the correct graph showing that f and g are inverse functions.

$f(x) = 5x, g(x) = \dfrac{x}{5}$

a.



b.



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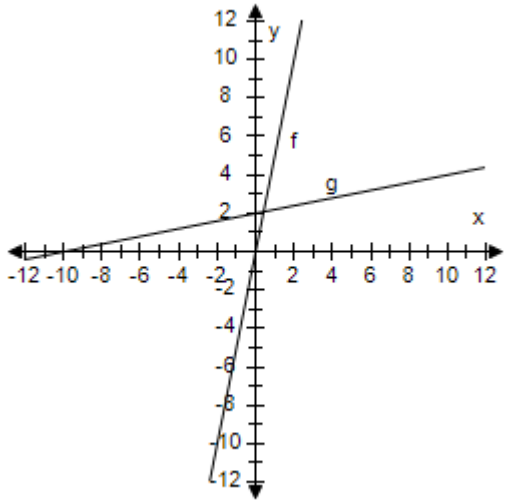
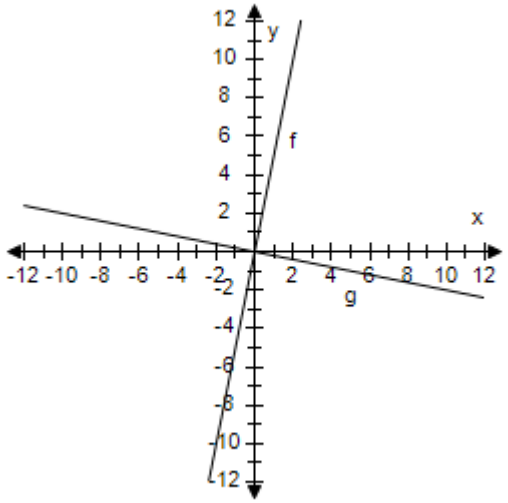
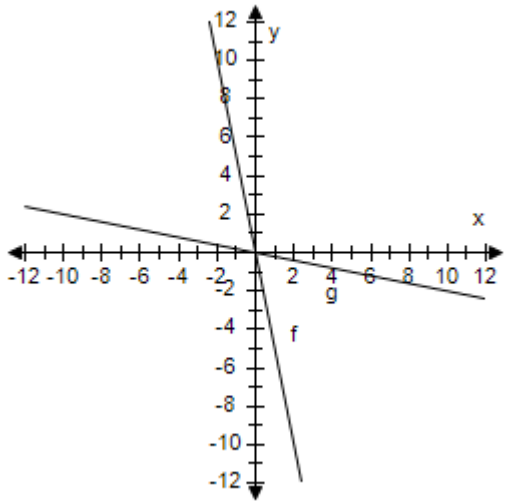
c.



d.



e.



ANSWER:	b
POINTS:	1
REFERENCES:	2.7.23b
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:18 PM
DATE MODIFIED:	5/27/2021 7:15 AM

5. Select the correct graph showing that f and g are inverse functions.

$$f(x) = 8x + 1, g(x) = \frac{x - 1}{8}$$

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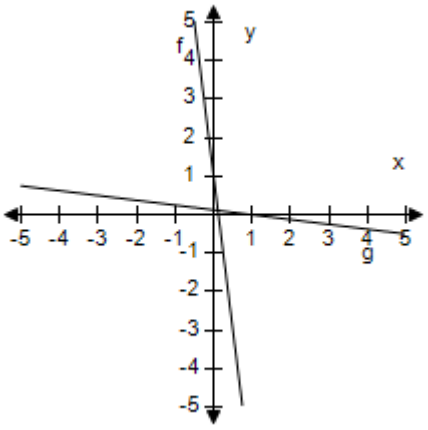
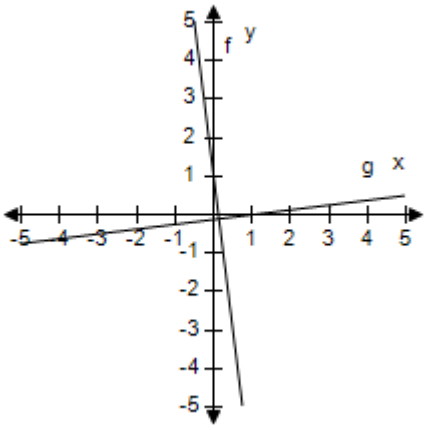
Section 1.9 - Inverse Functions

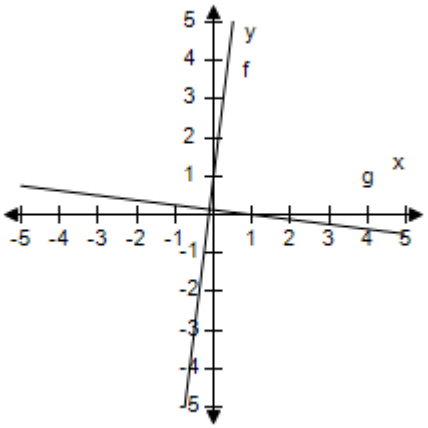
a.



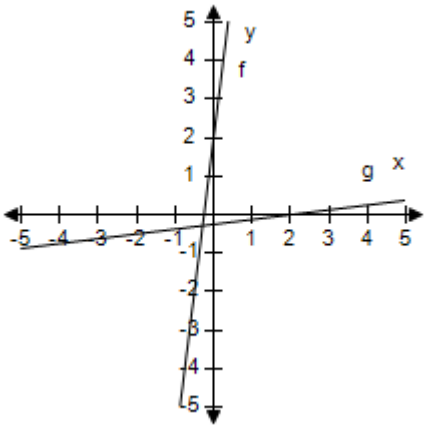
b.



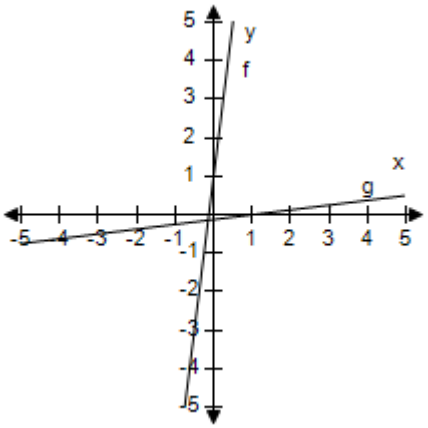
c.



d.



e.



ANSWER: e
POINTS: 1
REFERENCES: 2.7.25b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 8:40 AM

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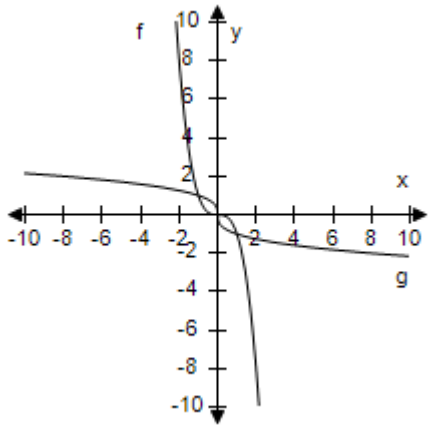
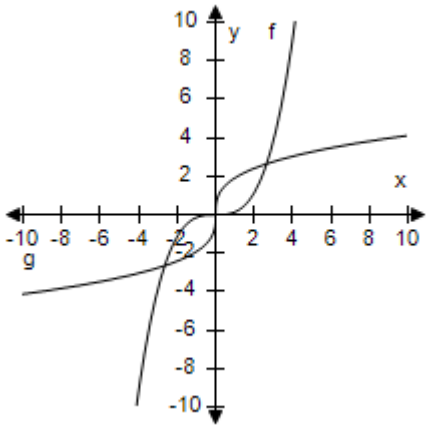
6. Select the correct graph showing that f and g are inverse functions.

$$f(x) = \frac{x^3}{7}, g(x) = \sqrt[3]{7x}$$

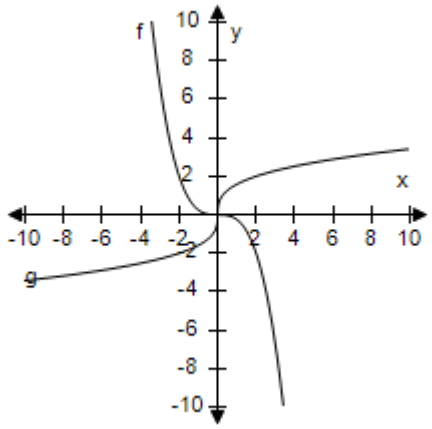
a.



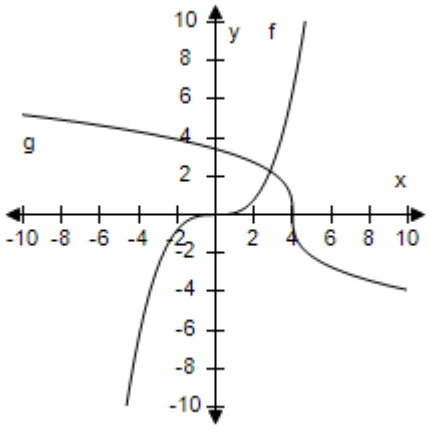
b.



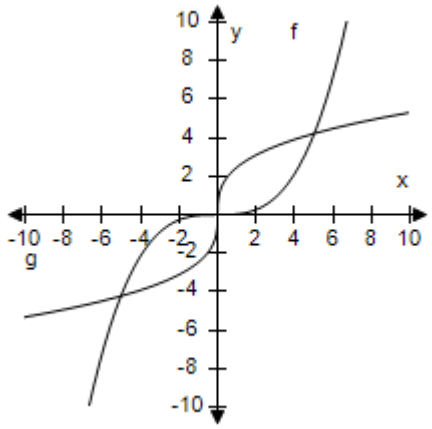
c.



d.



e.



ANSWER: b
POINTS: 1
REFERENCES: 2.7.27b

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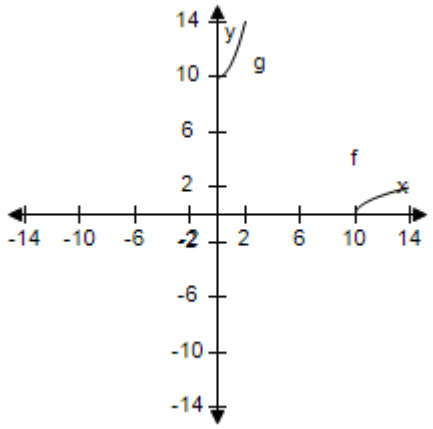
Section 1.9 - Inverse Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 8:41 AM

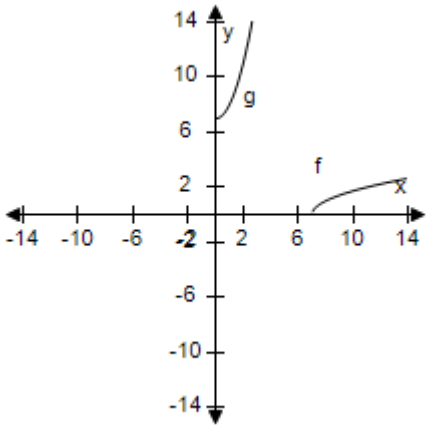
7. Select the correct graph, showing f and g are inverse functions.

$f(x) = \sqrt{x - 5}, g(x) = x^2 + 5, x \geq 0$

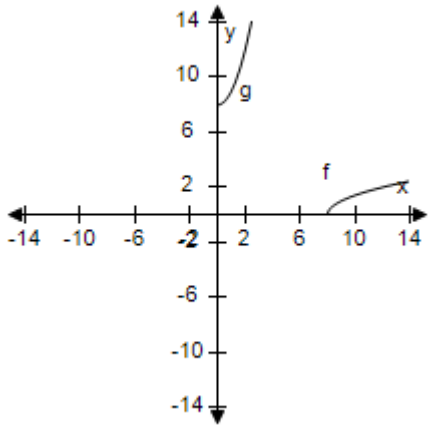
a.



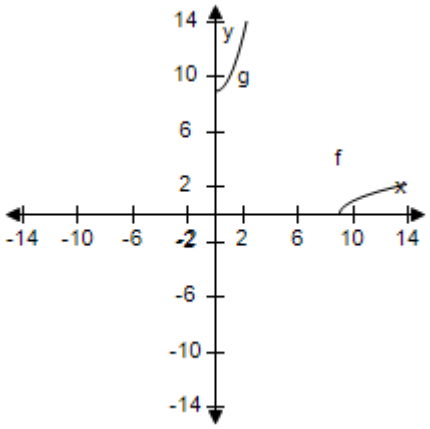
b.



c.



d.



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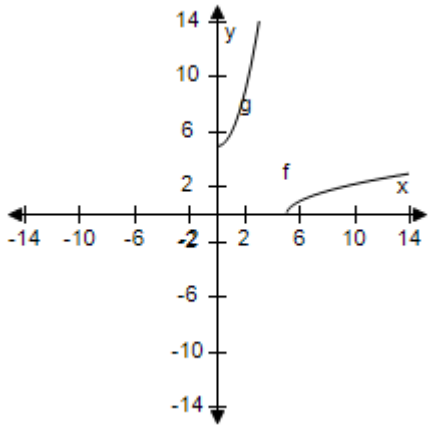
e.

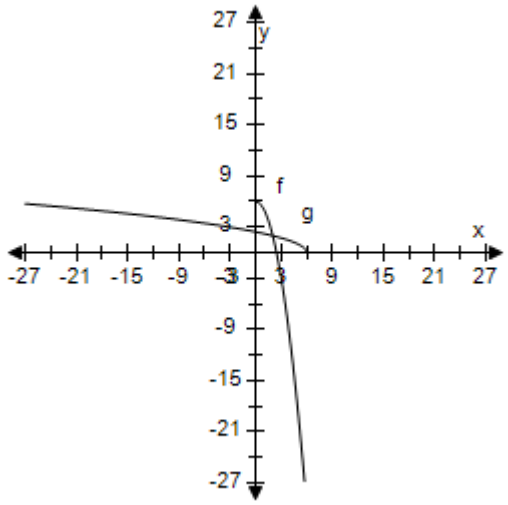


ANSWER: e
POINTS: 1
REFERENCES: 2.7.29b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 8:56 AM

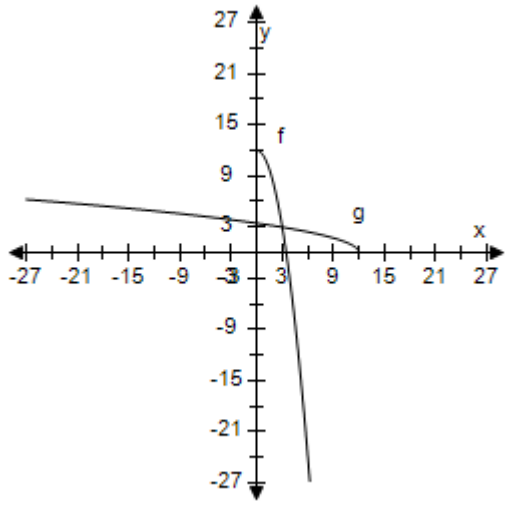
8. Select the correct graph showing that f and g are inverse functions.

$f(x) = 6 - x^2, g(x) = \sqrt{6 - x}, x \leq 6$

a.



b.



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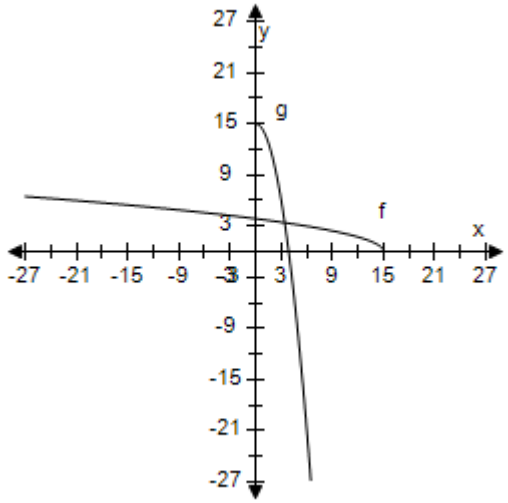
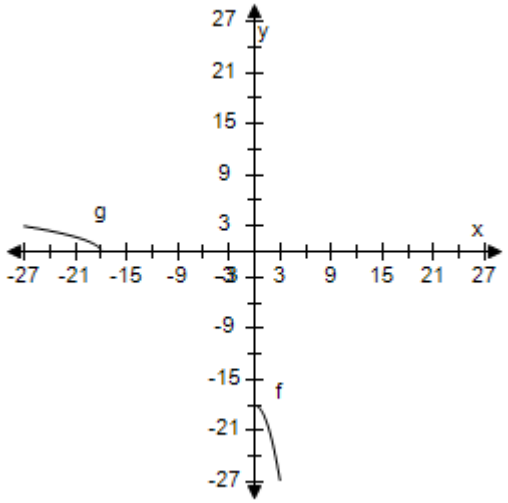
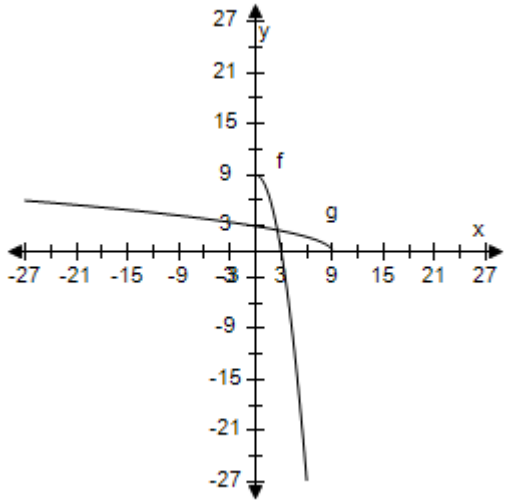
c.



d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 2.7.31b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 9:29 AM

9. Select the correct graph showing that f and g are inverse functions.

$$f(x) = \frac{x - 1}{x + 6}, g(x) = -\frac{6x + 1}{x - 1}$$

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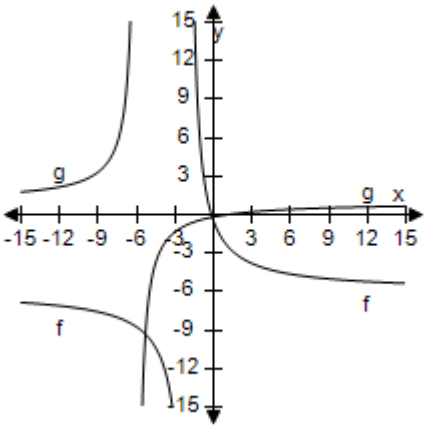
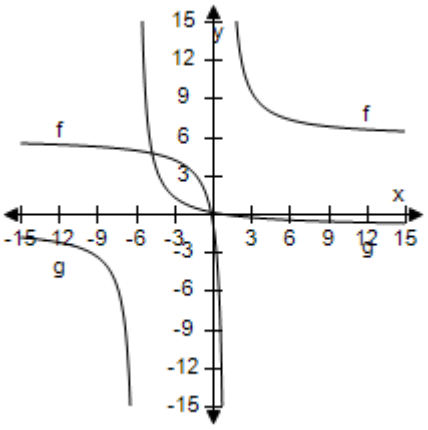
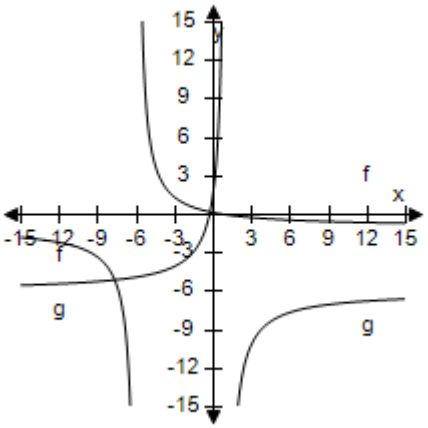
a.



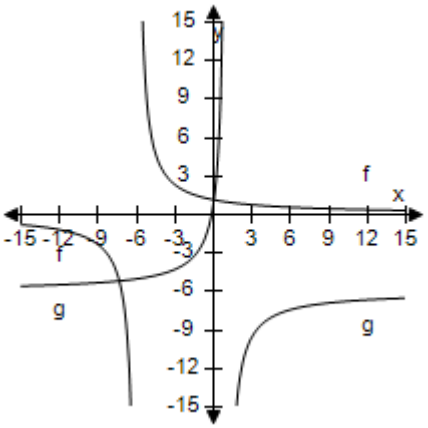
b.



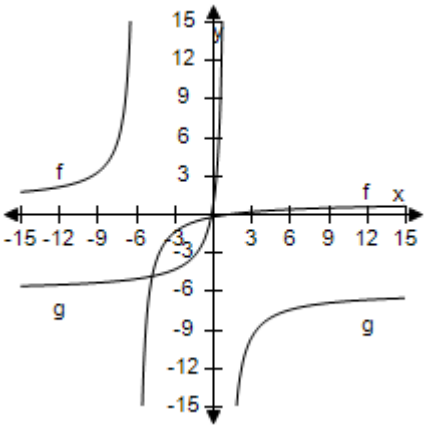
c.



d.



e.



ANSWER: e
POINTS: 1
REFERENCES: 2.7.33b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 9:46 AM

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Section 1.9 - Inverse Functions

10. Use the tables of values for $y = f(x)$ to complete a table for $y = f^{-1}(x)$.

x	–3	–2	0	1	2	3
$f(x)$	–4	–2	2	4	6	8

a.

x	–4	–2	2	4	6	8
$f^{-1}(x)$	–3	–2	0	1	8	3

b.

x	–4	–2	2	4	6	6
$f^{-1}(x)$	–2	–2	0	1	2	3

c.

x	–4	–2	2	4	6	8
$f^{-1}(x)$	–3	0	1	1	8	3

d.

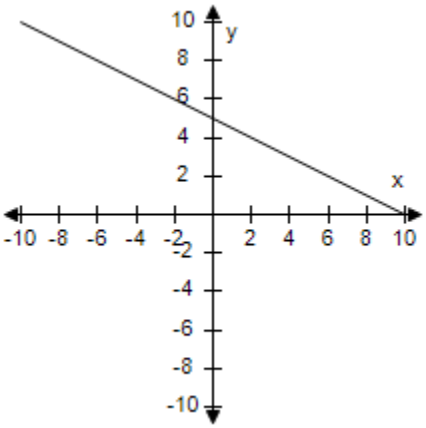
x	–4	–2	2	4	6	8
$f^{-1}(x)$	–3	–2	0	6	2	3

e.

x	–4	–2	2	4	6	8
$f^{-1}(x)$	–3	–2	0	1	2	3

ANSWER: e
POINTS: 1
REFERENCES: 2.2.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/18/2015 4:00 AM

11. Does the function have an inverse function?



a. No

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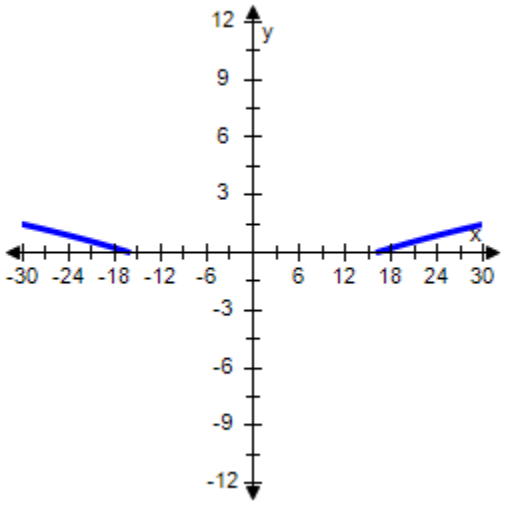
b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 2.2.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/22/2014 7:00 AM

12. Does the function have an inverse function?



a. No
b. Yes

ANSWER: a
POINTS: 1
REFERENCES: 2.2.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 9:59 AM

13. Select the graph of the function and use the Horizontal Line Test to determine whether the function is one-to-one and so has an inverse function.

$$g(x) = \frac{4 - x}{5}$$

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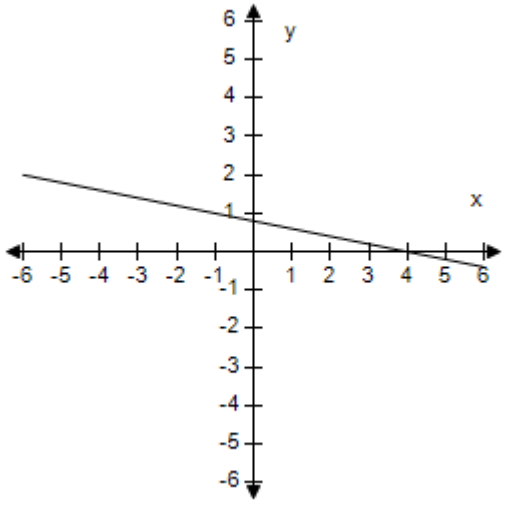
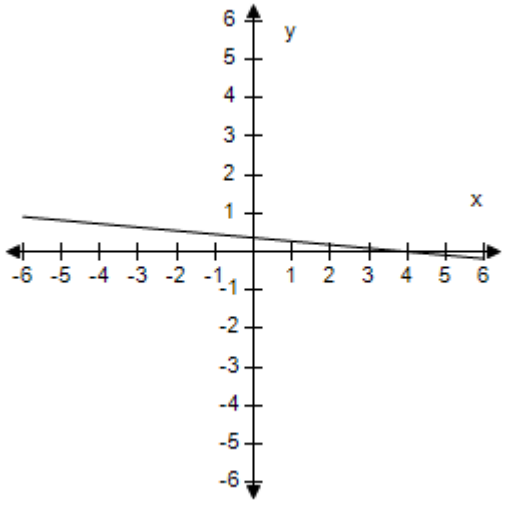
Section 1.9 - Inverse Functions

a.



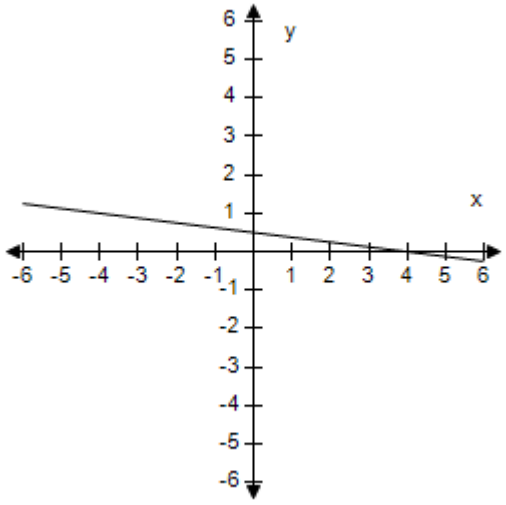
The function has an inverse.

b.



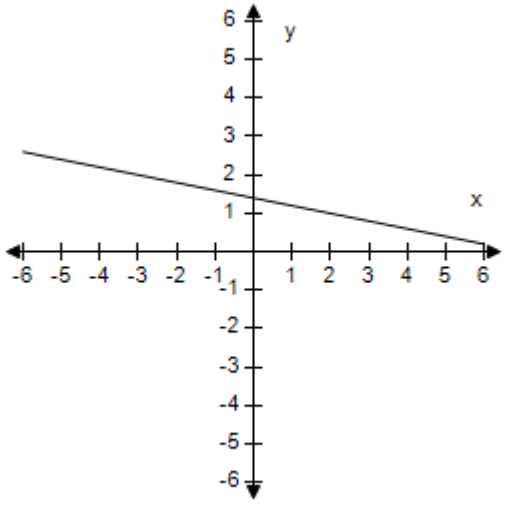
The function has an inverse.

c.



The function has an inverse.

d.



The function has an inverse.

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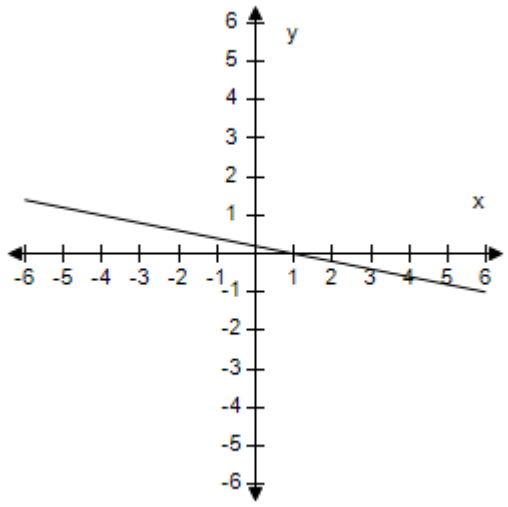
e.



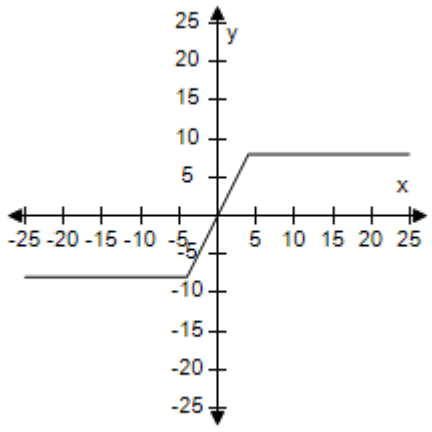
The function has an inverse.

ANSWER: a
POINTS: 1
REFERENCES: 2.2.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 10:00 AM

14. Select the graph of the function and use the Horizontal Line Test to determine whether the function is one-to-one and so has an an inverse function.

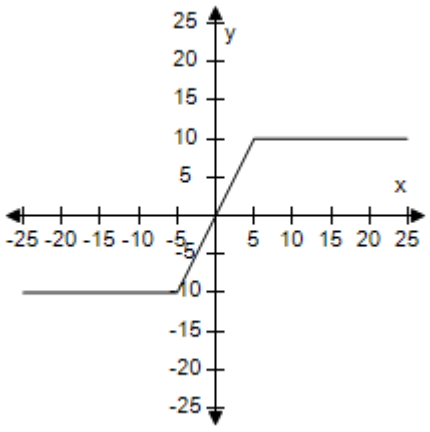
$g(x) = |x + 3| - |x - 3|$

a.



The function does not have inverse.

b.



The function does not have inverse.

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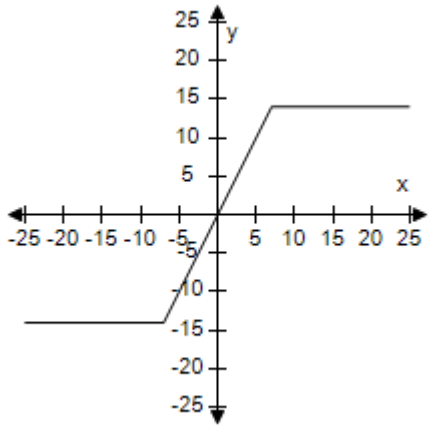
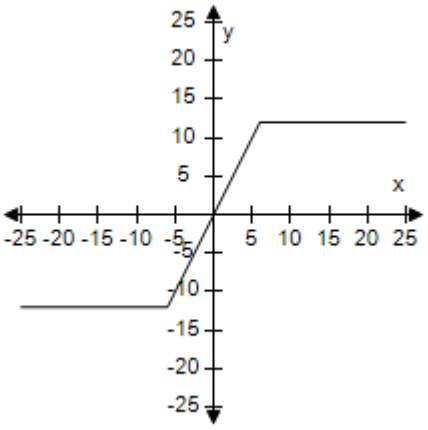
c.



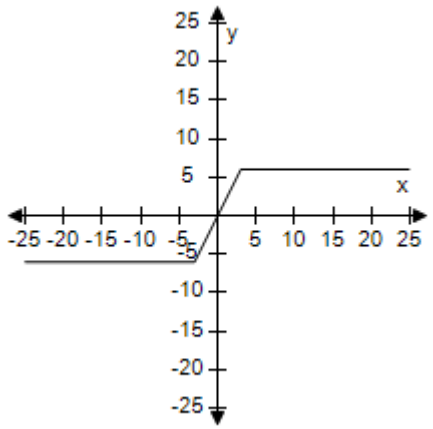
The function does not have inverse.

d.



The function does not have inverse.

e.



The function does not have inverse.

ANSWER: e
POINTS: 1
REFERENCES: 2.2.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/27/2021 10:18 AM

15. Select the graph of the function and use the Horizontal Line Test to determine whether the function is one-to-one and so has an inverse function.

$g(x) = -2x\sqrt{6 - x^2}$

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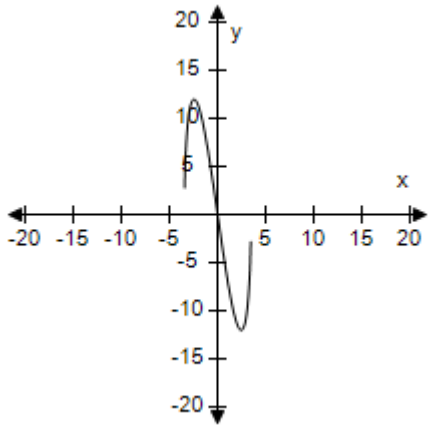
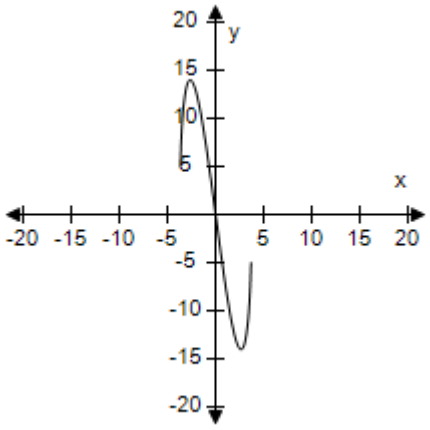
Section 1.9 - Inverse Functions

a.



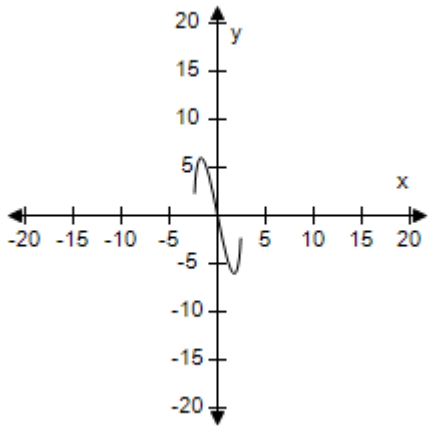
The function does not have inverse.

b.



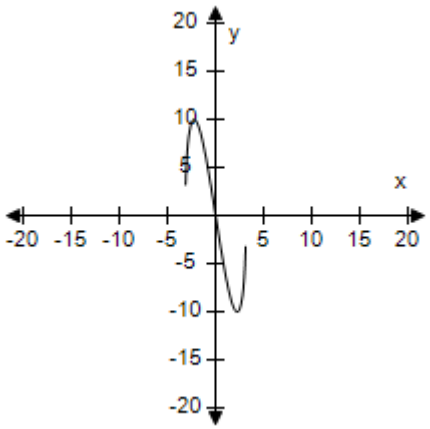
The function does not have inverse.

c.



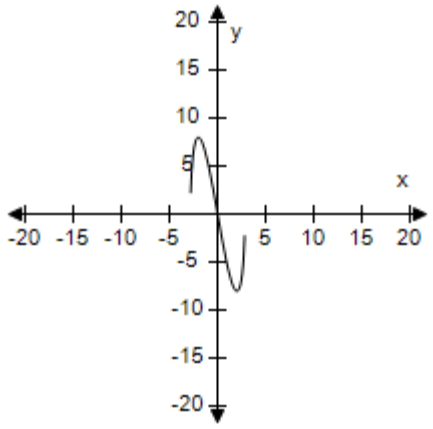
The function does not have inverse.

d.



The function does not have inverse.

e.



The function does not have inverse.

ANSWER: c
POINTS: 1
REFERENCES: 2.2.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.9 - Inverse Functions

STUDENT ENTRY MODE: Basic
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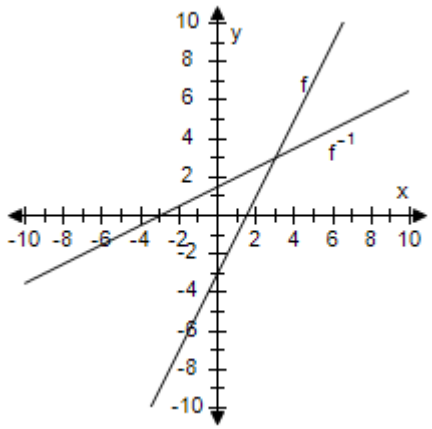
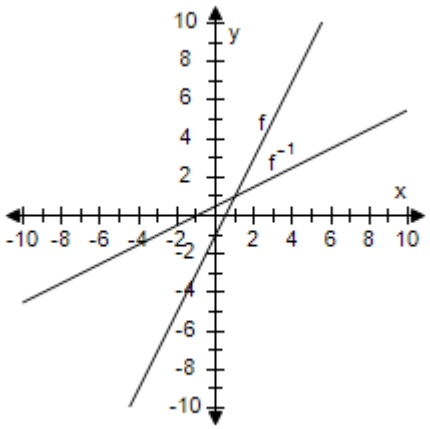
16. Select the graphs of f and f^{-1} on the same set of coordinate axes.

$f(x) = 2x - 3$

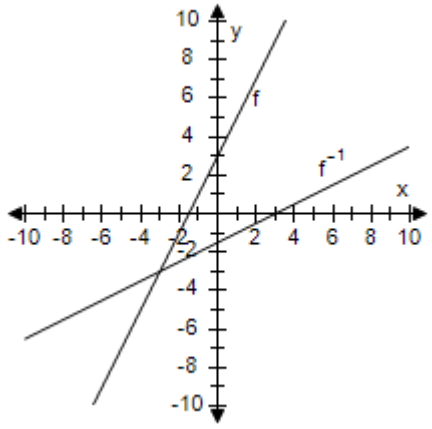
a.



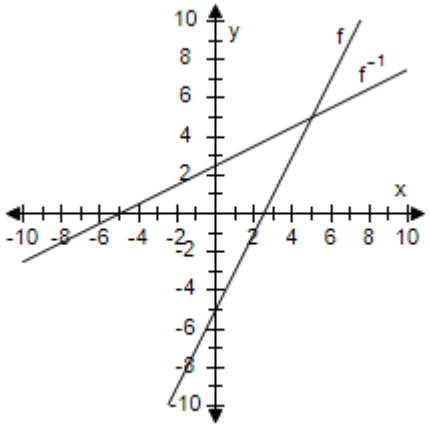
b.



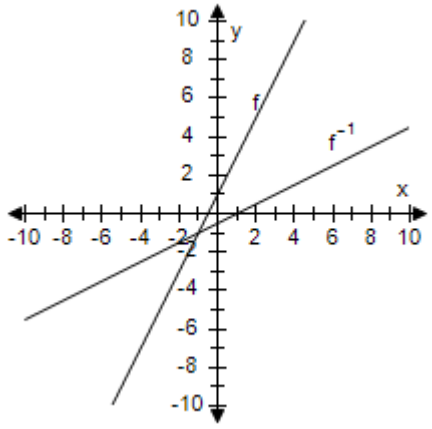
c.



d.



e.



ANSWER: a

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Section 1.9 - Inverse Functions

POINTS: 1
REFERENCES: 2.2.49b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 2:21 AM

17. Find the inverse function of $g(x) = x^3 - 7$ informally.

a. $g^{-1}(x) = \sqrt[3]{x - 7}$

b. $g^{-1}(x) = (x + 7)^3$

c. $g^{-1}(x) = x^3 + 7$

d. $g^{-1}(x) = \sqrt[3]{x + 7}$

e. $g^{-1}(x) = (x - 7)^3$

ANSWER: d
POINTS: 1
REFERENCES: 2.2..51a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 2:33 AM

18. Find the inverse function of $f(x) = \sqrt{36 - x^2}, 0 \le x \le 6$.

a. $f^{-1}(x) = \sqrt{36 - x^2}, 0 \le x \le 6$

b. $f^{-1}(x) = \sqrt{x^2 - 36}, 0 \le x \le 6$

c. $f^{-1}(x) = 36 - x^2, 0 \le x \le 6$

d. $f^{-1}(x) = \sqrt{36 + x^2}, 0 \le x \le 6$

e. $f^{-1}(x) = 36 + x^2, 0 \le x \le 6$

ANSWER: a
POINTS: 1
REFERENCES: 2.2..53a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.9 - Inverse Functions

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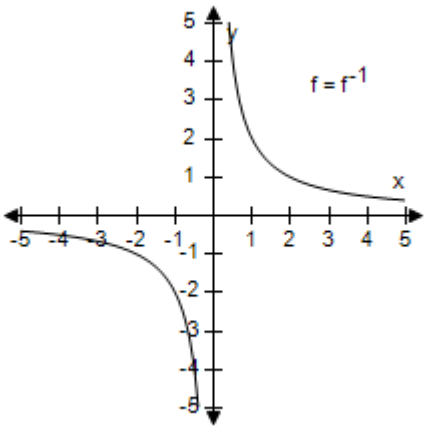
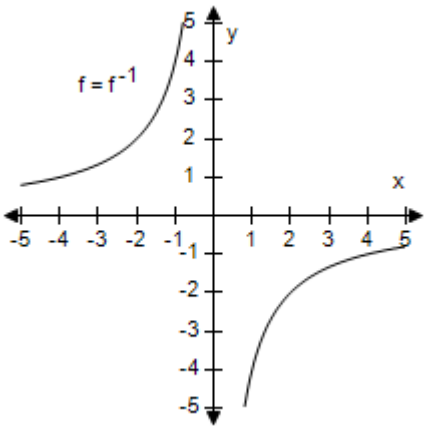
19. Select the graphs of f and f^{-1} on the same set of coordinate axes.

$$f(x) = \frac{2}{x}$$

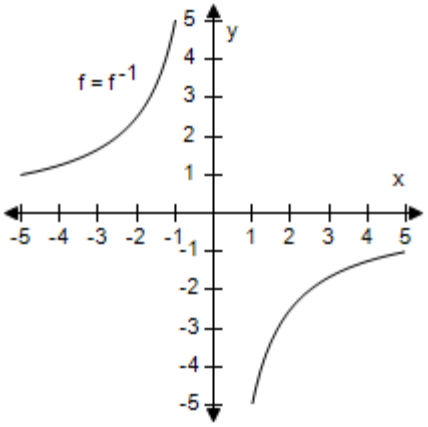
a.



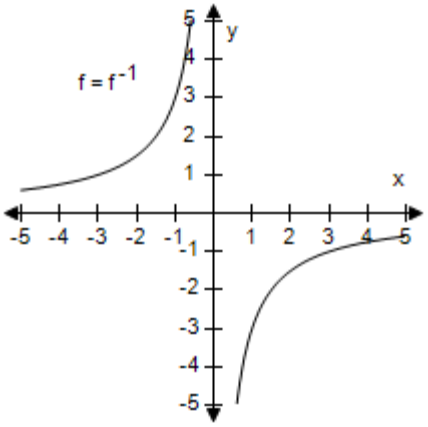
b.



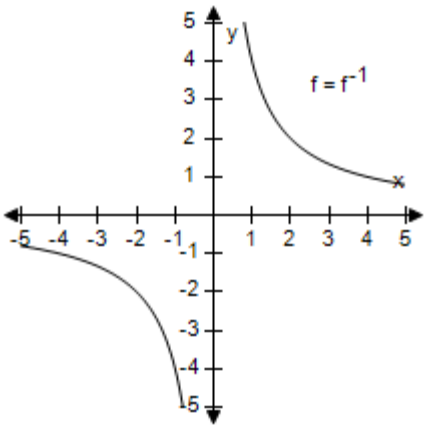
c.



d.



e.



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ANSWER: a
POINTS: 1
REFERENCES: 2.2.55b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 2:45 AM

20. Determine whether the function has an inverse function. If it does, find the inverse function.

$g(x) = x^7$

a. $g^{-1}(x) = \frac{7}{x}$

b. $g^{-1}(x) = -7x$

c. $g^{-1}(x) = -\frac{x}{7}$

d. $g^{-1}(x) = 7x$

e. The inverse exists, but none of the above

ANSWER: e
POINTS: 1
REFERENCES: 2.7.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/1/2014 7:25 AM

21. Determine whether the function has an inverse function. If it does, find the inverse function.

$g(x) = \frac{x}{5}$

a. $g^{-1}(x) = -5x$

b. $g^{-1}(x) = 5x$

c. $g^{-1}(x) = \frac{5}{x}$

d. $g^{-1}(x) = -\frac{x}{5}$

e. No inverse

ANSWER: b
POINTS: 1
REFERENCES: 2.7.65

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Section 1.9 - Inverse Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Determine whether the function has an inverse function. If it does, find the inverse function.

$f(x) = -2$

a. $f^{-1}(x) = 2$
b. $f^{-1}(x) = -\frac{1}{2}$
c. $f^{-1}(x) = \frac{1}{2}$
d. $f^{-1}(x) = -2$
e. No inverse

ANSWER: e
POINTS: 1
REFERENCES: 2.7.67
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/1/2014 7:32 AM

23. Determine whether the function has an inverse function. If it does, find the inverse function.

$f(x) = (x + 4)^2, x \geq -4$

a. $f^{-1}(x) = \sqrt{x} + 4$
b. $f^{-1}(x) = -(x + 4)^2$
c. $f^{-1}(x) = (x + 4)^{-2}$
d. $f^{-1}(x) = \sqrt{x} - 4$
e. No inverse

ANSWER: d
POINTS: 1
REFERENCES: 2.7.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.9 - Inverse Functions

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24. Determine whether the function has an inverse function. If it does, find the inverse function.

$$f(x) = \begin{cases} x + 5, x < 0 \\ 3 - x, x \geq 0 \end{cases}$$

a. $f^{-1}(x) = \begin{cases} 5 + x, x \geq 0 \\ x - 3, x < 0 \end{cases}$

b. $f^{-1}(x) = \begin{cases} 3 + x, x \geq 0 \\ x - 5, x < 0 \end{cases}$

c. $f^{-1}(x) = \begin{cases} x - 5, x \geq 0 \\ 3 + x, x < 0 \end{cases}$

d. $f^{-1}(x) = \begin{cases} x + 5, x \geq 0 \\ 3 - x, x < 0 \end{cases}$

e. No inverse

ANSWER: e
POINTS: 1
REFERENCES: 2.7.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 2:55 AM

25. Determine whether the function has an inverse function. If it does, find the inverse function.

$$h(x) = -\frac{4}{x^2}$$

a. $h^{-1}(x) = \sqrt{-\frac{4}{x}}$

b. $h^{-1}(x) = -\frac{x^2}{4}$

c. $h^{-1}(x) = -\sqrt{-\frac{4}{x}}$

d. $h^{-1}(x) = \frac{x^2}{4}$

e. No inverse

ANSWER: e
POINTS: 1
REFERENCES: 2.7.73

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Section 1.9 - Inverse Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 3:03 AM

26. Determine whether the function has an inverse function. If it does, find the inverse function.

$f(x) = \sqrt{9x + 6}$

a. $f^{-1}(x) = -\dfrac{x^2 + 6}{9}, x \geq 0$

b. $f^{-1}(x) = -\dfrac{x^2 - 6}{9}, x \geq 0$

c. $f^{-1}(x) = \dfrac{x^2 - 6}{9}, x \geq 0$

d. $f^{-1}(x) = \dfrac{x^2 + 6}{9}, x \geq 0$

e. No inverse

ANSWER: c
POINTS: 1
REFERENCES: 2.7.75
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 3:16 AM

27. Restrict the domain of the function f so that the function is one-to-one and has an inverse function. Then find the inverse function f^{-1}. State the domains and ranges of f and f^{-1}.

$f(x) = (x - 5)^2$

a. $f^{-1}(x) = \sqrt{x} - 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

b. $f^{-1}(x) = \sqrt{x} + 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq -5$.

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c. $f^{-1}(x) = \sqrt{x} + 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

d. $f^{-1}(x) = \sqrt{x} + 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 5$.

e. $f^{-1}(x) = \sqrt{x} - 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq -5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

ANSWER: c
POINTS: 1
REFERENCES: 2.7.77
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 10/22/2014 7:29 AM

28. Restrict the domain of the function f so that the function is one-to-one and has an inverse function. Then find the inverse function f^{-1}. State the domains and ranges of f and f^{-1}.

$f(x) = |x + 5|$

a. $f^{-1}(x) = x - 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq -5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

b. $f^{-1}(x) = x + 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq -5$.

c. $f^{-1}(x) = x - 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq -5$.

d. $f^{-1}(x) = x + 5$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

e. $f^{-1}(x) = x - 5$

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The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 5$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 0$.

ANSWER: a
POINTS: 1
REFERENCES: 2.7.79
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 3:25 AM

29. Restrict the domain of the function f so that the function is one-to-one and has an inverse function. Then find the inverse function f^{-1}. State the domains and ranges of f and f^{-1}.

$f(x) = -6x^2 + 4$

a. $f^{-1}(x) = \dfrac{\sqrt{-6(x - 4)}}{6}$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \leq 4$.

b. $f^{-1}(x) = \dfrac{\sqrt{-(x - 6)}}{2}$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \leq 4$.

c. $f^{-1}(x) = \dfrac{\sqrt{-6(x - 4)}}{-6}$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \leq 4$.

d. $f^{-1}(x) = \dfrac{\sqrt{-6(x - 4)}}{6}$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \leq -4$.

e. $f^{-1}(x) = \dfrac{\sqrt{-6(x + 4)}}{6}$

The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 0$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \leq 4$.

ANSWER: a

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Section 1.9 - Inverse Functions

POINTS: 1
REFERENCES: 2.7.83
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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30. Restrict the domain of the function f so that the function is one-to-one and has an inverse function. Then find the inverse function f^{-1}. State the domains and ranges of f and f^{-1}.

$f(x) = |x - 9| + 1$

a. $f^{-1}(x) = x + 8$
The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 9$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 1$.

b. $f^{-1}(x) = x - 8$
The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 9$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 1$.

c. $f^{-1}(x) = -x - 8$
The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 1$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq -9$.

d. $f^{-1}(x) = x + 8$
The domain of f and the range of f^{-1} are all real numbers x such that $x \geq -9$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 1$.

e. $f^{-1}(x) = -x + 8$
The domain of f and the range of f^{-1} are all real numbers x such that $x \geq 1$.
The domain of f^{-1} and the range of f are all real numbers x such that $x \geq 9$.

ANSWER: a
POINTS: 1
REFERENCES: 2.7.85
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/22/2014 7:51 AM

31. Use the functions given by $f(x) = \frac{1}{8}x - 1$ and $g(x) = x^3$ to find $(f^{-1} \circ g^{-1})(1)$.

a. 14
b. 12

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c. 16
d. 20
e. 18

ANSWER: c
POINTS: 1
REFERENCES: 2.7.87
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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32. Use the functions given by $f(x) = \frac{1}{8}x - 5$ and $g(x) = x^3$ to find $(g^{-1} \circ f^{-1})(-5)$.

a. –2
b. 0
c. –4
d. 2
e. 4

ANSWER: b
POINTS: 1
REFERENCES: 2.7.88
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/22/2014 8:12 AM

33. Use the function given by $f(x) = \frac{1}{8}x - 5$ to find $(f^{-1} \circ f^{-1})(-5)$.

a. 36
b. 44
c. 40
d. 38
e. 42

ANSWER: c
POINTS: 1
REFERENCES: 2.7.89
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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Section 1.9 - Inverse Functions

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34. Use the functions given by $f(x) = \frac{1}{125}x - 1$ and $g(x) = x^3$ to find $(f \circ g)^{-1}$.

a. $5\sqrt[3]{x - 1}$

b. $125\sqrt[3]{x - 1}$

c. $5\sqrt[3]{x + 1}$

d. $125\sqrt[3]{x + 1}$

e. $5\sqrt{x + 1}$

ANSWER: c
POINTS: 1
REFERENCES: 2.7.91
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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35. Use the functions given by $f(x) = \frac{1}{64}x - 4$ and $g(x) = x^3$ to find $g^{-1} \circ f^{-1}$.

a. $\sqrt[3]{x + 4}$

b. $-4\sqrt[3]{x + 4}$

c. $-4\sqrt[3]{x - 4}$

d. $4\sqrt[3]{x - 4}$

e. $4\sqrt[3]{x + 4}$

ANSWER: e
POINTS: 1
REFERENCES: 2.7.92
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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36. Use the functions given by $f(x) = x + 6$ and $g(x) = 7x - 3$ to find $g^{-1} \circ f^{-1}$.

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a. $\frac{-x - 3}{7}$

b. $\frac{x + 3}{7}$

c. $\frac{x - 3}{7}$

d. $\frac{x - 3}{-7}$

e. $\frac{x - 7}{3}$

ANSWER: c
POINTS: 1
REFERENCES: 2.7.93
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 10/22/2014 8:33 AM

37. Use the functions given by $f(x) = x + 2$ and $g(x) = 2x - 5$ to find $(f \circ g)^{-1}$.

a. $\frac{x + 3}{2}$

b. $\frac{x - 3}{-2}$

c. $\frac{x - 4}{3}$

d. $\frac{x - 3}{2}$

e. $\frac{-x - 3}{2}$

ANSWER: a
POINTS: 1
REFERENCES: 2.7.95
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/18/2015 4:05 AM

38. Your wage is $11.00 per hour plus $0.50 for each unit produced per hour. So, your hourly wage in terms of the number of units produced x is $y = 11 + 0.50x$. Find the inverse function. What does each variable represent

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in the inverse function?

a. $y = \dfrac{x - 11}{0.50}$

x = hourly wage; y = number of units produced

b. $y = 11 + 0.50x$

x = hourly wage; y = number of units produced

c. $y = \dfrac{x + 11}{0.50}$

x = hourly wage; y = number of units produced

d. $y = \dfrac{11 - x}{0.50}$

x = hourly wage; y = number of units produced

e. $y = 11 - 0.50x$

x = hourly wage; y = number of units produced

ANSWER: a
POINTS: 1
REFERENCES: 2.7.101a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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39. The function given by $y = 0.03x^2 + 245.50$, $0 < x < 100$ approximates the exhaust temperature y in degrees Fahrenheit, where x is the percentage load for a diesel engine. Find the inverse function.

a. $y = \dfrac{x + 245.50}{-0.03}$

b. $y = \sqrt{\dfrac{x - 245.50}{0.03}}$

c. $y = \dfrac{x - 245.50}{0.03}$

d. $y = \sqrt{\dfrac{x + 245.50}{0.03}}$

e. $y = \dfrac{x + 245.50}{0.03}$

ANSWER: b
POINTS: 1
REFERENCES: 2.7.102a

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Section 1.9 - Inverse Functions

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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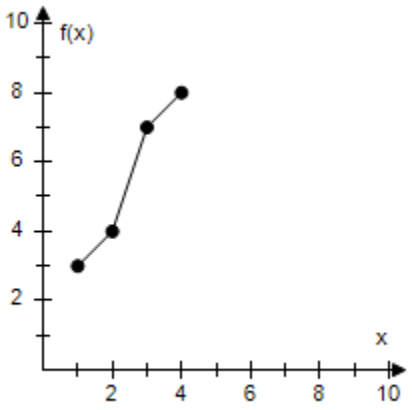
40. Use the graph of the function f to create a table of values for the given points. Then create a second table that can be used to find f^{-1}.



a.

x	1	2	3	4
$f(x)$	3	4	7	8

x	3	4	7	8
$f^{-1}(x)$	1	2	3	4

b.

x	3	4	7	8
$f(x)$	1	2	3	4

x	1	2	3	4
$f^{-1}(x)$	3	4	7	8

c.

x	1	2	3	4
$f(x)$	3	4	7	8

x	3	4	7	8
$f^{-1}(x)$	–1	–2	–3	–4

d.

x	–3	–4	–7	–8
$f(x)$	1	2	3	4

x	1	2	3	4
$f^{-1}(x)$	3	4	7	8

e.

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Section 1.9 - Inverse Functions

x	–3	–4	–7	–8
$f(x)$	1	2	3	4

x	3	4	7	8
$f^{-1}(x)$	–1	–2	–3	–4

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 10/1/2014 11:27 AM
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41. Consider the functions given by $f(x) = x + 4$ and $f^{-1}(x) = x - 4$. Evaluate $f(f^{-1}(x))$ and $f^{-1}(f(x))$ for the indicated values of x. What can you conclude about the functions?

x	–10	0	8	44
$f(f^{-1}(x))$				
$f^{-1}(f(x))$				

a.

x	–10	0	8	44
$f(f^{-1}(x))$	–10	0	–8	–44
$f^{-1}(f(x))$	–10	0	8	44

We can conclude that the functions have the same values of x for negative variables.

b.

x	–10	0	8	44
$f(f^{-1}(x))$	–10	0	8	44
$f^{-1}(f(x))$	–10	0	8	44

We can conclude that the functions have the same values.

c.

x	–10	0	8	44
$f(f^{-1}(x))$	–10	0	8	44
$f^{-1}(f(x))$	–10	0	–8	–44

We can conclude that the functions have the same values of x for negative variables.

d.

x	–10	0	8	44
$f(f^{-1}(x))$	–10	0	–8	44
$f^{-1}(f(x))$	10	0	8	–44

We can conclude that the functions are opposite of each other.

e.

x	–10	0	8	44
$f(f^{-1}(x))$	10	0	8	–44
$f^{-1}(f(x))$	–10	0	–8	44

We can conclude that the functions are opposite of each other.

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Section 1.9 - Inverse Functions

ANSWER:	b
POINTS:	1
REFERENCES:	2.7.114
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
DATE CREATED:	6/10/2014 4:18 PM
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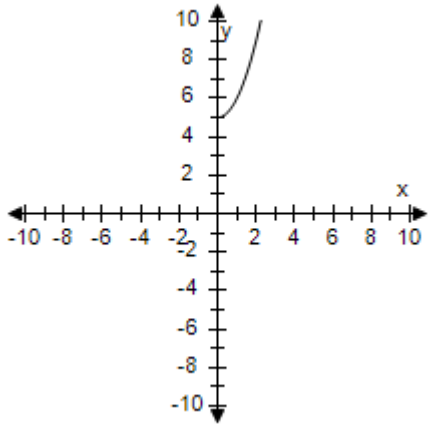
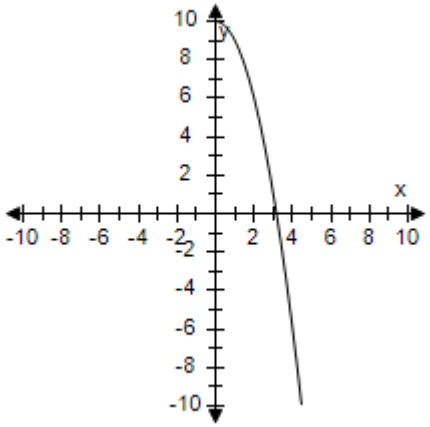
42. Restrict the domain of $f(x) = x^2 + 5$ to $x \geq 0$. Use a graphing utility to graph the function.

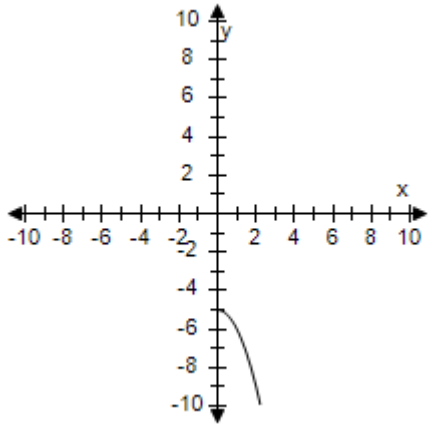
a.



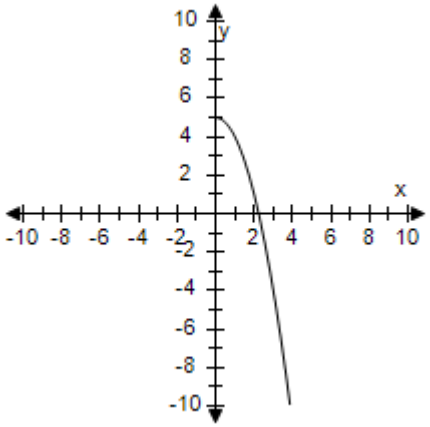
b.



c.



d.



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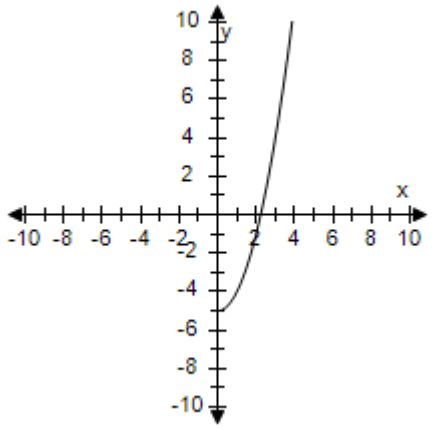
e.



ANSWER: a
POINTS: 1
REFERENCES: 2.7.115
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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43. Find the inverse function of *f*.
$f(x) = x^5 - 9$

a. $f^{-1}(x) = \sqrt[5]{x} + 9$

b. $f^{-1}(x) = \sqrt[5]{x} - 9$

c. $f^{-1}(x) = -\sqrt[5]{x} - 9$

d. $f^{-1}(x) = -\sqrt[5]{x - 9}$

e. $f^{-1}(x) = \sqrt[5]{x + 9}$

ANSWER: e
POINTS: 1
REFERENCES: 2.7.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. Graph the given function.
$f(x) = 3 - (x + 2)^2$

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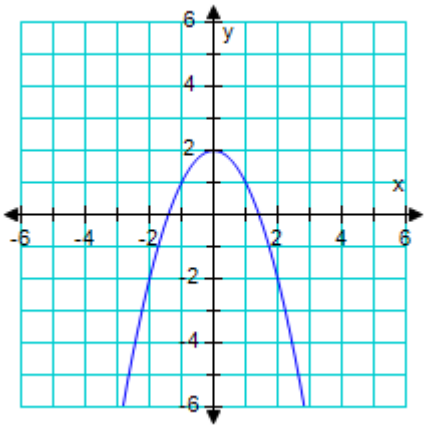
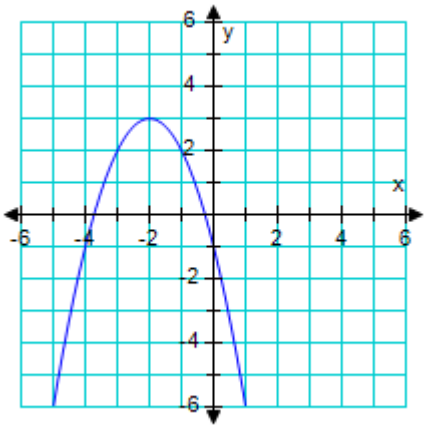
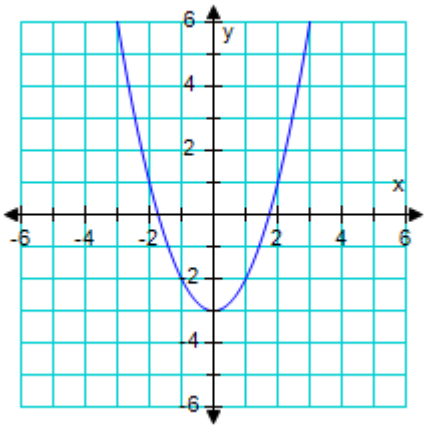
a.



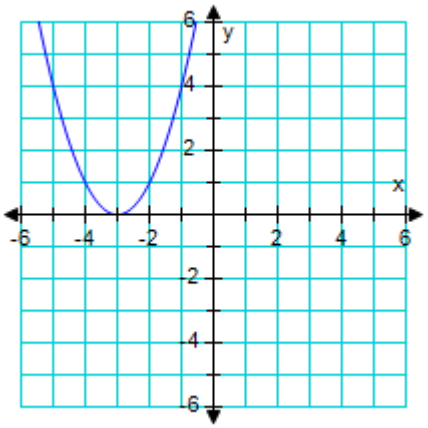
b.



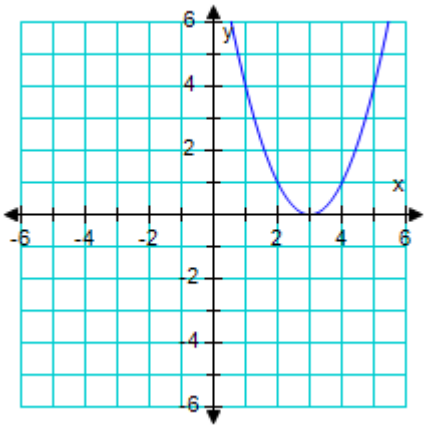
c.



d.



e.



ANSWER: b
POINTS: 1
REFERENCES: 2.7.15a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.9 - Inverse Functions

45. Find the inverse function of f.

$f(x) = \dfrac{9x - 1}{6x - 8}, x \neq \dfrac{4}{3}$

a. $f^{-1}(x) = -\dfrac{6x - 8}{9x - 1}, x \neq \dfrac{1}{9}$

b. $f^{-1}(x) = \dfrac{6x - 8}{9x - 1}, x \neq \dfrac{1}{9}$

c. $f^{-1}(x) = \dfrac{6x - 9}{-1x + 8}, x \neq 8$

d. $f^{-1}(x) = \dfrac{8x - 1}{6x - 9}, x \neq \dfrac{3}{2}$

e. $f^{-1}(x) = \dfrac{-8x + 1}{6x - 9}, x \neq \dfrac{3}{2}$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 10/2/2014 11:48 AM
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46. Determine whether the function has an inverse function. If it does, find the inverse function.

$f(x) = x^2 + 3$

a. $f^{-1}(x) = \sqrt{x} + 3, x \geq 0$

b. $f^{-1}(x) = \sqrt{x - 3}, x \geq 3$

c. $f^{-1}(x) = \sqrt{x} - 3, x \geq 0$

d. $f^{-1}(x) = \sqrt{x + 3}, x \geq -3$

e. No inverse function exists.

ANSWER: e
POINTS: 1
REFERENCES: 2.7.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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47. Determine whether the function has an inverse function. If it does, find the inverse function.

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Section 1.9 - Inverse Functions

$$f(x) = \begin{cases} 8x + 13, x < -2 \\ (x+2)^2 - 3, x \geq -2 \end{cases}$$

a. $$f^{-1}(x) = \begin{cases} \frac{x-13}{8}, x < -2 \\ \sqrt{x+3} - 2, x \geq -2 \end{cases}$$

b. $$f^{-1}(x) = \begin{cases} \frac{x-13}{8}, x < -2 \\ \sqrt{x+1}, x \geq -2 \end{cases}$$

c. $$f^{-1}(x) = \begin{cases} \frac{x-13}{8}, x < -3 \\ \sqrt{x+3} - 2, x \geq -3 \end{cases}$$

d. $$f^{-1}(x) = \begin{cases} \frac{x+13}{8}, x < -3 \\ \sqrt{x+3} - 2, x \geq -3 \end{cases}$$

e. No inverse function exists.

ANSWER: c
POINTS: 1
REFERENCES: 2.7.72
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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48. Use the functions given by $f(x) = \frac{x}{8} - 2$ and $g(x) = x^3$ to find the indicated value.

$(f \circ g)^{-1}(5)$

a. $2\sqrt[3]{5}$

b. $2\sqrt[3]{7}$

c. $-2\sqrt[3]{7}$

d. $2\sqrt[3]{3}$

e. Undefined

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 10/3/2014 3:49 AM
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49. Determine algebraically whether f and g are inverse functions.

$f(x) = 5x - 3$ $\qquad g(x) = \dfrac{x+3}{5}$

a. Yes, f and g are inverse functions.

$$f(g(x)) = f\left(\frac{x+3}{5}\right) = 5\left(\frac{x+3}{5}\right) - 3 = x + 3 - 3 = x$$

$$g(f(x)) = g(5x-3) = \frac{5x-3+3}{5} = \frac{5x}{5} = x$$

b. No, f and g are not inverse functions.

$$f(g(x)) = f\left(\frac{x+3}{5}\right) = 5\left(\frac{x+3}{5}\right) - 3 = x + 3 - 3 = x$$

$$g(f(x)) = g(5x-3) = \frac{5x-3+3}{5} = \frac{5x}{5} = -x$$

ANSWER: a
POINTS: 1
REFERENCES: 2.7.24a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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50. Determine algebraically whether f and g are inverse functions.

$f(x) = \sqrt{x-5}, x \geq 5$ $\qquad g(x) = x^2 + 5, x \geq 0$

a. Yes, f and g are inverse functions.

$$f(g(x)) = f(x^2+5) = \sqrt{(x^2+5)-5} = \sqrt{x^2} = x$$

$$g(f(x)) = g\left(\sqrt{x-5}\right) = \left(\sqrt{x-5}\right)^2 + 5 = x - 5 + 5 = x$$

b. No, f and g are not inverse functions.

$$f(g(x)) = f(x^2+5) = \sqrt{(x^2+5)-5} = \sqrt{x^2} = x$$

$$g(f(x)) = g\left(\sqrt{x-5}\right) = \left(\sqrt{x-5}\right)^2 + 5 = -x - 5 + 5 = -x$$

ANSWER: a
POINTS: 1
REFERENCES: 2.7.29a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.9 - Inverse Functions

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51. Find the inverse of the one-to-one function.

$f(x) = 6x$

$f^{-1}(x) =$ _____
ANSWER: $\frac{x}{6}$

POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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52. Find the inverse of the one-to-one function.

$f(x) = \frac{1}{7x}$

$f^{-1}(x) =$ _____
ANSWER: $\frac{1}{7x}$

POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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53. Find the inverse of the one-to-one function.

$f(x) = 5x + 4$

$f^{-1}(x) =$ _____
ANSWER: $\frac{x - 4}{5}$

POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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54. Show algebraically that f and g are inverse functions.

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Section 1.9 - Inverse Functions

$f(x) = 9x + 9$ $\quad g(x) = \dfrac{x - 9}{9}$

ANSWER:

$$f(g(x)) = f\left(\frac{x-9}{9}\right) = 9\left(\frac{x-9}{9}\right) + 9 = x - 9 + 9 = x$$

$$g(f(x)) = g(9x + 9) = \frac{9x + 9 - 9}{9} = \frac{9x}{9} = x$$

POINTS: 1
REFERENCES: 58
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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55. Show algebraically that f and g are inverse functions.

$f(x) = \sqrt{x+1}, x \geq -1$ $\quad g(x) = x^2 - 1, x \geq 0$

ANSWER:

$$f(g(x)) = f(x^2 - 1) = \sqrt{(x^2 - 1) + 1} = \sqrt{x^2} = x$$

$$g(f(x)) = g\left(\sqrt{x+1}\right) = \left(\sqrt{x+1}\right)^2 - 1 = x + 1 - 1 = x$$

POINTS: 1
REFERENCES: 59
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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56. Determine whether the function is one-to-one.

$y = 3x$

a. No, it is not one-to-one.
b. Yes, it is one-to-one.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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57. Determine whether the function is one-to-one.

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Section 1.9 - Inverse Functions

$y = (x - 5)^2, x \geq 5$

a. No, it is not one-to-one.

b. Yes, it is one-to-one.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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58. Find the inverse of the one-to-one function.

$f(x) = 5x + 9$

a. $f^{-1}(x) = \dfrac{x + 9}{5}$

b. $f^{-1}(x) = \dfrac{x - 9}{5}$

c. $f^{-1}(x) = \dfrac{5}{x - 9}$

d. $f^{-1}(x) = \dfrac{x - 5}{9}$

e. none of the above

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
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59. Find the inverse of the one-to-one function.

$f(x) = 3x$

a. $f^{-1}(x) = 3x^2$

b. $f^{-1}(x) = 3x$

c. $f^{-1}(x) = \dfrac{x}{3}$

d. $f^{-1}(x) = \dfrac{3}{x}$

e. $f^{-1}(x) = 9x$

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ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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60. Find the inverse function of f.
$f(x) = x^3 - 4$

a. $f^{-1}(x) = -\sqrt[3]{x} - 4$

b. $f^{-1}(x) = \sqrt[3]{x} - 4$

c. $f^{-1}(x) = -\sqrt[3]{x - 4}$

d. $f^{-1}(x) = \sqrt[3]{x + 4}$

e. $f^{-1}(x) = \sqrt[3]{x} + 4$

ANSWER: d
POINTS: 1
REFERENCES: 60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:18 PM
DATE MODIFIED: 5/28/2021 5:59 AM

61. The function $f(x) = x^2 - 2$ is one-to-one on the domain $x \leq 0$. Find $f^{-1}(x)$.

a. $f^{-1}(x) = -\sqrt{x + 2}$

b. $f^{-1}(x) = \dfrac{1}{x^2 - 2}$

c. $f^{-1}(x) = \sqrt{x + 2}$

d. $f^{-1}(x) = \sqrt{x - 2}$

e. $f^{-1}(x) = x^2 + 2$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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62. Find the inverse of the one-to-one function.

$$f(x) = \frac{1}{9x}$$

a. $f^{-1}(x) = \frac{9}{x}$

b. $f^{-1}(x) = \frac{x}{9}$

c. $f^{-1}(x) = 9x$

d. $f^{-1}(x) = \frac{1}{9x}$

e. inverse does not exist

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.10 - Mathematical Modeling and Variation

1. Assume that y is directly proportional to x. Use the given x-value and y-value to find a linear model that relates y and x.

$x = 5, y = 24$

a. $y = -\frac{24}{5}x$

b. $y = 24x$

c. $y = -\frac{5}{24}x$

d. $y = \frac{24}{5}x$

e. $y = \frac{5}{24}x$

ANSWER: d
POINTS: 1
REFERENCES: 3.5.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Assume that y is directly proportional to x. Use the given x-value and y-value to find a linear model that relates y and x.

$x = 2, y = 58$

a. $y = 29x$

b. $y = -29x$

c. $y = 58x$

d. $y = -58x$

e. $y = 29$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.36
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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3. Assume that y is directly proportional to x. Use the given x-value and y-value to find a linear model that relates y and x.

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$x = 38, y = 2400$

a. $y = \frac{1200}{19}x$

b. $y = -2400x$

c. $y = \frac{19}{1200}x$

d. $y = -\frac{19}{1200}x$

e. $y = -\frac{1200}{19}x$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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4. The simple interest on an investment is directly proportional to the amount of the investment. By investing $2400 in a certain bond issue, you obtained an interest payment of $111.75 after 1 year. Find a mathematical model that gives the interest I for this bond issue after 1 year in terms of the amount invested P. (Round your answer to three decimal places.)

a. $I = 0.047P$

b. $I = 268{,}200P$

c. $I = 21.477P$

d. $I = 2400P$

e. $I = 111.75P$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. The simple interest on an investment is directly proportional to the amount of the investment. By investing $5800 in a municipal bond, you obtained an interest payment of $221.25 after 1 year. Find a mathematical model that gives the interest I for this municipal bond after 1 year in terms of the amount invested P. (Round your answer to three decimal places.)

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a. $I = 26.215P$
b. $I = 221.25P$
c. $I = 0.038P$
d. $I = 1{,}283{,}250P$
e. $I = 5800P$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.40
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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6. On a yardstick with scales in inches and centimeters, you notice that 19 inches is approximately the same length as 48 centimeters. Use this information to find a mathematical model that relates centimeters y to inches x. Then use the model to find the numbers of centimeters in 50 inches and 60 inches. (Round your answer to one decimal place.)

a. Model: $y = \frac{19}{48}x$; 19.8 cm, 23.8 cm
b. Model: $y = \frac{48}{19}x$; 126.3 cm, 23.8 cm
c. Model: $y = \frac{48}{19}x$; 19.8 cm, 151.6 cm
d. Model: $y = \frac{48}{19}x$; 126.3 cm, 151.6 cm
e. Model: $y = \frac{19}{48}x$; 126.3 cm, 151.6 cm

ANSWER: d
POINTS: 1
REFERENCES: 3.5.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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7. When buying gasoline, you notice that 17 gallons of gasoline is approximately the same amount of gasoline as 64 liters. Use this information to find a linear model that relates liters y to gallons x. Then use the model to find the numbers of liters in 55 gallons and 75 gallons. (Round your answer to one decimal place.)

a. Model: $y = \frac{17}{64}x$; 14.6 L, 19.9 L
b. Model: $y = \frac{64}{17}x$; 207.1 L, 19.9 L

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c. Model: $y = \frac{64}{17}x$; 14.6 L, 282.4 L

d. Model: $y = \frac{64}{17}x$; 207.1 L, 282.4 L

e. Model: $y = \frac{17}{64}x$; 207.1 L, 282.4 L

ANSWER: d
POINTS: 1
REFERENCES: 3.5.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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8. Property tax is based on the assessed value of a property. A house that has an assessed value of $200,000 has a property tax of $4,520. Find a mathematical model that gives the amount of property tax y in terms of the assessed value x of the property. Use the model to find the property tax on a house that has an assessed value of $230,000. (Round your answer to four decimal places.)

a. $y = 0.0226x;\ \$230{,}000$

b. $y = 0.0226x;\ \$5{,}198$

c. $y = 44.2478x;\ \$5{,}198$

d. $y = 44.2478x;\ \$10{,}176{,}991$

e. $y = 0.0226x;\ \$10{,}176{,}991$

ANSWER: b
POINTS: 1
REFERENCES: 3.5.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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9. State sales tax is based on retail price. An item that sells for $182.99 has a sales tax of $16.40. Find a mathematical model that gives the amount of sales tax y in terms of the retail price x. Use the model to find the sales tax on a $629.99 purchase. (Round your answer to four decimal places.)

a. $y = 11.1579x;\ \$56.45$

b. $y = 0.0896x;\ \$56.45$

c. $y = 0.0896x;\ \$629.99$

d. $y = 0.0896x;\ \$7{,}029$

e. $y = 11.1579x;\ \$7{,}029$

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Section 1.10 - Mathematical Modeling and Variation

ANSWER: b
POINTS: 1
REFERENCES: 3.5.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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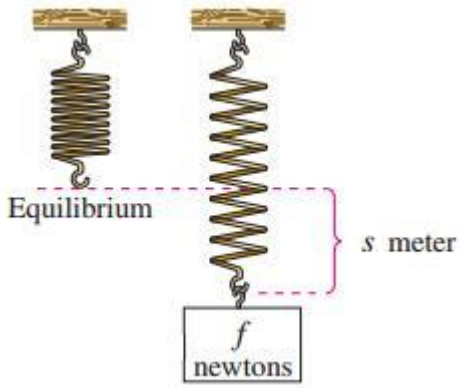
10. A force of $f = 255$ newtons stretches a spring $s = 0.15$ meter (see figure).



How far will a force of 140 newtons stretch the spring? What force is required to stretch the spring 0.3 meter? (Round your answer to two decimal places.)

a. 0.15 m; 510 N
b. 0.15 m; 255 N
c. 0.08 m; 510 N
d. 0.09 m; 285 N
e. 0.08 m; 255 N

ANSWER: c
POINTS: 1
REFERENCES: 3.5.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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11. A force of 270 newtons stretches a spring 0.18 meter. What force is required to stretch the spring 0.19 meter?

a. 295 N
b. 290 N
c. 285 N

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d. 280 N

e. 270 N

ANSWER: c
POINTS: 1
REFERENCES: 3.5.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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12. The coiled spring of a toy supports the weight of a child. The spring is compressed a distance of 1.6 inches by the weight of a 35-pound child. The toy will not work properly if its spring is compressed more than 6 inches. What is the weight of the heaviest child who should be allowed to use the toy? (Round your answer to two decimal places.)

a. 136.25 lb

b. 126.25 lb

c. 131.25 lb

d. 35 lb

e. 141.25 lb

ANSWER: c
POINTS: 1
REFERENCES: 3.5.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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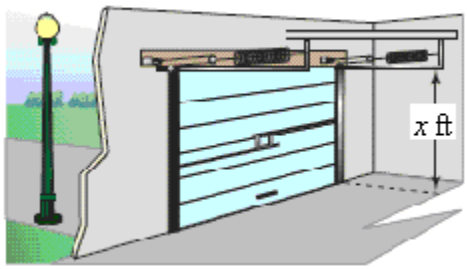
13. An overhead garage door has two springs, one on each side of the door (see figure). A force of 20 pounds is required to stretch each spring 1 foot. Because of a pulley system, the springs stretch only one-half the distance the door travels. The door moves a total of $x = 18$ feet, and the springs are at their natural length when the door is open. Find the combined lifting force applied to the door by the springs when the door is closed.



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a. Combined lifting force $= 2F = 356$ lb
b. Combined lifting force $= 2F = 360$ lb
c. Combined lifting force $= 2F = 362$ lb
d. Combined lifting force $= 2F = 358$ lb
e. Combined lifting force $= 2F = 364$ lb

ANSWER: b
POINTS: 1
REFERENCES: 3.5.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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14. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

y is inversely proportional to x. $(y = 7 \text{ when } x = 5.)$

a. $y = \frac{5}{x}$
b. $y = \frac{x}{35}$
c. $y = 35x$
d. $y = \frac{35}{x}$
e. $y = \frac{7}{x}$

ANSWER: d
POINTS: 1
REFERENCES: 3.5.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

y varies inversely as x. $(y = 9 \text{ when } x = 45.)$

a. $y = \frac{9}{x}$

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b. $y = \frac{405}{x}$

c. $y = \frac{x}{405}$

d. $y = \frac{45}{x}$

e. $y = 405x$

ANSWER: b
POINTS: 1
REFERENCES: 3.5.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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16. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

z varies jointly as x and y. $(z = 128 \text{ when } x = 4 \text{ and } y = 8.)$

a. $z = \frac{4y}{x}$

b. $z = \frac{4}{xy}$

c. $z = \frac{xy}{4}$

d. $z = \frac{4x}{y}$

e. $z = 4xy$

ANSWER: e
POINTS: 1
REFERENCES: 3.5.70
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

F is jointly proportional to r and the third power of s. $(F = 24750 \text{ when } r = 18 \text{ and } s = 5.)$

a. $F = \frac{11r}{s^3}$

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b. $F = \frac{rs^3}{11}$

c. $F = 11rs^3$

d. $F = \frac{11}{rs^3}$

e. $F = \frac{11s^3}{r}$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

P varies directly as x and inversely as the square of y. ($P = \frac{3}{2}$ when $x = 25$ and $y = 10$.)

a. $P = \frac{xy^2}{6}$

b. $P = \frac{6x}{y}$

c. $P = \frac{6x}{y^2}$

d. $P = \frac{6y^2}{x}$

e. $P = 6xy^2$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.72
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. The work W (in joules) done when lifting an object varies jointly with the mass m (in kilograms) of the object and the height h (in meters) that the object is lifted. The work done when a 120-kilogram object is lifted

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1.8 meters is 2116.8 joules. How much work is done when lifting a 200-kilogram object 1.5 meters?

a. 2960 J
b. 2920 J
c. 2940 J
d. 2950 J
e. 2930 J

ANSWER: c
POINTS: 1
REFERENCES: 3.5.79
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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20. Assume that y is directly proportional to x. Use the given x-value and y-value to find a linear model that relates y and x.

$x = 5, y = 380$

a. $y = 76x$
b. $y = -76x$
c. $y = \frac{1}{76}x$
d. $y = -\frac{1}{76}x$
e. $y = -380x$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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21. Determine whether the variation model is of the form $y = kx$ or $y = \frac{k}{x}$ and find k. Then write a model that relates y and x.

x	4	8	12	16	20
y	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$

a. $y = 4x$

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b. $y = \frac{1}{x}$

c. $y = \frac{4}{x}$

d. $y = x$

e. $y = \frac{x}{4}$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Determine whether the variation model is of the form $y = kx$ or $y = \frac{k}{x}$ and find k. Then write a model that relates y and x.

x	9	18	27	36	45
y	2	4	6	8	10

a. $y = \frac{2}{9}x$

b. $y = \frac{9}{x}$

c. $y = \frac{2}{9x}$

d. $y = \frac{9}{2x}$

e. $y = \frac{9}{2}x$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.10 - Mathematical Modeling and Variation

23. Determine whether the variation model is of the form $y = kx$ or $y = \frac{k}{x}$ and find k. Then write a model that relates y and x.

x	5	10	15	20	25
y	–1.5	–3	–4.5	–6	–7.5

a. $y = -\frac{3}{10x}$

b. $y = \frac{10}{3}x$

c. $y = -\frac{3}{10}x$

d. $y = \frac{3}{10}x$

e. $y = -\frac{10}{3}x$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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24. Determine whether the variation model is of the form $y = kx$ or $y = \frac{k}{x}$ and find k. Then write a model that relates y and x.

x	5	10	15	20	25
y	26	13	$\frac{26}{3}$	$\frac{13}{2}$	$\frac{26}{5}$

a. $y = \frac{130}{x}$

b. $y = \frac{x}{130}$

c. $y = \frac{1}{x}$

d. $y = 130x$

e. $y = x$

ANSWER: a
POINTS: 1

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REFERENCES: 3.5.34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Use the given value of k to complete the table for the direct variation model $y = kx^2$.

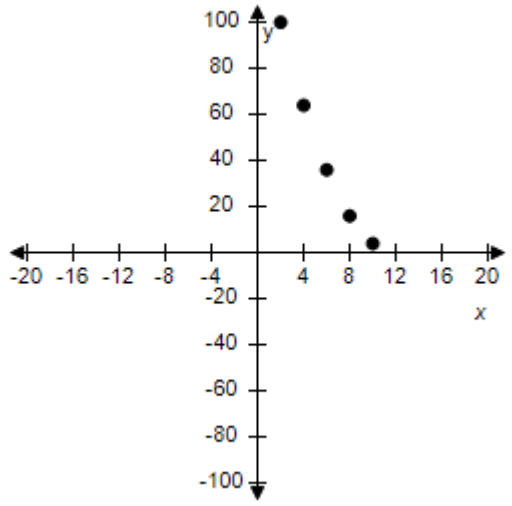
Plot the points on a rectangular coordinate system.

x	2	4	6	8	10
$y = kx^2$					

$k = 1$

a.

x	2	4	6	8	10
$y = kx^2$	100	64	36	16	4



b.

x	2	4	6	8	10
$y = kx^2$	4	16	36	64	100

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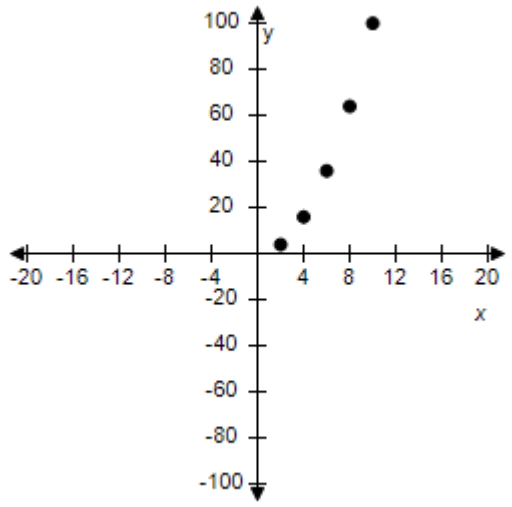
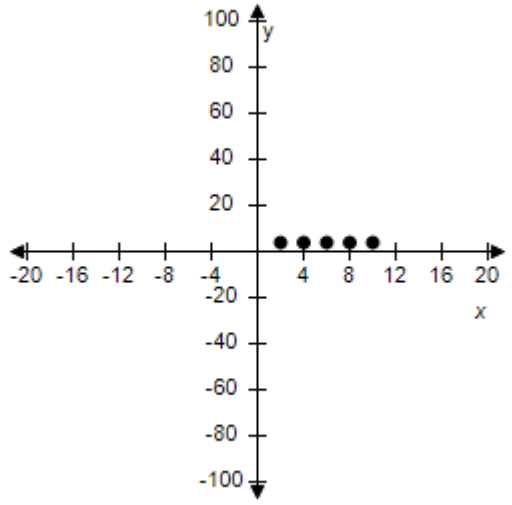


c.

x	2	4	6	8	10
$y = kx^2$	4	4	4	4	4



d.

x	2	4	6	8	10
$y = kx^2$	4	16	36	16	4

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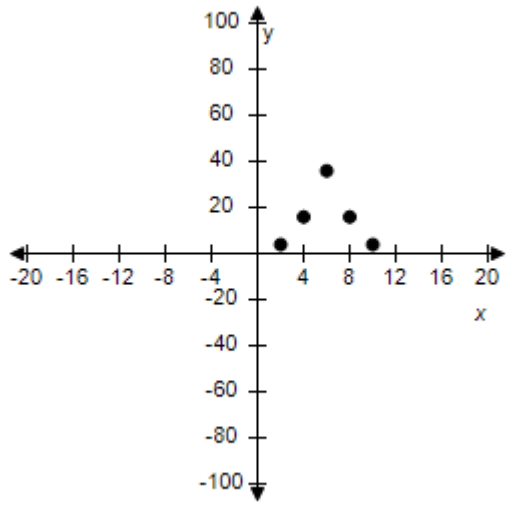
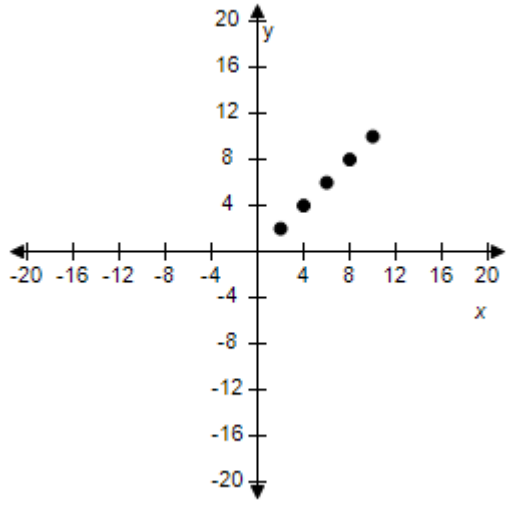


e.

x	2	4	6	8	10
$y = kx^2$	2	4	6	8	10



ANSWER: b
POINTS: 1
REFERENCES: 3.5.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Use the given value of k to complete the table for the direct variation model $y = kx^2$.

Plot the points on a rectangular coordinate system.

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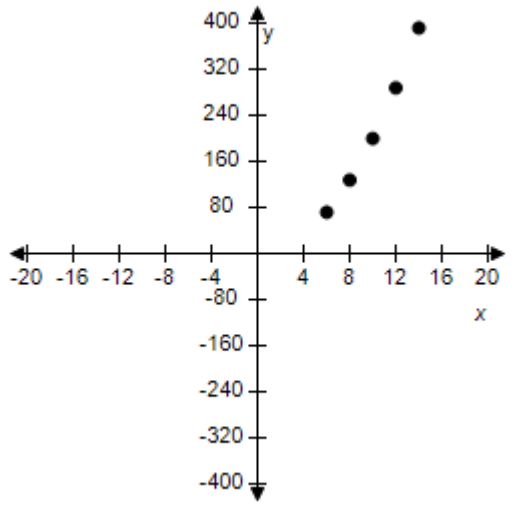
x	6	8	10	12	14
$y = kx^2$					

$k = 2$

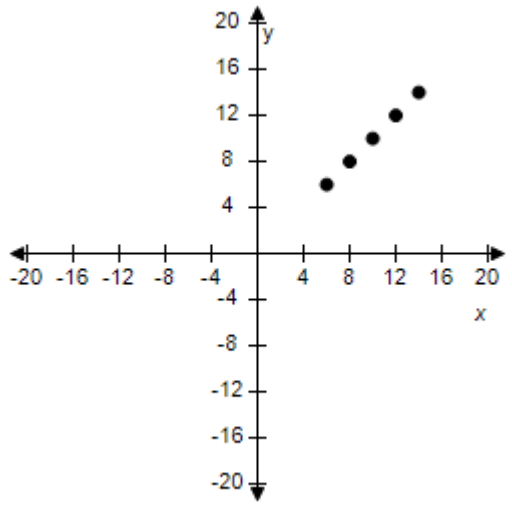
a.

x	6	8	10	12	14
$y = kx^2$	72	128	200	288	392



b.

x	6	8	10	12	14
$y = kx^2$	6	8	10	12	14



c.

x	6	8	10	12	14
$y = kx^2$	72	72	72	72	72

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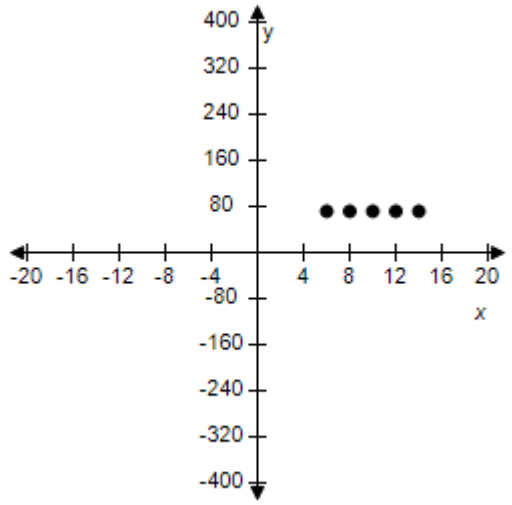
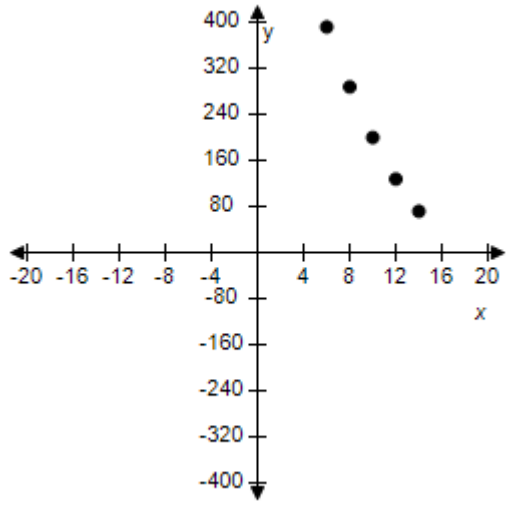


d.

x	6	8	10	12	14
$y = kx^2$	392	288	200	128	72



e.

x	6	8	10	12	14
$y = kx^2$	72	128	200	128	72

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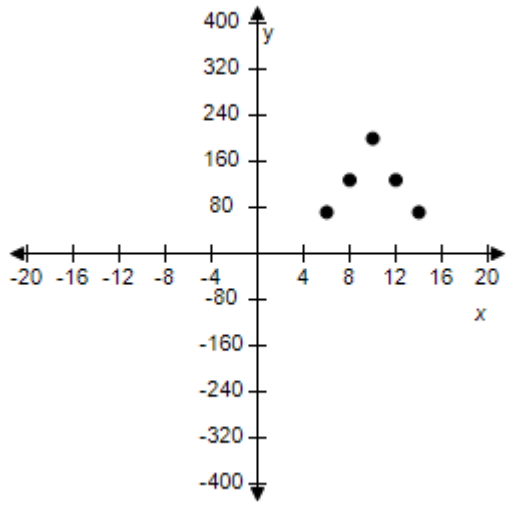

ANSWER: a
POINTS: 1
REFERENCES: 3.5.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/22/2014 11:38 PM
DATE MODIFIED: 5/27/2021 9:18 AM

27. Use the given value of k to complete the table for the direct variation model $y = kx^2$.

Plot the points on a rectangular coordinate system.

x	6	8	10	12	14
$y = kx^2$					

$k = \frac{1}{2}$

a.

x	6	8	10	12	14
$y = kx^2$	18	32	50	72	98

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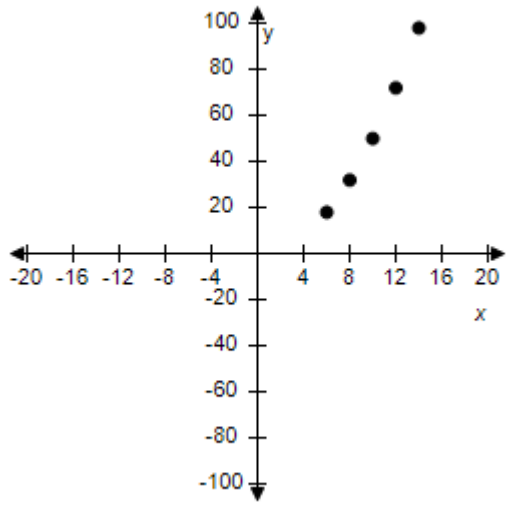
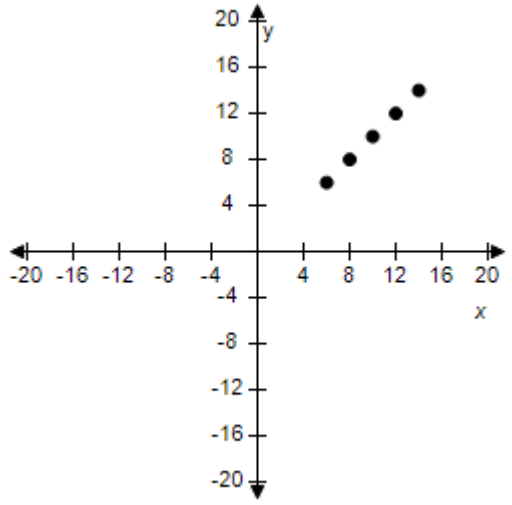


b.

x	6	8	10	12	14
$y = kx^2$	6	8	10	12	14



c.

x	6	8	10	12	14
$y = kx^2$	18	18	18	18	18

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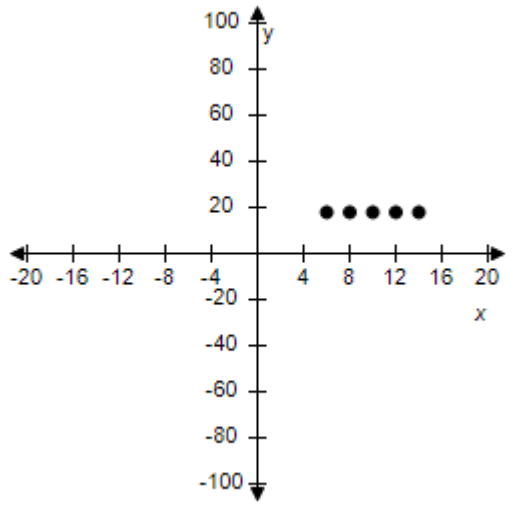
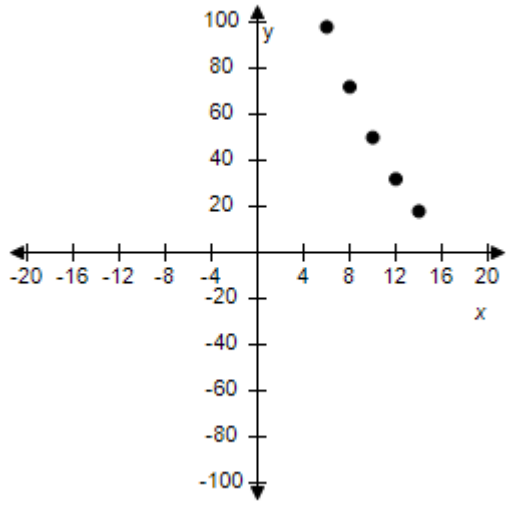


d.

x	6	8	10	12	14
$y = kx^2$	98	72	50	32	18



e.

x	6	8	10	12	14
$y = kx^2$	18	32	50	32	18

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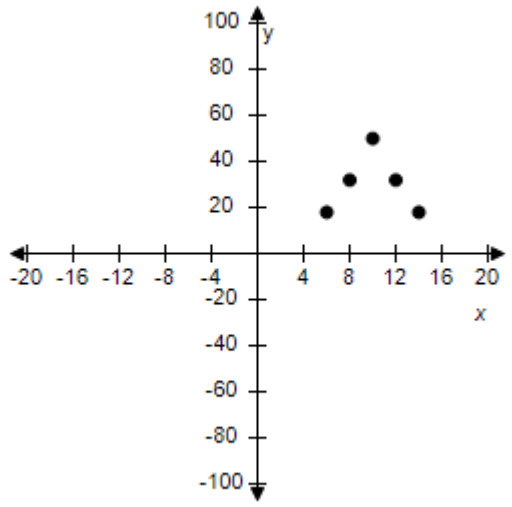

ANSWER: a
POINTS: 1
REFERENCES: 3.5.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/22/2014 8:07 AM
DATE MODIFIED: 5/27/2021 9:26 AM

28. Use the given value of k to complete the table for the direct variation model $y = kx^2$.

Plot the points on a rectangular coordinate system.

x	6	8	10	12	14
$y = kx^2$					

$k = \frac{1}{4}$

a.

x	6	8	10	12	14
$y = kx^2$	49	36	25	16	9

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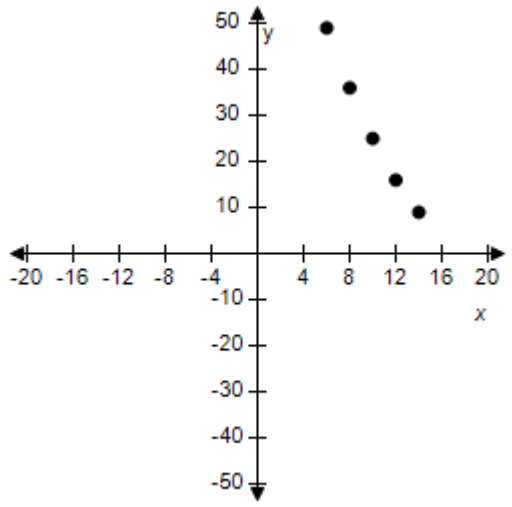
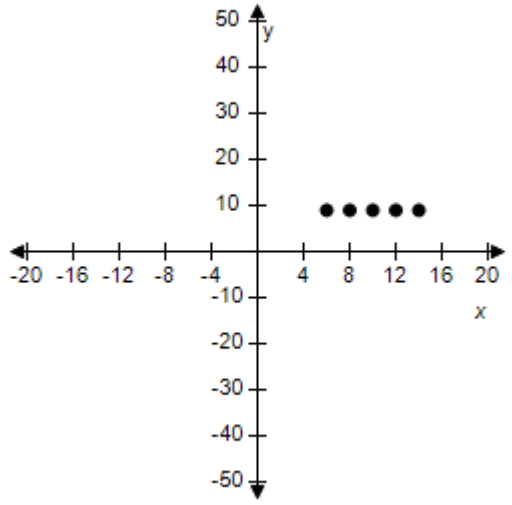


b.

x	6	8	10	12	14
$y = kx^2$	9	9	9	9	9



c.

x	6	8	10	12	14
$y = kx^2$	9	16	25	16	9

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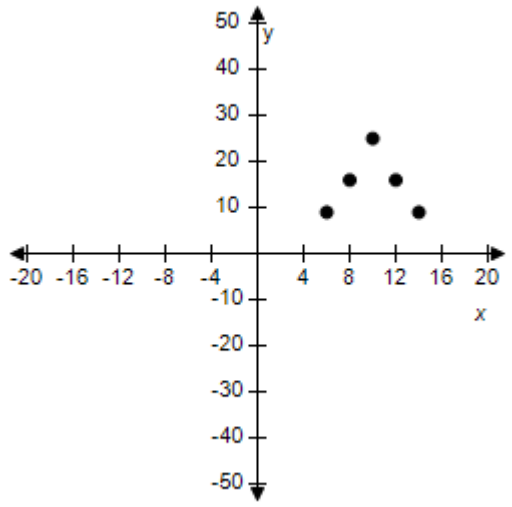
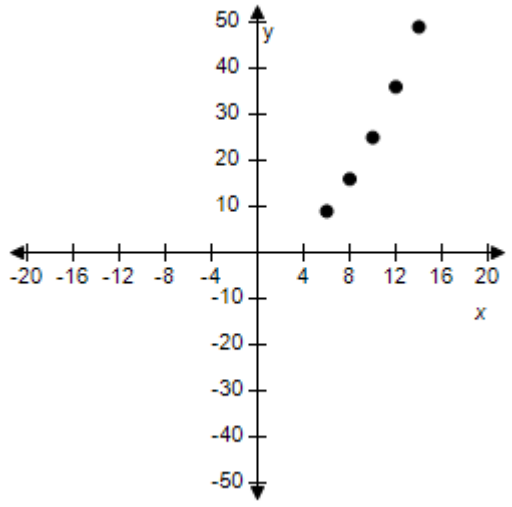


d.

x	6	8	10	12	14
$y = kx^2$	9	16	25	36	49



e.

x	6	8	10	12	14
$y = kx^2$	6	8	10	12	14

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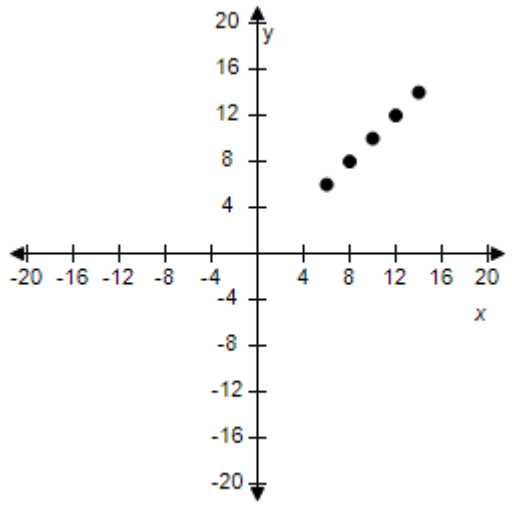

ANSWER: d
POINTS: 1
REFERENCES: 3.5.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/22/2014 6:50 AM
DATE MODIFIED: 5/27/2021 9:32 AM

29. Use the given value of k to complete the table for the inverse variation model $y = \frac{k}{x^2}$.

Plot the points on a rectangular coordinate system.

x	4	6	8	10	12
$y = \frac{k}{x^2}$					

$k = 2$

a.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{1}{8}$	$\frac{1}{18}$	$\frac{1}{32}$	$\frac{1}{50}$	$\frac{1}{72}$

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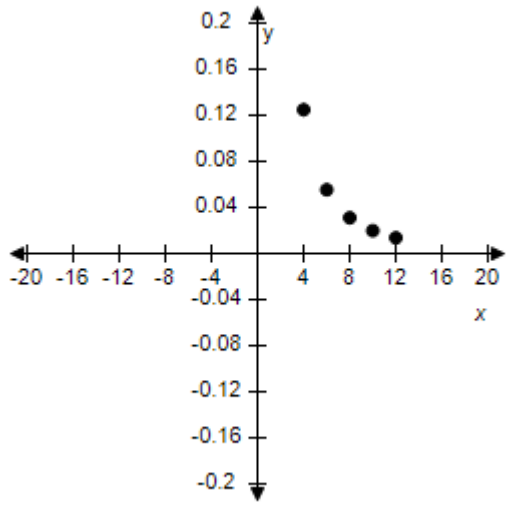
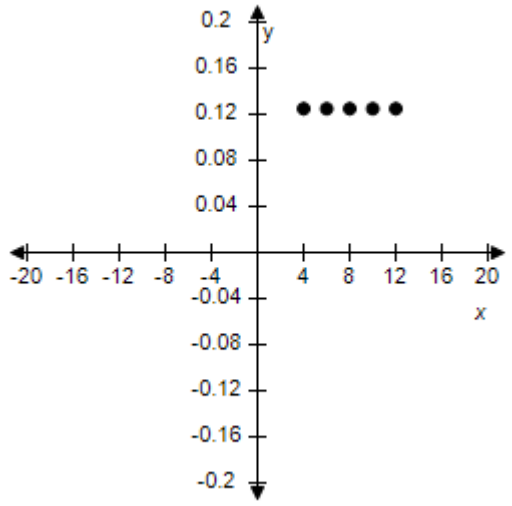


b.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$



c.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{1}{72}$	$\frac{1}{50}$	$\frac{1}{32}$	$\frac{1}{18}$	$\frac{1}{8}$

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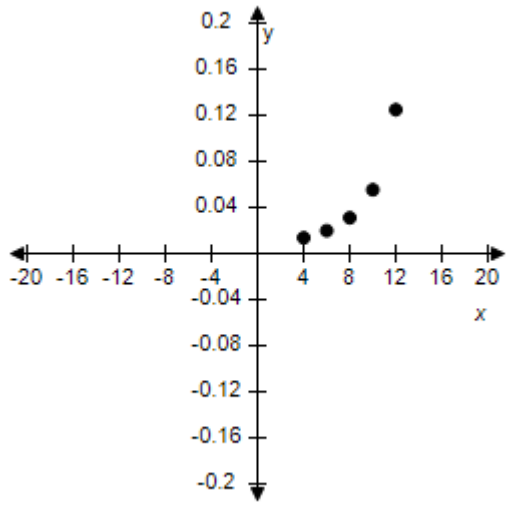
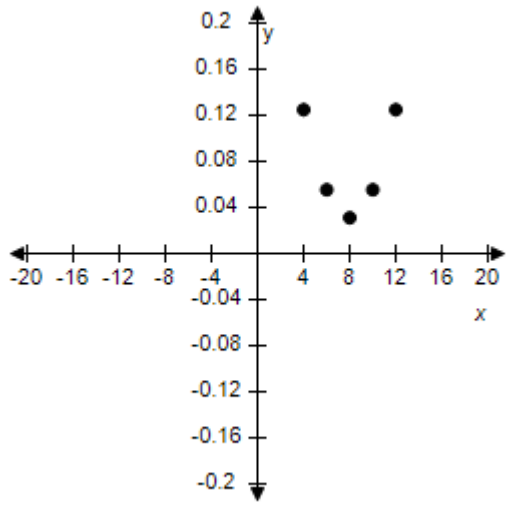


d.

x	4	6	8	10	12
$y = kx^2$	$\frac{1}{8}$	$\frac{1}{18}$	$\frac{1}{32}$	$\frac{1}{18}$	$\frac{1}{8}$



e.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	4	6	8	10	12

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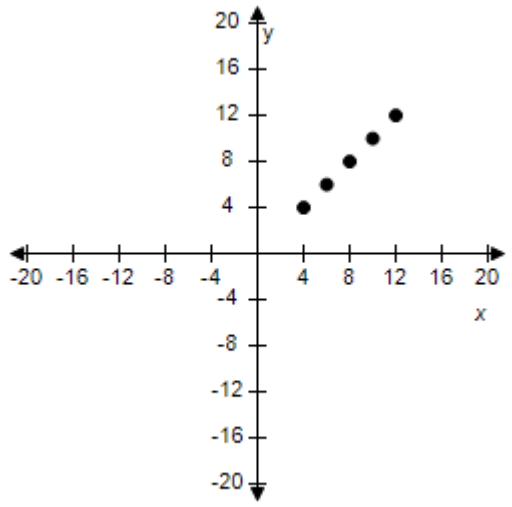

ANSWER: a
POINTS: 1
REFERENCES: 3.5.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/22/2014 5:52 AM
DATE MODIFIED: 5/27/2021 9:38 AM

30. Use the given value of k to complete the table for the inverse variation model $y = \frac{k}{x^2}$.

Plot the points on a rectangular coordinate system.

x	6	8	10	12	14
$y = \frac{k}{x^2}$					

$k = 5$

a.

x	6	8	10	12	14
$y = \frac{k}{x^2}$	$\frac{5}{36}$	$\frac{5}{64}$	$\frac{1}{20}$	$\frac{5}{144}$	$\frac{5}{196}$

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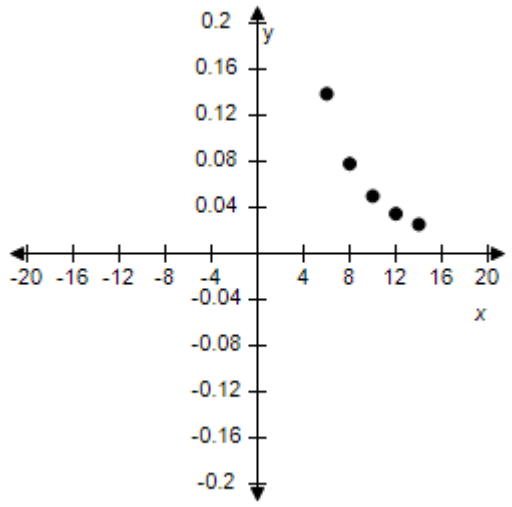
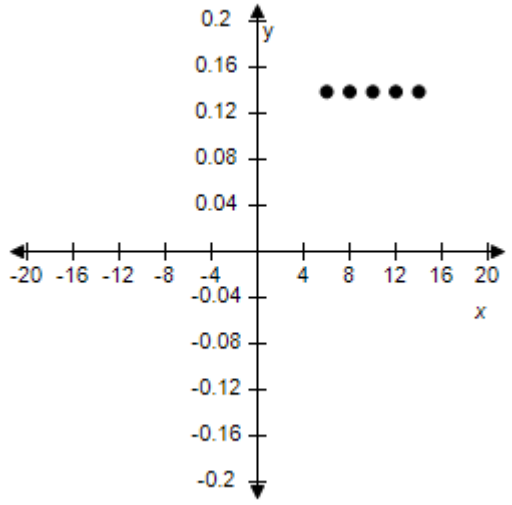


b.

x	6	8	10	12	14
$y = \frac{k}{x^2}$	$\frac{5}{36}$	$\frac{5}{36}$	$\frac{5}{36}$	$\frac{5}{36}$	$\frac{5}{36}$



c.

x	6	8	10	12	14
$y = \frac{k}{x^2}$	$\frac{5}{196}$	$\frac{5}{144}$	$\frac{1}{20}$	$\frac{5}{64}$	$\frac{5}{36}$

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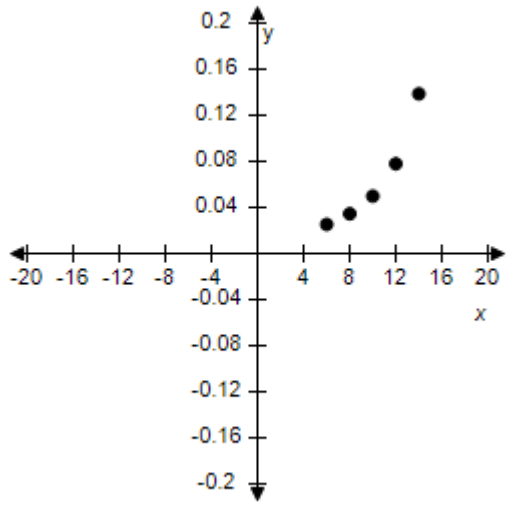
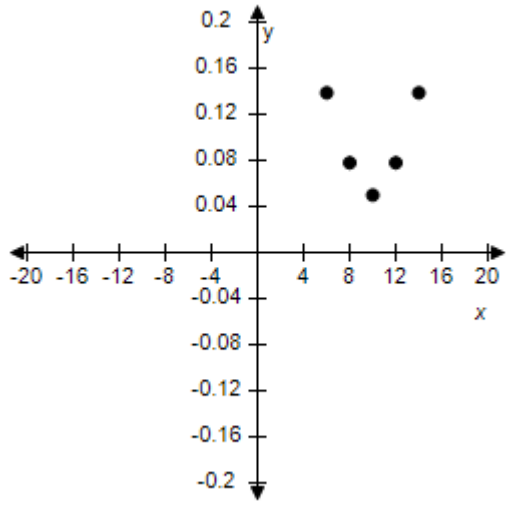


d.

x	6	8	10	12	14
$y = \frac{k}{x^2}$	$\frac{5}{36}$	$\frac{5}{64}$	$\frac{1}{20}$	$\frac{5}{64}$	$\frac{5}{36}$



e.

x	6	8	10	12	14
$y = \frac{k}{x^2}$	6	8	10	12	14

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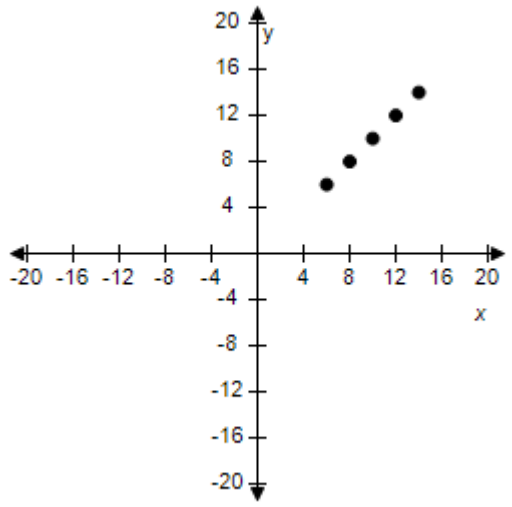

ANSWER: a
POINTS: 1
REFERENCES: 3.5.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 10/22/2014 4:52 AM
DATE MODIFIED: 5/27/2021 9:45 AM

31. Use the given value of k to complete the table for the inverse variation model $y = \frac{k}{x^2}$.

Plot the points on a rectangular coordinate system.

x	10	12	14	16	18
$y = \frac{k}{x^2}$					

$k = 10$

a.

x	10	12	14	16	18
$y = \frac{k}{x^2}$ ☒	$\frac{1}{10}$	$\frac{5}{72}$	$\frac{5}{98}$	$\frac{5}{128}$	$\frac{5}{162}$

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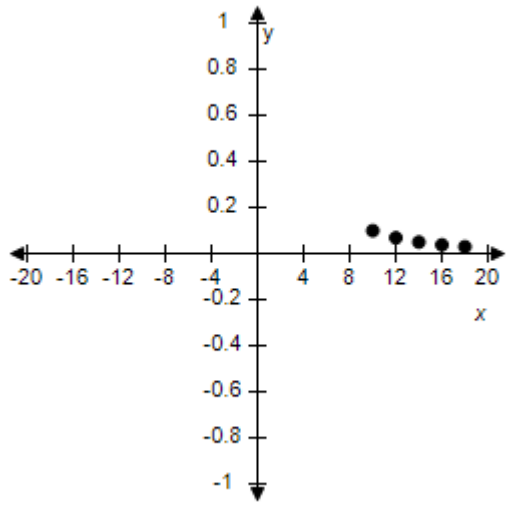
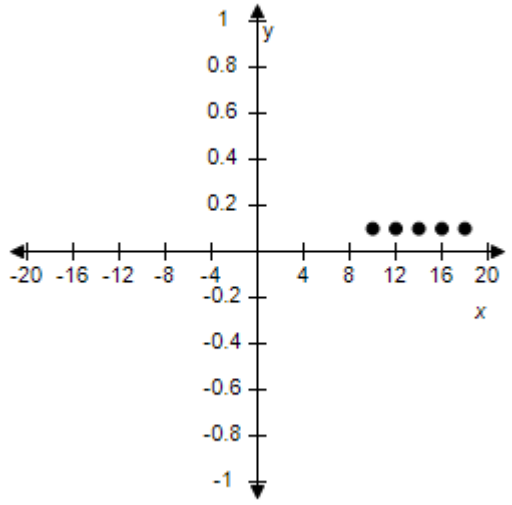


b.

x	10	12	14	16	18
$y = \frac{k}{x^2}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$



c.

x	10	12	14	16	18
$y = \frac{k}{x^2}$	$\frac{5}{162}$	$\frac{5}{128}$	$\frac{5}{98}$	$\frac{5}{72}$	$\frac{1}{10}$

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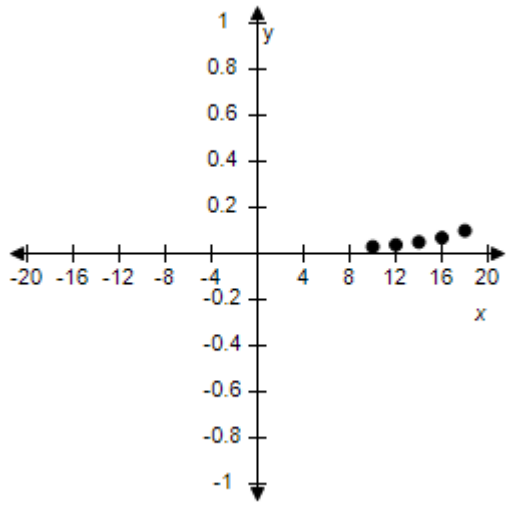
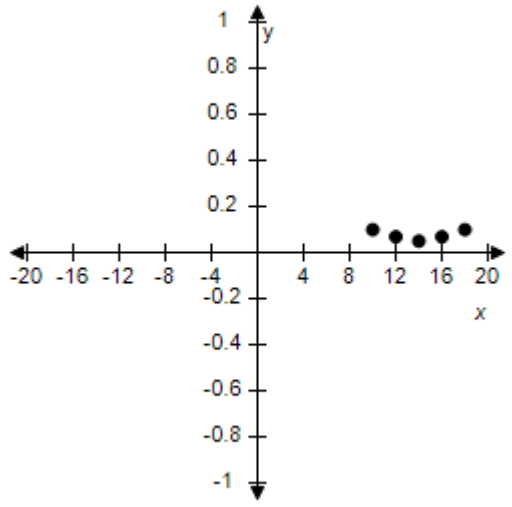


d.

x	10	12	14	16	18
$y = \frac{k}{x^2}$	$\frac{1}{10}$	$\frac{5}{72}$	$\frac{5}{98}$	$\frac{5}{72}$	$\frac{1}{10}$



e.

x	10	12	14	16	18
$y = \frac{k}{x^2}$	10	12	14	16	18

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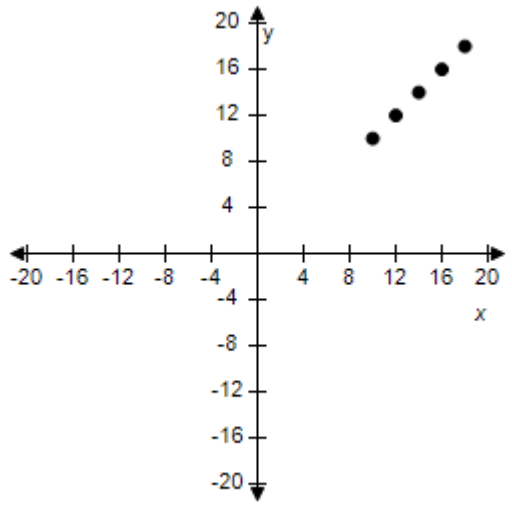

ANSWER: a
POINTS: 1
REFERENCES: 3.5.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 5/27/2021 9:49 AM

32. Use the given value of k to complete the table for the inverse variation model $y = \frac{k}{x^2}$.

Plot the points on a rectangular coordinate system.

x	4	6	8	10	12
$y = \frac{k}{x^2}$					

$k = 20$

a.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{5}{4}$	$\frac{5}{9}$	$\frac{5}{16}$	$\frac{1}{5}$	$\frac{5}{36}$

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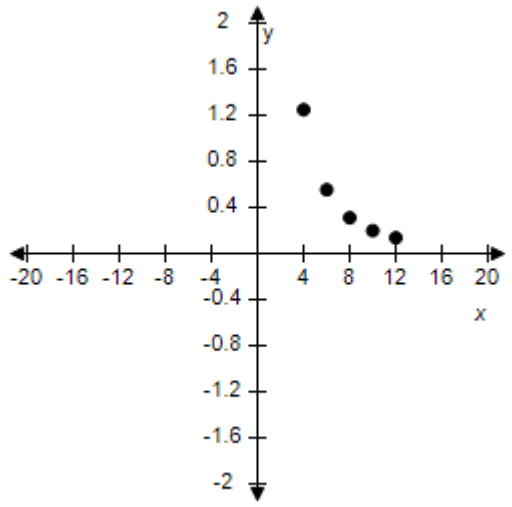
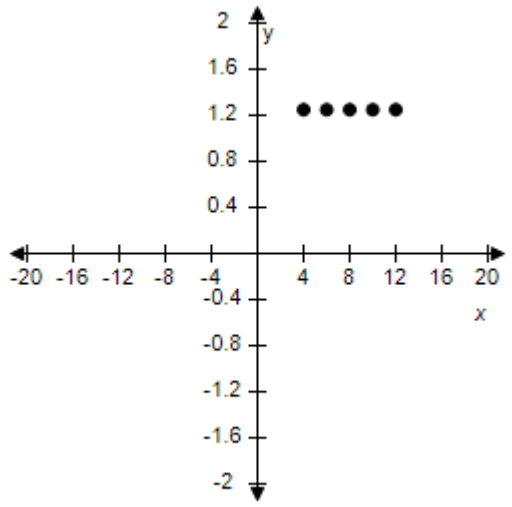


b.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$	$\frac{5}{4}$



c.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	$\frac{5}{36}$	$\frac{1}{5}$	$\frac{5}{16}$	$\frac{5}{9}$	$\frac{5}{4}$

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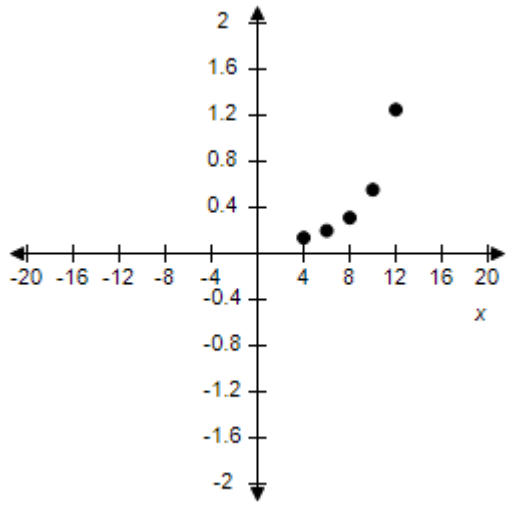
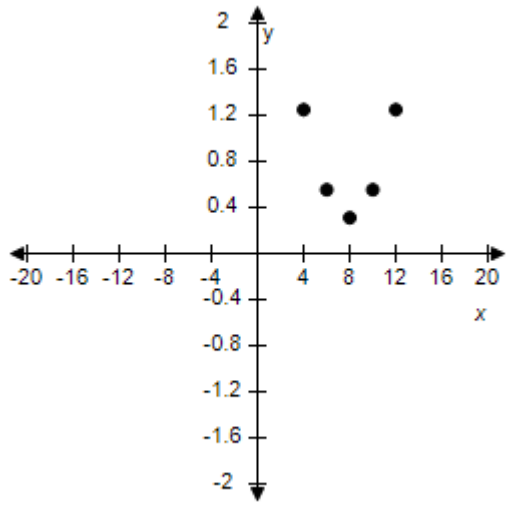


d.

x	4	6	8	10	12
$y = kx^2$	$\frac{5}{4}$	$\frac{5}{9}$	$\frac{5}{16}$	$\frac{5}{9}$	$\frac{5}{4}$



e.

x	4	6	8	10	12
$y = \frac{k}{x^2}$	4	6	8	10	12

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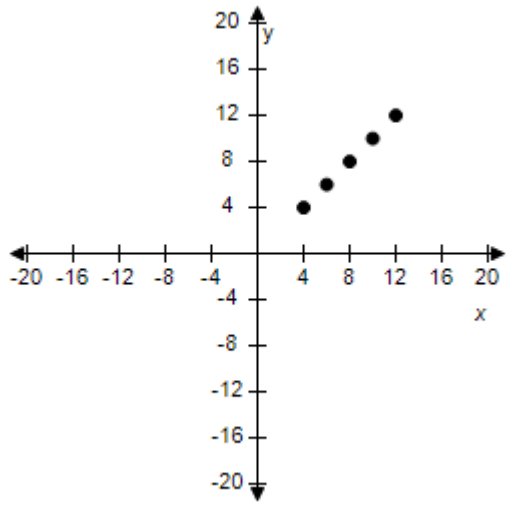

ANSWER: a
POINTS: 1
REFERENCES: 3.5.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 5/27/2021 9:59 AM

33. Find a mathematical model representing the statement. (Determine the constant of proportionality.)

z varies directly as the square of x and inversely as y. ($z = 36$ when $x = 9$ and $y = 3$.)

a. $z = \dfrac{3x^2}{4y}$

b. $z = \dfrac{4x}{3y}$

c. $z = \dfrac{4x^2}{3y}$

d. $z = -\dfrac{3x^2}{4y}$

e. $z = -\dfrac{4x^2}{3y}$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.10 - Mathematical Modeling and Variation

STUDENT ENTRY MODE: Basic
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34. Find a mathematical model representing the statement. (Determine the constant of proportionality. Round your answer to three decimal places.)

v varies jointly as p and q and inversely as the square of s. ($v = 1.5$ when $p = 6.1$, $q = 6.3$ and $s = 1.3$.)

a. $v = \dfrac{0.066p}{qs^2}$

b. $v = -\dfrac{pq}{0.066s^2}$

c. $v = \dfrac{0.066pq}{s^2}$

d. $v = \dfrac{pq}{0.066s^2}$

e. $v = -\dfrac{0.066pq}{s^2}$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.74
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 5/27/2021 12:40 PM

35. Use the fact that the diameter of the largest particle that can be moved by a stream varies approximately directly as the square of the velocity of the stream.

A stream with a velocity of $\dfrac{1}{5}$ mile per hour can move coarse sand particles about 0.07 inch in diameter.

Approximate the velocity required to carry particles 0.2 inch in diameter. (Round your answer to two decimal places.)

a. About 0.84 mi/h
b. About 0.19 mi/h
c. About –0.16 mi/h
d. About 0.49 mi/h
e. About 0.34 mi/h

ANSWER: e
POINTS: 1
REFERENCES: 3.5.75
QUESTION TYPE: Multi-Mode (Multiple choice)

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Section 1.10 - Mathematical Modeling and Variation

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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36. Use the fact that the resistance of a wire carrying an electrical current is directly proportional to its length and inversely proportional to its cross-sectional area.

If #28 copper wire (which has a diameter of 0.0126 inch) has a resistance of 68.17 ohms per thousand feet, what length of #28 copper wire will produce a resistance of 30.5 ohms?

a. About 447 ft
b. About 442 ft
c. About 432 ft
d. About 452 ft
e. About 462 ft

ANSWER: a
POINTS: 1
REFERENCES: 3.5.77
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 10/23/2014 2:44 AM

37. Use the fact that the resistance of a wire carrying an electrical current is directly proportional to its length and inversely proportional to its cross-sectional area.

A 10-foot piece of copper wire produces a resistance of 0.2 ohm. Use the constant of proportionality $k = 0.000833$ to find the diameter of the wire.

(Round the answer to three decimal places.)

a. 0.23 ft
b. 0.58 ft
c. 0.38 ft
d. 0.48 ft
e. 0.73 ft

ANSWER: a
POINTS: 1
REFERENCES: 3.5.78
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.10 - Mathematical Modeling and Variation

38. The frequency of vibrations of a piano string varies directly as the square root of the tension on the string and inversely as the length of the string. The middle A string has a frequency of 430 vibrations per second. Find the frequency of a string that has 1.25 times as much tension and is 1.4 times as long. (Round the answer to two decimal places.)

a. 373.4 vibrations / sec
b. 343.4 vibrations / sec
c. 353.4 vibrations / sec
d. 383.4 vibrations / sec
e. 363.4 vibrations / sec

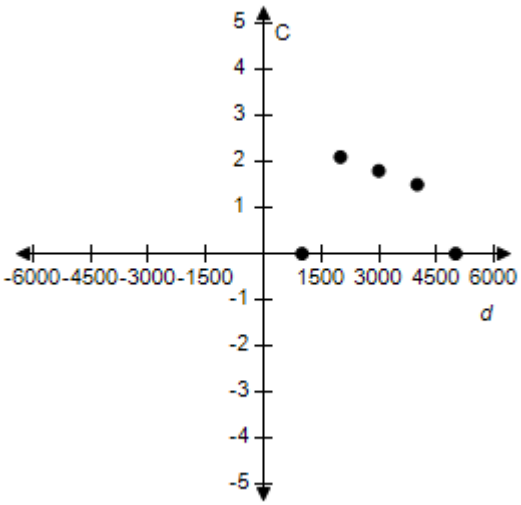
ANSWER: b
POINTS: 1
REFERENCES: 3.5.80
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 5/27/2021 12:52 PM

39. An oceanographer took readings of the water temperatures C (in degrees Celsius) at several depths d (in meters). The data collected are shown in the table.

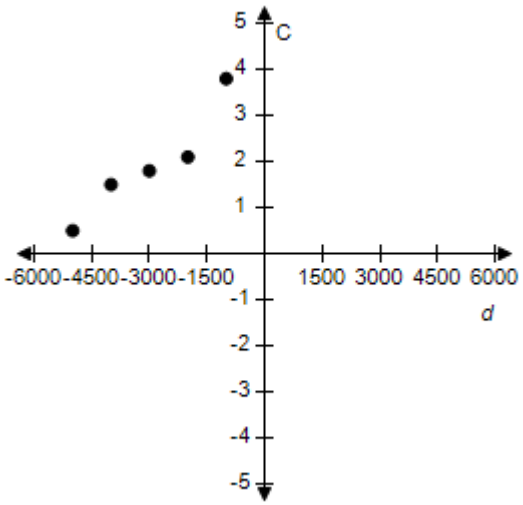
Depth, d	Temperature, C
1000	3.8°
2000	2.1°
3000	1.8°
4000	1.5°
5000	0.5°

Sketch a scatter plot of the data.

a.



b.



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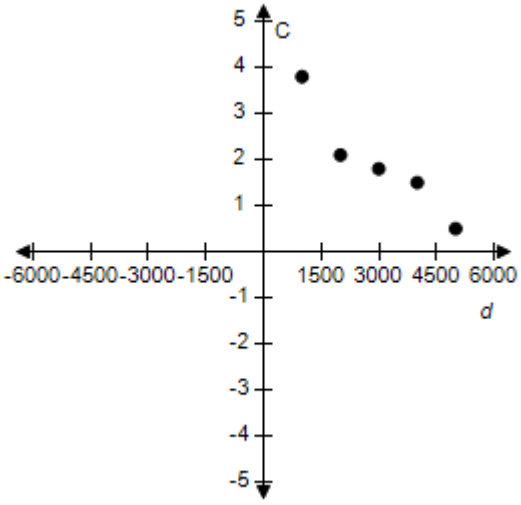
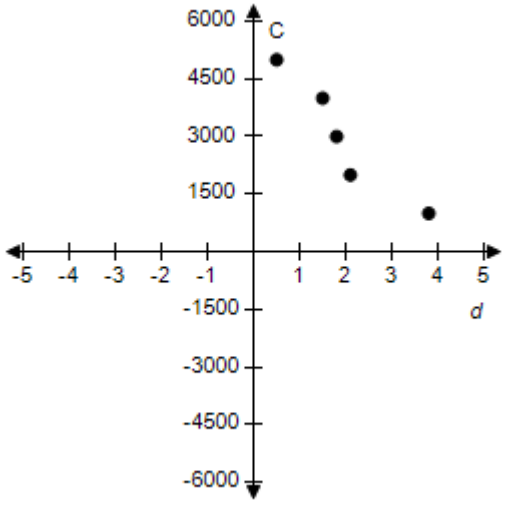
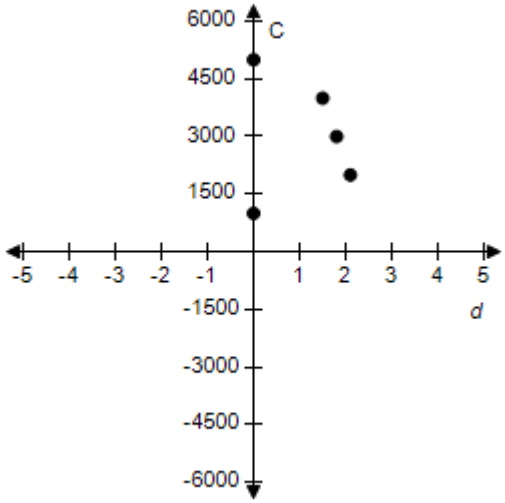
c.



d.



e.



ANSWER: c
POINTS: 1
REFERENCES: 3.5.83a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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40. Determine whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$.

x	13	26	39	52	65
y	3	6	9	12	15

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Section 1.10 - Mathematical Modeling and Variation

a. $y = kx$ b. $y = \frac{k}{x}$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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41. After determining whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$, find the value of k.

x	154	161	168	175	182
y	66	69	72	75	78

a. $k = 7$

b. $k = \frac{7}{3}$

c. $k = \frac{1}{7}$

d. $k = \frac{3}{7}$

e. $k = \frac{7}{66}$

ANSWER: d
POINTS: 1
REFERENCES: 3.5.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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42. After determining whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$, find the value of k.

x	20	40	60	80	100
y	$\frac{1}{30}$	$\frac{1}{60}$	$\frac{1}{90}$	$\frac{1}{120}$	$\frac{1}{150}$

a. $k = \frac{1}{20}$

b. $k = \frac{3}{2}$

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c. $k = \frac{5}{4}$

d. $k = \frac{1}{10}$

e. $k = \frac{2}{3}$

ANSWER: e
POINTS: 1
REFERENCES: 3.5.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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43. Determine whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$.

x	12	24	36	48	60
y	$\frac{1}{18}$	$\frac{1}{36}$	$\frac{1}{54}$	$\frac{1}{72}$	$\frac{1}{90}$

a. $y = kx$ b. $y = \frac{k}{x}$

ANSWER: b
POINTS: 1
REFERENCES: 3.5.34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
DATE MODIFIED: 10/23/2014 12:31 AM

44. Assume that y is directly proportional to x. If $x = 28$ and $y = 21$, determine a linear model that relates y and x.

a. $y = \frac{3}{5}x$

b. $y = \frac{4}{3}x$

c. $y = \frac{3}{4}x$

d. $y = \frac{2}{3}x$

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e. $y = \frac{3}{2}x$

ANSWER: c
POINTS: 1
REFERENCES: 3.5.36
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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45. The simple interest on an investment is directly proportional to the amount of the investment. By investing $6000 in a certain certificate of deposit, you obtained an interest payment of $276.00 after 1 year. Determine a mathematical model that gives the interest, *I*, for this CD after 1 year in terms of the amount invested, *P*.

a. $I = (0.050)P$

b. $I = (0.041)P$

c. $I = (0.049)P$

d. $I = (0.046)P$

e. $I = (0.044)P$

ANSWER: d
POINTS: 1
REFERENCES: 3.5.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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46. The sales tax on an item with a retail price of $972 is $68.04. Create a variational model that gives the retail price, *y,* in terms of the sales tax, *x,* and use it to determine the retail price of an item that has a sales tax of $82.62.

a. $1182.28

b. $1151.92

c. $1180.29

d. $1192.52

e. $1124.60

ANSWER: c
POINTS: 1
REFERENCES: 3.5.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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Section 1.10 - Mathematical Modeling and Variation

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47. Hooke's law states that the magnitude of force, F, required to stretch a spring x units beyond its natural length is directly proportional to x. If a force of 3 pounds stretches a spring from its natural length of 10 inches to a length of 10.7 inches, what force will stretch the spring to a length of 11.5 inches? Round your answer to the nearest hundredth.

a. $F = 5.52$ lb
b. $F = 6.43$ lb
c. $F = 5.70$ lb
d. $F = 7.29$ lb
e. $F = 6.14$ lb

ANSWER: b
POINTS: 1
REFERENCES: 3.5.45b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:21 PM
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48. Find a mathematical model for the verbal statement:

"Q is jointly proportional to the cube of h and the square root of m."

a. $Q = kh^3\sqrt{m}$
b. $Q = k\sqrt{h^3m}$
c. $Q = kh^2\sqrt[3]{m}$
d. $Q = k\sqrt[3]{hm^2}$
e. $Q = k\sqrt[3]{hm}$

ANSWER: a
POINTS: 1
REFERENCES: 3.5.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: False
STUDENT ENTRY MODE: Basic
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49. Find a mathematical model for the verbal statement:
"m varies directly as the square of w and inversely as s."

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Section 1.10 - Mathematical Modeling and Variation

a. $m = k\left(\frac{w}{s}\right)^2$

b. $m = \frac{kw^2}{s}$

c. $m = kw^2s$

d. $m = kws^2$

e. $m = k\left(\frac{s}{w}\right)^2$

ANSWER: b
POINTS: 1
REFERENCES: 3.5.53
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. The electrical resistance, R, of a wire is directly proportional to its length, l, and inversely proportional to the square of its diameter, d. A wire 150 meters long of diameter 5 millimeters has a resistance of 12 ohms. Find the resistance of a wire made of the same material that has a diameter of 2 millimeters and is 24 meters long.

a. $R = 14.5$ ohms
b. $R = 12$ ohms
c. $R = 15.8$ ohms
d. $R = 15.5$ ohms
e. $R = 0.083$ ohms

ANSWER: b
POINTS: 1
REFERENCES: 3.5.77
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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