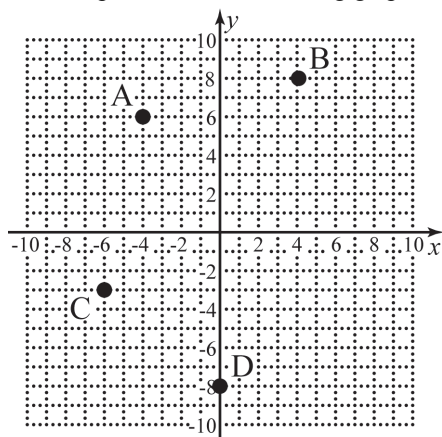


***Precalculus A Right Triangle Approach 4th edition
Ratti Test Bank***

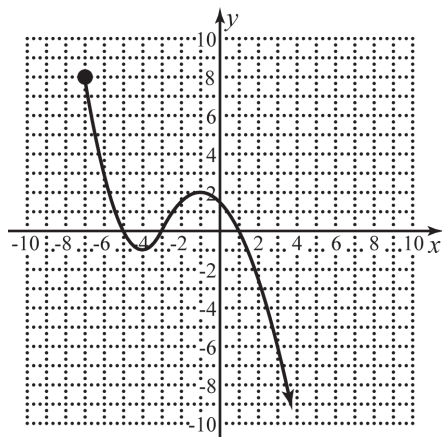
SKU: 9780134851013-TEST-BANK

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between $(-4, 3)$ and $(10, -11)$.

3) _____

- 4) Write the equation of the circle centered at $(-5, 7)$ with a radius of 9.

4) _____

- 5) Find the equation of the line passing through $(5, -3)$ with slope -2 . Write the solution in slope-intercept form.

5) _____

- 6) Find the x - and y -intercepts of $y = x^2 - x - 20$.

6) _____

- 7) Determine the equation of the circle in standard form described by $x^2 - 4x + y^2 + 6y - 36 = 0$.

7) _____

- 8) Find the equation of the line passing through $(-3, 7)$ and $(1, 5)$. Write the solution in slope-intercept form.

8) _____

- 9) Find the domain of $f(x) = \sqrt{x^2 + 2x - 15}$. Write the answer using interval notation.

9) _____

10) Find $f^{-1}(x)$ for $f(x) = 4x - 11$.

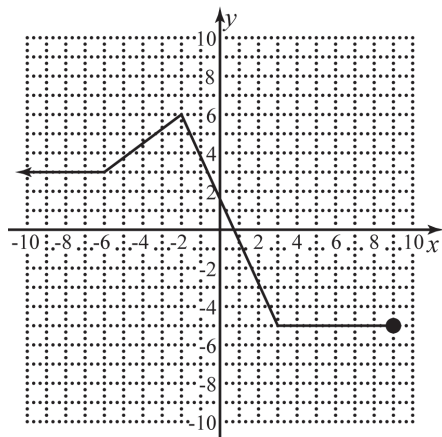
10) _____

11) Find the equation of the line parallel to $-3x + 2y = -5$ passing through $(3, -2)$.

Write the solution in slope-intercept form.

11) _____

- 12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.

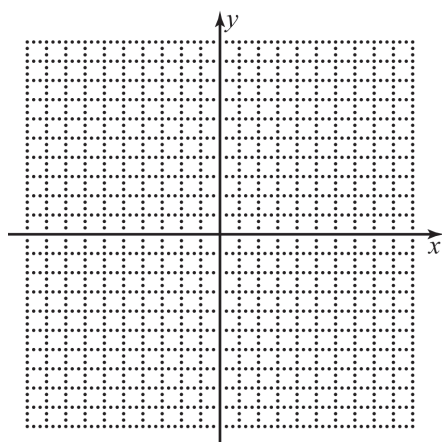


12) _____

13) Determine which symmetries the graph of $x^4 + 3y^2 = 4$ possesses.

13) _____

- 14) For
- $f(x) = -2(x-3)^2 + 9$
- , list the transformations to the basic graph and graph the function.



14) _____

- 15) Find the linear regression equation for the following data. Round the constants to two decimal places.

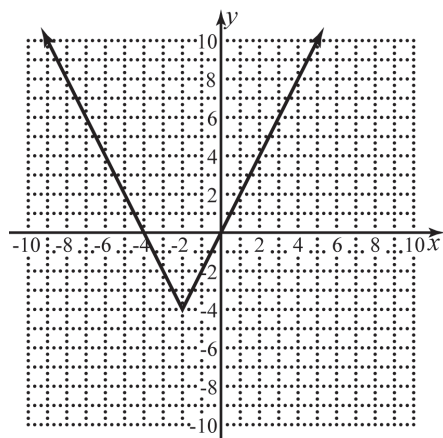
x	2	8	16	18	24	26
y	4	13	18	27	31	34

15) _____

- 16) Given
- $f(x) = 2x^2 - 5$
- and
- $g(x) = \sqrt{x-5}$
- , find
- $(f \circ g)(x)$
- , and determine its domain.

16) _____

- 17) Write the formula for the graph of
- $f(x)$
- below.

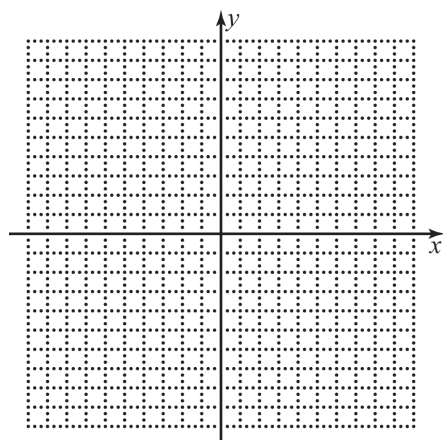


17) _____

- 18) Find the average rate of change of
- $f(x) = x^2 + 9$
- as
- x
- changes from
- $a = -1$
- to
- $b = 5$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x-1 & \text{if } x \leq 3 \\ 5 & \text{if } x > 3 \end{cases}$
- . Find the value of
- $f(-3)$
- ,
- $f(3)$
- , and
- $f(6)$
- .



19) _____

- 20) Find
- $\frac{f(x+h)-f(x)}{h}$
- for
- $f(x) = x^2 + 2x$
- .

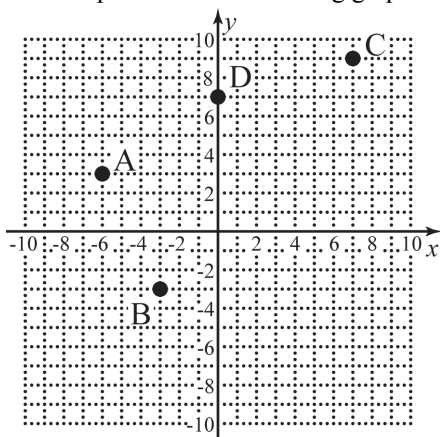
20) _____

- 21) A company that produces toy cars has a monthly a monthly cost of 1500 dollars and a marginal cost of 3 dollars per toy car. The company makes 8 dollars per toy car in revenue.

- Find the function, $C(x)$, that represents the cost of producing x toy cars.
- Find the function, $R(x)$, that represents the revenue from selling x toy cars.
- Find the function, $P(x)$, that represents the profit from selling x toy cars.
- What would the profit be from selling 2500 toy cars?

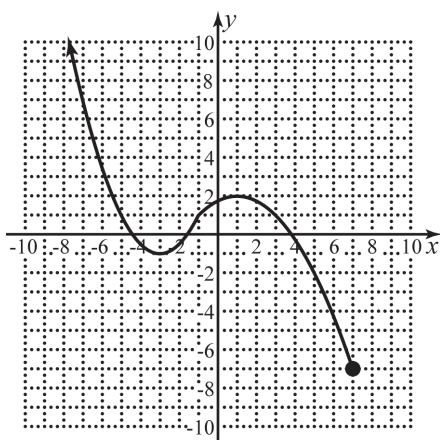
21) _____

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(5, -7)$
- and
- $(1, 1)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(7, -9)$
- with a radius of 6.

4) _____

- 5) Find the equation of the line passing through
- $(-4, 3)$
- with slope 5. Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = \sqrt{5x + 100}$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 + 10x + y^2 - 8y + 5 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(4, 1)$
- and
- $(-1, -3)$
- . Write the solution in slope-intercept form.

8) _____

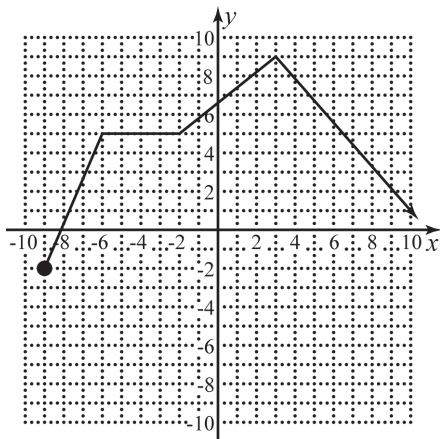
- 9) Find the domain of
- $f(x) = \sqrt{x^2 + 4x - 12}$
- . Write the answer using interval notation.

9) _____

10) Find $f^{-1}(x)$ for $f(x) = 3x - 8$. 10) _____

11) Find the equation of the line perpendicular to $2x + 3y = 7$ passing through $(4, 7)$.
Write the solution in slope-intercept form. 11) _____

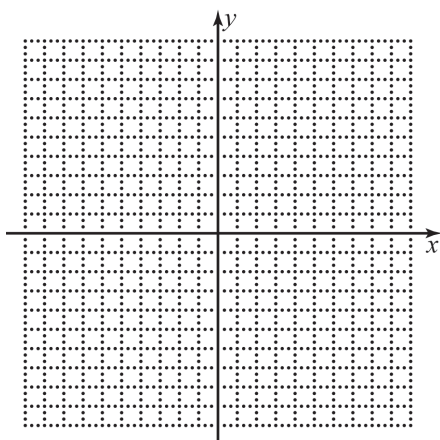
- 12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $y = 5x^2 - x^4$ possesses. 13) _____

- 14) For $f(x) = \frac{1}{2}(x+5)^2 - 4$, list the transformations to the basic graph and graph the function.



14) _____

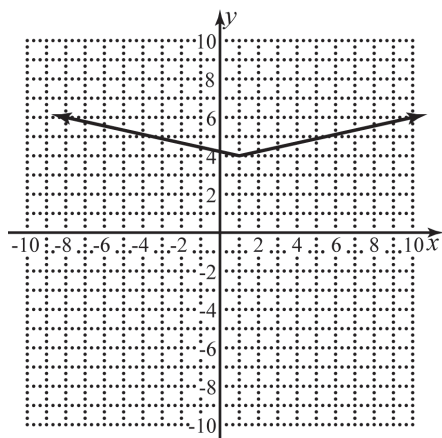
- 15) Find the linear regression equation for the following data. Round the constants to two decimal places.

x	3	5	13	17	26	37
y	9	7	22	18	30	45

15) _____

16) Given $f(x) = \frac{x^2+1}{x^2+7}$ and $g(x) = \sqrt{x+7}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

- 17) Write the formula for the graph of
- $f(x)$
- below.

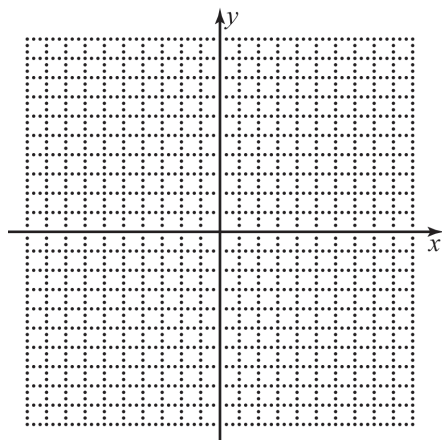


17) _____

- 18) Find the average rate of change of
- $f(x) = -3x^3 - 14$
- as
- x
- changes from
- $a = -1$
- to
- $b = 2$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x+3 & \text{if } x > -2 \\ -3 & \text{if } x \leq -2 \end{cases}$
- . Find the values of
- $f(-4)$
- ,
- $f(-2)$
- , and
- $f(2)$
- .



19) _____

- 20) Find
- $\frac{f(x+h)-f(x)}{h}$
- for
- $f(x) = 3x - 2x^2$
- .

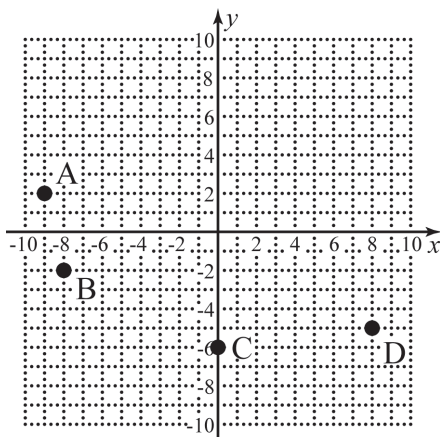
20) _____

- 21) A company that produces toy cars has a monthly a monthly cost of 2000 dollars and a marginal cost of 8 dollars per toy car. The company makes 15 dollars per toy car in revenue.

- Find the function, $C(x)$, that represents the cost of producing x toy cars.
- Find the function, $R(x)$, that represents the revenue from selling x toy cars.
- Find the function, $P(x)$, that represents the profit from selling x toy cars.
- What would the profit be from selling 3250 toy cars?

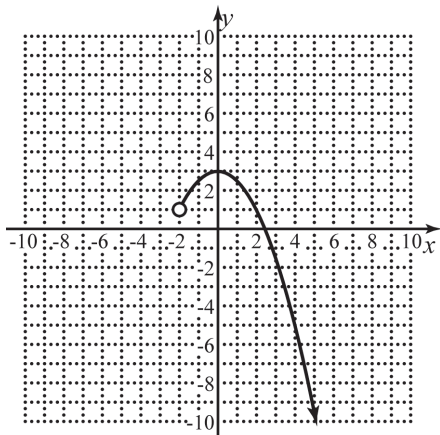
21) _____

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between
- $(8, 5)$
- and
- $(4, -9)$
- .

3) _____

- 4) Write the equation of the circle centered at
- $(-2, 9)$
- with a radius of 3.

4) _____

- 5) Find the equation of the line passing through
- $(1, -2)$
- with slope
- -3
- . Write the solution in slope-intercept form.

5) _____

- 6) Find the
- x
- and
- y
- intercepts of
- $y = \sqrt[5]{2x - 32}$
- .

6) _____

- 7) Determine the equation of the circle in standard form described by
- $x^2 - 6x + y^2 + 10y + 9 = 0$
- .

7) _____

- 8) Find the equation of the line passing through
- $(-2, 1)$
- and
- $(4, -4)$
- . Write the solution in slope-intercept form.

8) _____

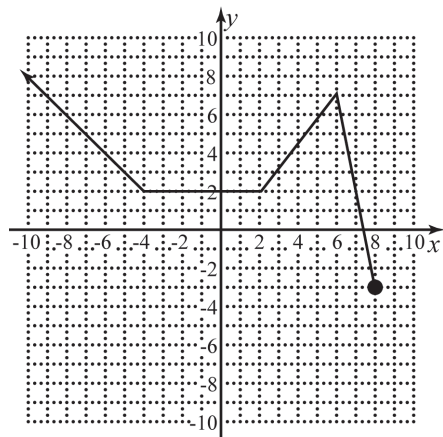
- 9) Find the domain of
- $f(x) = \sqrt{x^2 + 2x - 24}$
- . Write the answer using interval notation.

9) _____

10) Find $f^{-1}(x)$ for $f(x) = 8x - 5$. 10) _____

11) Find the equation of the line parallel to $5x - 3y = 4$ passing through $(-10, 3)$.
Write the solution in slope-intercept form. 11) _____

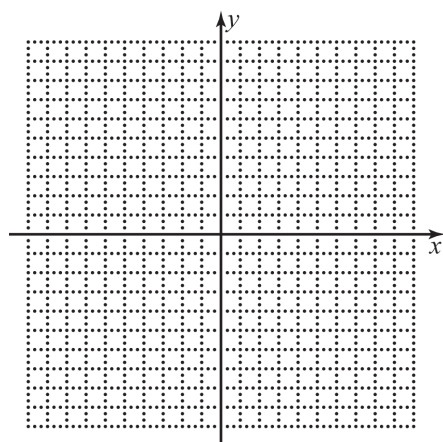
- 12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $x^3y^2 = 4 - 8x$ possesses. 13) _____

- 14) For $f(x) = 3(x+2)^2 - 9$, list the transformations to the basic graph and graph the function.



14) _____

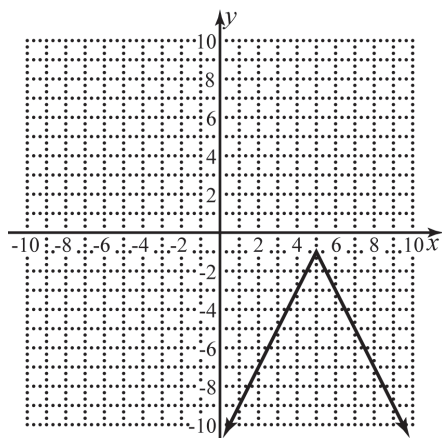
- 15) Find the linear regression equation for the following data. Round the constants to two decimal places.

x	8	10	15	16	22	35
y	11	14	19	19	25	41

15) _____

16) Given $f(x) = 3x^2 + 2$ and $g(x) = \sqrt{7-x}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

- 17) Write the formula for the graph of
- $f(x)$
- below.

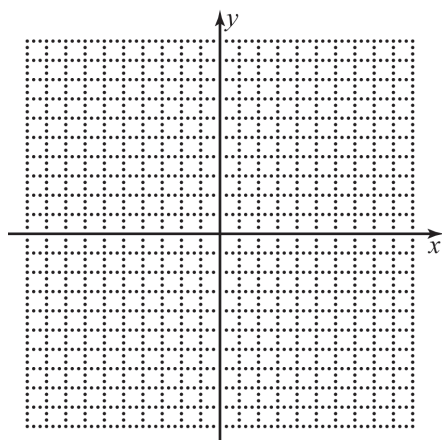


17) _____

- 18) Find the average rate of change of
- $f(x) = 11 - 5x^2$
- as
- x
- changes from
- $a = -3$
- to
- $b = 5$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} 3 & \text{if } x > 4 \\ -x + 1 & \text{if } x \leq 4 \end{cases}$
- . Find the values of
- $f(-4)$
- ,
- $f(4)$
- , and
- $f(8)$
- .



19) _____

- 20) Find
- $\frac{f(x+h)-f(x)}{h}$
- for
- $f(x) = 4x^2 - 7x$
- .

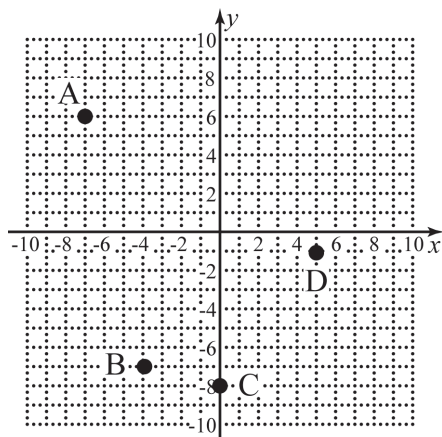
20) _____

- 21) A company that produces toy cars has a monthly cost of 1800 dollars and a marginal cost of 5 dollars per toy car. The company makes 13 dollars per toy car in revenue.

- Find the function, $C(x)$, that represents the cost of producing x toy cars.
- Find the function, $R(x)$, that represents the revenue from selling x toy cars.
- Find the function, $P(x)$, that represents the profit from selling x toy cars.
- What would the profit be from selling 1500 toy cars?

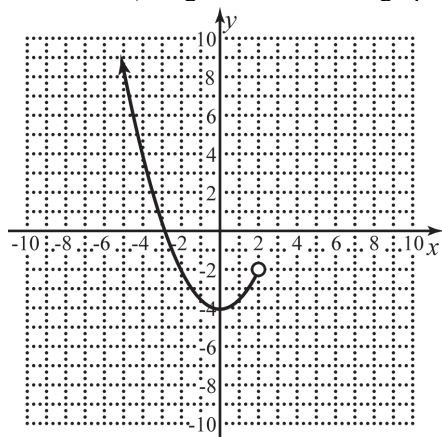
21) _____

- 1) Give the coordinates of the points on the following graph.



1) _____

- 2) Determine the a) domain and b) range of the function graphed below.



2) _____

- 3) Find the distance and midpoint between $(-6, 1)$ and $(4, -9)$.

3) _____

- 4) Write the equation of the circle centered at $(-7, 8)$ with a radius of 11.

4) _____

- 5) Find the equation of the line passing through $(-2, 3)$ with slope 4. Write the solution in slope-intercept form.

5) _____

- 6) Find the x - and y -intercepts of $y = x^3 + 27$.

6) _____

- 7) Determine the equation of the circle in standard form described by $x^2 - 14x + y^2 + 8y + 56 = 0$.

7) _____

- 8) Find the equation of the line passing through $(-1, -2)$ and $(4, 2)$. Write the solution in slope-intercept form.

8) _____

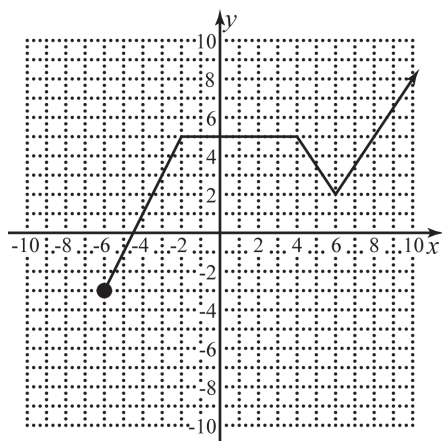
- 9) Find the domain of $f(x) = \sqrt{x^2 - 3x - 10}$. Write the answer using interval notation.

9) _____

10) Find $f^{-1}(x)$ for $f(x) = 11 - 5x$. 10) _____

11) Find the equation of the line perpendicular to $-4x - 3y = 5$ passing through $(-8, 5)$. Write the solution in slope-intercept form. 11) _____

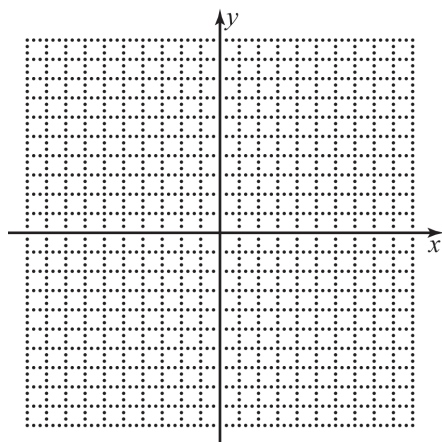
- 12) Given the following graph determine: a) where is the graph increasing, b) where is the graph decreasing, and c) where is the graph constant.



12) _____

13) Determine which symmetries the graph of $y = 2x^5 + 7x^3$ possesses. 13) _____

- 14) For $f(x) = -2(x+5)^2 + 6$, list the transformations to the basic graph and graph the function.



14) _____

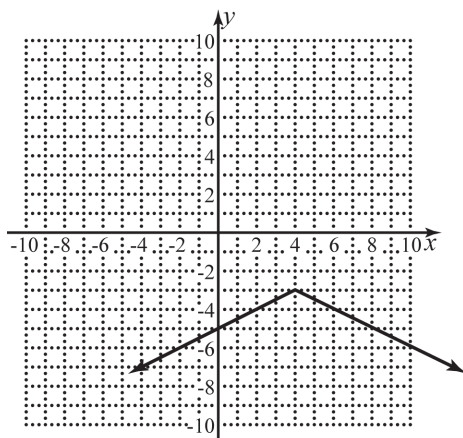
- 15) Find the linear regression equation for the following data. Round the constants to two decimal places.

x	10	18	22	29	30	39
y	19	22	28	30	38	45

15) _____

16) Given $f(x) = \frac{x^2}{x^2 + 3}$ and $g(x) = \sqrt{x-2}$, find $(f \circ g)(x)$, and determine its domain. 16) _____

- 17) Write the formula for the graph of
- $f(x)$
- below.

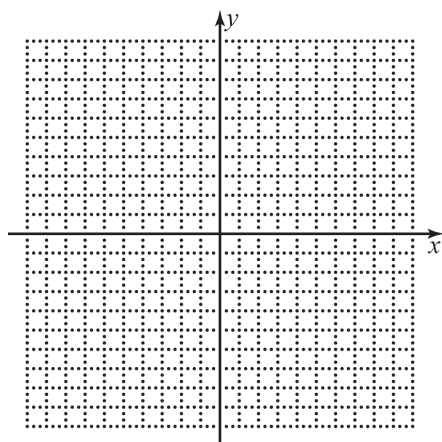


17) _____

- 18) Find the average rate of change of
- $f(x) = -2x^2 - 7$
- as
- x
- changes from
- $a = -5$
- to
- $b = 4$
- .

18) _____

- 19) Graph
- $f(x) = \begin{cases} -x+3 & \text{if } x < 1 \\ -5 & \text{if } x \geq 1 \end{cases}$
- . Find the values of
- $f(-1)$
- ,
- $f(1)$
- , and
- $f(5)$
- .



19) _____

- 20) Find
- $\frac{f(x+h)-f(x)}{h}$
- for
- $f(x) = x^3 + x$
- .

20) _____

- 21) A company that produces toy cars has a monthly cost of 2400 dollars and a marginal cost of 10 dollars per toy car. The company makes 25 dollars per toy car in revenue.

- Find the function, $C(x)$, that represents the cost of producing x toy cars.
- Find the function, $R(x)$, that represents the revenue from selling x toy cars.
- Find the function, $P(x)$, that represents the profit from selling x toy cars.
- What would the profit be from selling 600 toy cars?

21) _____

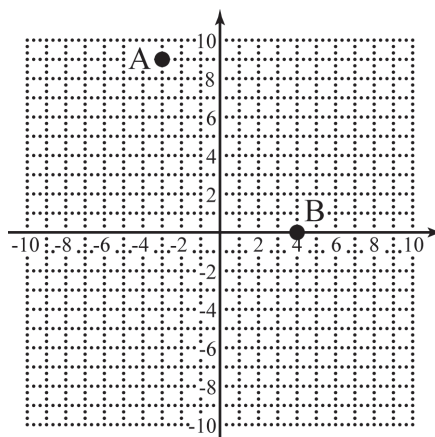
In exercises 1–2, refer to the graph to the right.

1) What are the coordinates of point A?

- a) $(-3, 9)$ b) $(3, -9)$
 c) $(9, -3)$ d) $(-9, 3)$

2) What are the coordinates of point B?

- a) $(-4, 0)$ b) $(4, 0)$
 c) $(0, 4)$ d) $(0, -4)$



1) _____

2) _____

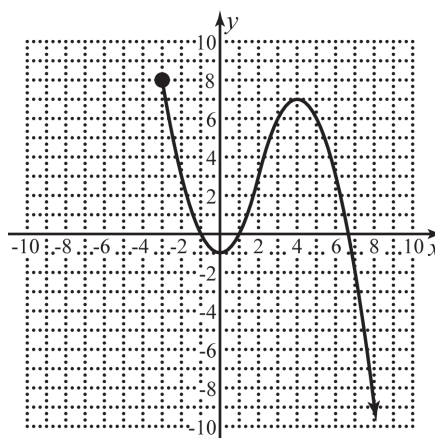
In exercises 3–4, refer to the graph to the right.

3) Determine the domain of the function.

- a) $(-3, \infty)$ b) $[-3, \infty)$
 c) $(-\infty, 8)$ d) $(-\infty, 8]$

4) Determine the range of the function.

- a) $(-3, \infty)$ b) $[-3, \infty)$
 c) $(-\infty, 8)$ d) $(-\infty, 8]$



3) _____

4) _____

In exercises 5–6 use the points $(-2, 3)$ and $(6, -5)$.

5) Find the distance between the points.

- a) $4\sqrt{5}$ b) 4 c) $2\sqrt{13}$ d) $8\sqrt{2}$

6) Find the midpoint between the points.

- a) $(4, -4)$ b) $(2, -1)$ c) $(-4, 4)$ d) $(-2, 1)$

7) Write the equation of the circle centered at $(7, -1)$ with a radius of 2.

- a) $(x+7)^2 + (y-1)^2 = 4$ b) $(x-7)^2 + (y+1)^2 = 4$
 c) $(x+7)^2 + (y-1)^2 = 2$ d) $(x-7)^2 + (y+1)^2 = 2$

8) Find the equation of the line passing through $(-1, 4)$ with slope 3.

- a) $y = 3x + 7$ b) $y = 3x + 4$ c) $y = 3x - 1$ d) $y = 3x - 13$

5) _____

6) _____

7) _____

8) _____

9) Find the coordinates of the x - and y -intercepts of $y = x^2 - x - 42$. 9) _____

- a) $(42, 0), (0, -6), (0, 7)$ b) $(42, 0), (0, -7), (0, 6)$
 c) $(0, -42), (-7, 0), (6, 0)$ d) $(0, -42), (-6, 0), (7, 0)$

10) Determine the equation of the circle described by $x^2 - 8x + y^2 + 10y - 59 = 0$. 10) _____

- a) $(x-8)^2 + (y+10)^2 = 59$ b) $(x-4)^2 + (y+5)^2 = 41$
 c) $(x-4)^2 + (y+5)^2 = 100$ d) $(x-4)^2 + (y+5)^2 = 59$

11) Find the equation of the line passing through $(-4, 3)$ and $(2, 4)$. 11) _____

- a) $y = 6x + 27$ b) $y = -6x - 21$ c) $y = \frac{1}{6}x + \frac{11}{3}$ d) $y = -\frac{1}{6}x + \frac{7}{3}$

12) Find the domain of $f(x) = \sqrt{x^2 + 5x - 14}$. 12) _____

- a) $[-7, 2]$ b) $[-2, 7]$
 c) $(-\infty, -7] \cup [2, \infty)$ d) $(-\infty, -2] \cup [7, \infty)$

13) Given $f(x) = \sqrt[3]{x-27}$, find $f^{-1}(x)$. 13) _____

- a) $f^{-1}(x) = \sqrt[3]{x+27}$ b) $f^{-1}(x) = \frac{1}{\sqrt[3]{x-27}}$
 c) $f^{-1}(x) = x^3 + 27$ d) $f^{-1}(x) = -\sqrt[3]{x-27}$

14) Find the equation of the line parallel to $2x + 5y = 13$ passing through $(5, -3)$. 14) _____

- a) $y = \frac{5}{2}x - \frac{31}{2}$ b) $y = \frac{2}{5}x - 5$ c) $y = -\frac{5}{2}x + \frac{19}{2}$ d) $y = -\frac{2}{5}x - 1$

In exercises 15–17, refer to the graph to the right.

15) When is the graph increasing? 15) _____

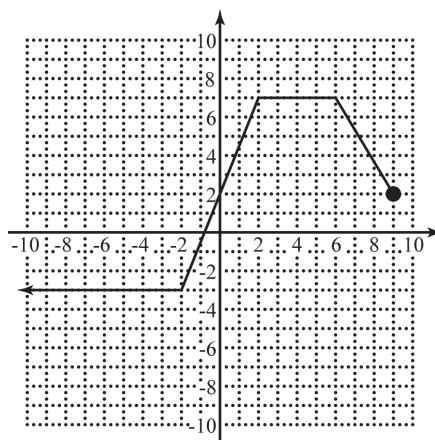
- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) never

16) When is the graph decreasing? 16) _____

- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) never

17) When is the graph constant? 17) _____

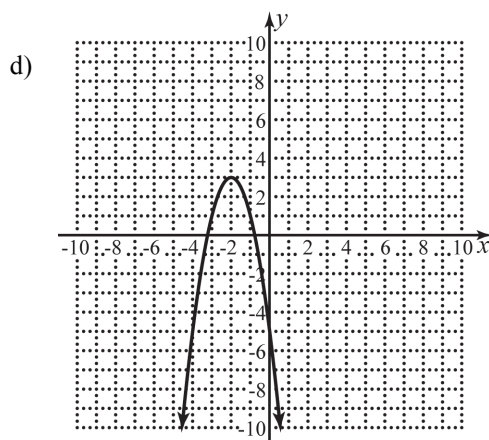
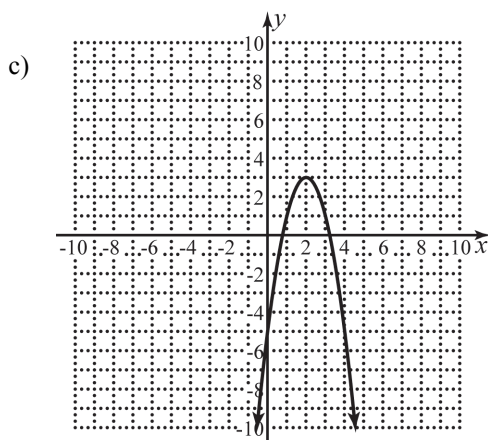
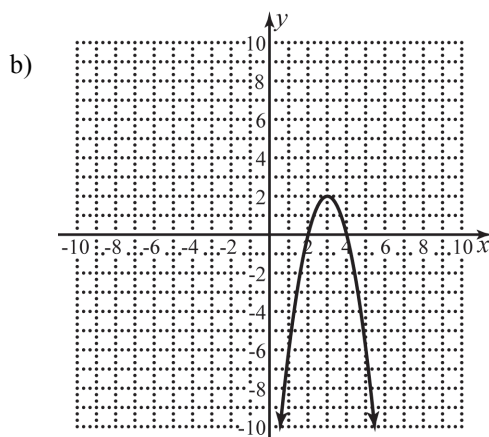
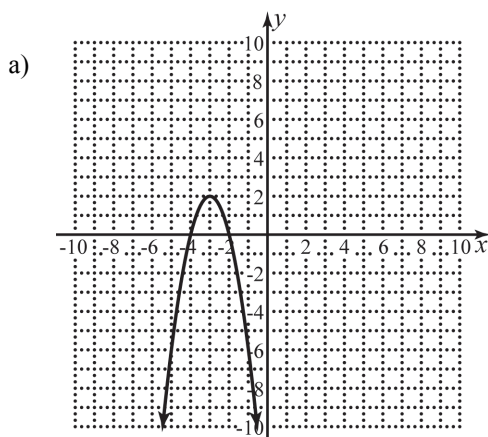
- a) $(-2, 2)$ b) $(6, 9)$
 c) $(-\infty, -2) \cup (2, 6)$ d) never

18) Determine which symmetries the graph of $xy^2 + x^3 = xy^4$ possesses. 18) _____

- a) x -axis b) y -axis c) origin d) all

19) Graph $f(x) = -2(x-3)^2 + 2$.

19) _____

20) Which of the following is not a transformation of the basic function in $g(x) = \frac{1}{2}(x+3)^2 - 1$?

20) _____

- a) vertical shift of 1 down
c) vertical stretch of $\frac{1}{2}$

- b) vertical reflection
d) horizontal shift of 3 to the left

21) Find the linear regression equation for the following data.

21) _____

x	19	23	29	30	37	38
y	24	32	30	38	44	41

a) $y = 0.92x - 2.59$

b) $y = 8.00x + 0.91$

c) $y = -2.59x + 0.92$

d) $y = 0.91x + 8.02$

22) Given $f(x) = 7x^2 + 4$ and $g(x) = \sqrt{8-x}$, find $(f \circ g)(x)$ and determine its domain.

22) _____

a) $\sqrt{4-7x^2}; (-\infty, \infty)$

b) $\sqrt{4-7x^2}; (-\infty, 8]$

c) $60-7x; (-\infty, 8]$

d) $60-7x; [8, \infty)$

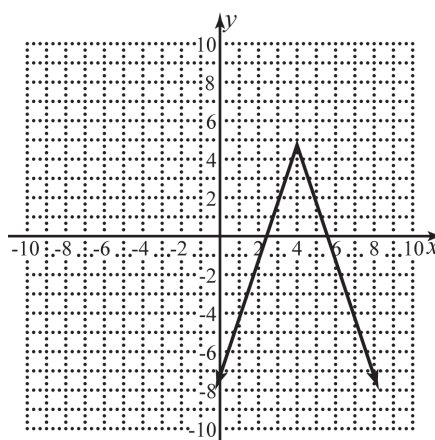
23) Write the formula for the function graphed to the right.

a) $f(x) = -3|x+4|+5$

b) $f(x) = \frac{1}{3}|x-4|+5$

c) $f(x) = -2|x-4|+5$

d) $f(x) = -3|x-4|+5$



23) _____

24) Find the average rate of change of $f(x) = x^2 - 2x$ as x changes from $a = -4$ to $b = 3$.

a) $27/7$

b) $-5/7$

c) -3

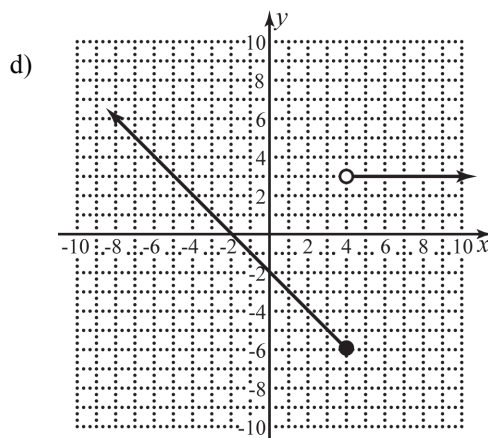
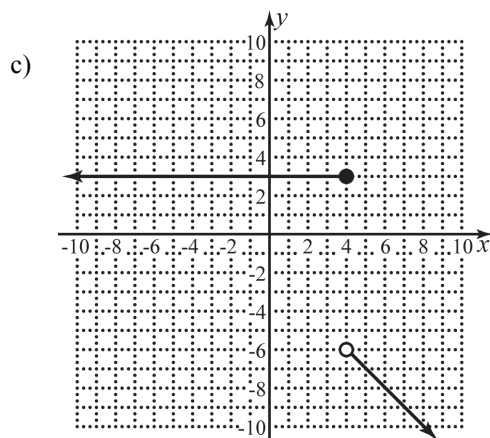
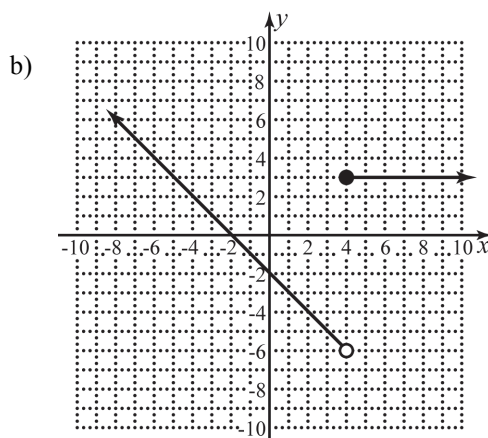
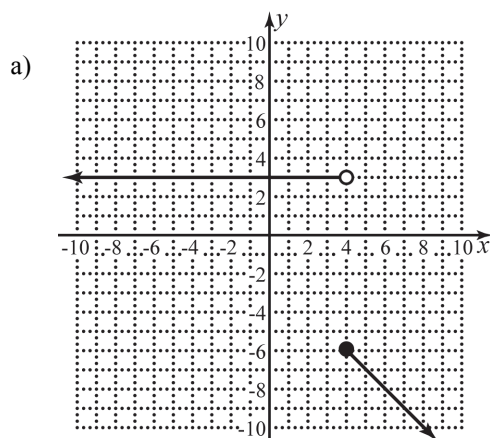
d) 21

24) _____

In exercises 25–27, use $f(x) = \begin{cases} -x-2 & \text{if } x \leq 4 \\ 3 & \text{if } x > 4 \end{cases}$.

25) Graph $f(x)$.

25) _____



26) Determine the value of $f(4)$. 26) _____

- a) 3 b) -6 c) 2 d) -1

27) Determine the value of $f(-7)$. 27) _____

- a) 5 b) -9 c) 3 d) -5

28) Find $\frac{f(x+h)-f(x)}{h}$ for $f(x) = x^3 - x$. 28) _____

- a)
- $h^2 - 1$
- b)
- $h^2 + 3hx + 3x^2 - 1$
-
- c)
- $h^2 + 3hx + 3x^2 + 1$
- d)
- $3x^2 - 1$

A company that produces toy cars has a monthly a monthly cost of 2300 dollars and a marginal cost of 4 dollars per toy car. The company makes 11 dollars per toy car in revenue. With this information, answer exercises 29–32.

29) Find the function, $C(x)$, that represents the total cost of producing x toy cars. 29) _____

- a)
- $C(x) = 4x$
- b)
- $C(x) = 11x + 2300$
-
- c)
- $C(x) = 4x + 2300$
- d)
- $C(x) = 2300x + 4$

30) Find the function, $R(x)$, that represents the revenue from selling x toy cars. 30) _____

- a)
- $R(x) = 11x - 2300$
- b)
- $R(x) = 11x$
-
- c)
- $R(x) = 4x$
- d)
- $R(x) = 7x$

31) Find the function, $P(x)$, that represents the profit from selling x toy cars. 31) _____

- a)
- $P(x) = 11x - 2300$
- b)
- $P(x) = 7x - 2300$
-
- c)
- $P(x) = 7x$
- d)
- $P(x) = 2300 - 7x$

32) What would the profit be from selling 1150 toy cars? 32) _____

- a) \$8050 b) -\$5750 c) \$10,350 d) \$5750

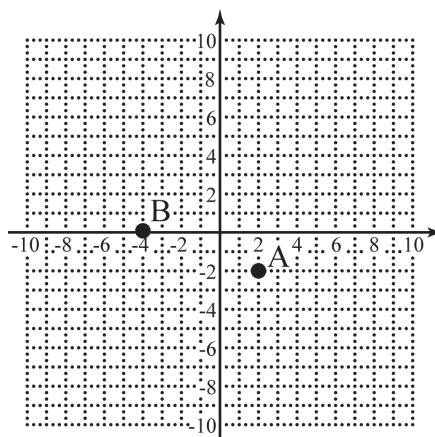
In exercises 1–2, refer to the graph to the right.

1) What are the coordinates of point A?

- a) $(2, -2)$ b) $(-2, 2)$
 c) $(-2, -2)$ d) $(2, 2)$

2) What are the coordinates of point B?

- a) $(-4, 0)$ b) $(4, 0)$
 c) $(0, 4)$ d) $(0, -4)$



1) _____

2) _____

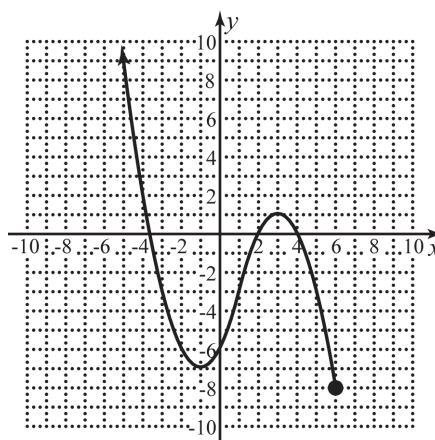
In exercises 3–4, refer to the graph to the right.

3) Determine the domain of the function.

- a) $(-\infty, 6]$ b) $(-\infty, 6)$
 c) $[-8, \infty)$ d) $(-8, \infty)$

4) Determine the range of the function.

- a) $(-\infty, 6]$ b) $(-\infty, 6)$
 c) $[-8, \infty)$ d) $(-8, \infty)$



3) _____

4) _____

In exercises 5–6, use the points $(4, -4)$ and $(-8, 10)$.

5) Find the distance between the points.

- a) $2\sqrt{85}$ b) $2\sqrt{13}$ c) $\sqrt{26}$ d) $2\sqrt{10}$

6) Find the midpoint between the points.

- a) $(-2, 3)$ b) $(6, -7)$ c) $(-7, 6)$ d) $(2, -3)$

7) Write the equation of the circle centered at $(-5, 2)$ with a radius of 5.

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

8) Find the equation of the line passing through $(-5, 4)$ with slope -3 .

- a) $y = -3x + 17$ b) $y = -3x - 1$ c) $y = -3x + 4$ d) $y = -3x - 11$

5) _____

6) _____

7) _____

8) _____

9) Find the coordinates of the x- and y-intercepts of $y = \sqrt[3]{9x+216}$. 9) _____

- a)
- $(24,0), (0,6)$
- b)
- $(-24,0), (0,6)$
- c)
- $(0,24), (6,0)$
- d)
- $(0,-24), (6,0)$

10) Determine the equation of the circle described by $x^2 + 6x + y^2 - 8y - 56 = 0$. 10) _____

- a)
- $(x+6)^2 + (y-8)^2 = 56$
- b)
- $(x+3)^2 + (y-4)^2 = 81$
-
- c)
- $(x+3)^2 + (y-4)^2 = 25$
- d)
- $(x+3)^2 + (y-4)^2 = 56$

11) Find the equation of the line passing through $(-3, -2)$ and $(2, 5)$. 11) _____

- a)
- $y = -\frac{7}{5}x + \frac{39}{5}$
- b)
- $y = \frac{7}{5}x + \frac{11}{5}$
- c)
- $y = -\frac{5}{7}x + \frac{45}{7}$
- d)
- $y = \frac{5}{7}x - \frac{25}{7}$

12) Find the domain of $f(x) = \sqrt{x^2 - 5x - 24}$. Write your answer using interval notation. 12) _____

- a)
- $[-8, 3]$
- b)
- $[-3, 8]$
-
- c)
- $(-\infty, -8] \cup [3, \infty)$
- d)
- $(-\infty, -3] \cup [8, \infty)$

13) Given $f(x) = \frac{4}{x-5}$, find $f^{-1}(x)$. 13) _____

- a)
- $f^{-1}(x) = \frac{5x+4}{x}$
- b)
- $f^{-1}(x) = \frac{x-5}{4}$
-
- c)
- $f^{-1}(x) = -\frac{4}{x-5}$
- d)
- $f^{-1}(x) = \frac{4}{x+5}$

14) Find the equation of the line perpendicular to $-4x + 3y = 11$ passing through $(6, 5)$. 14) _____

- a)
- $y = -\frac{3}{4}x + \frac{19}{2}$
- b)
- $y = \frac{3}{4}x + \frac{1}{2}$
- c)
- $y = -\frac{1}{4}x + \frac{13}{2}$
- d)
- $y = \frac{1}{4}x + \frac{7}{2}$

In exercises 15–17, refer to the graph to the right.

15) When is the graph increasing? 15) _____

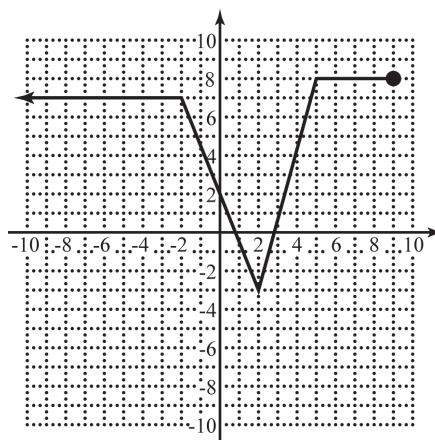
- a)
- $(-\infty, -2) \cup (5, 9)$
- b)
- $(2, 5)$
-
- c)
- $(-2, 2)$
- d) never

16) When is the graph decreasing? 16) _____

- a)
- $(-\infty, -2) \cup (5, 9)$
- b)
- $(2, 5)$
-
- c)
- $(-2, 2)$
- d) never

17) When is the graph constant? 17) _____

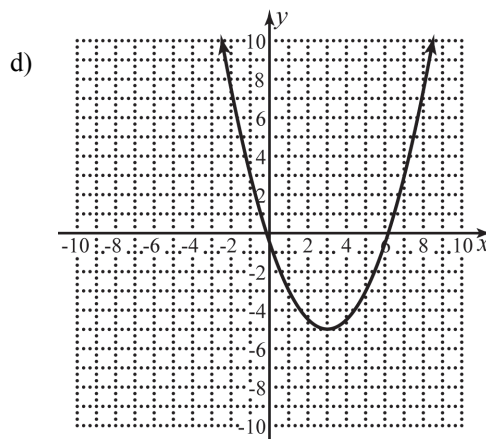
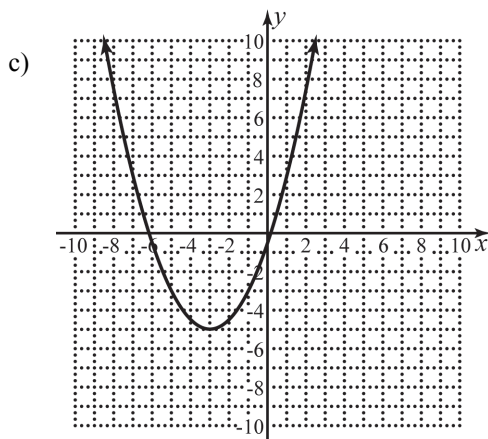
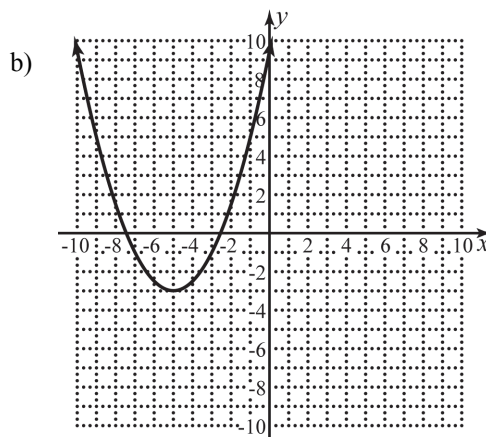
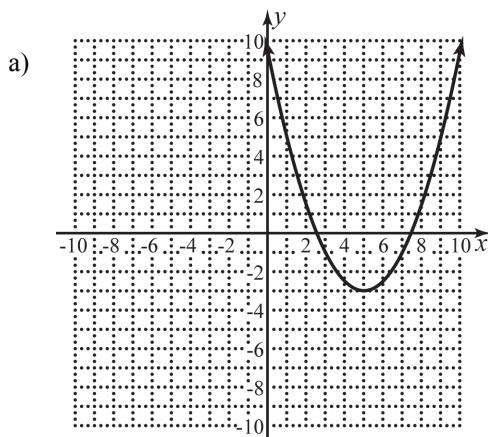
- a)
- $(-\infty, -2) \cup (5, 9)$
- b)
- $(2, 5)$
-
- c)
- $(-2, 2)$
- d) never

18) Determine which symmetries the graph of $x^2y^2 - y^4 = x$ possesses. 18) _____

- a) x-axis b) y-axis c) origin d) all

19) Graph $f(x) = \frac{1}{2}(x+3)^2 - 5$.

19) _____



20) Which of the following is not a transformation of the basic function in $g(x) = -3(x-2)^2 + 7$?

20) _____

- a) vertical stretch of $\frac{1}{3}$ b) vertical reflection
c) horizontal shift of 2 to the right d) vertical shift of 7 up

21) Find the linear regression equation for the following data.

21) _____

x	10	14	16	17	25	35
y	16	23	22	20	32	39

- a) $y = 0.92x + 7.48$ b) $y = -6.65x + 1.03$
c) $y = 7.48x + 0.92$ d) $y = 1.03x - 6.65$

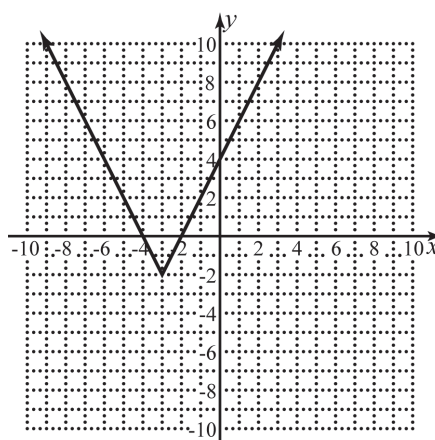
22) Given $f(x) = \frac{x^2 - 3}{x^2 + 2}$ and $g(x) = \sqrt{x+3}$, find $(f \circ g)(x)$ and determine its domain.

22) _____

- a) $\sqrt{\frac{4x^2 + 3}{x^2 + 2}}$; $(-\infty, \infty)$ b) $\sqrt{\frac{4x^2 + 3}{x^2 + 2}}$; $[-3, \infty)$
c) $\frac{x}{x+5}$; $(-\infty, -3]$ d) $\frac{x}{x+5}$; $[-3, \infty)$

- 23) Write the formula for the function graphed to the right.

- a) $f(x) = -2|x+3| - 2$
 b) $f(x) = 2|x+3| - 2$
 c) $f(x) = \frac{1}{2}|x+3| - 2$
 d) $f(x) = 2|x-3| - 2$



23) _____

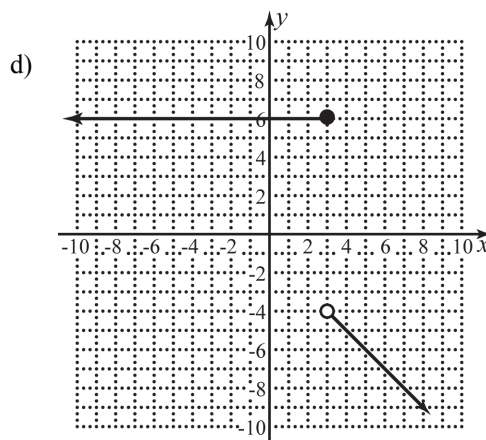
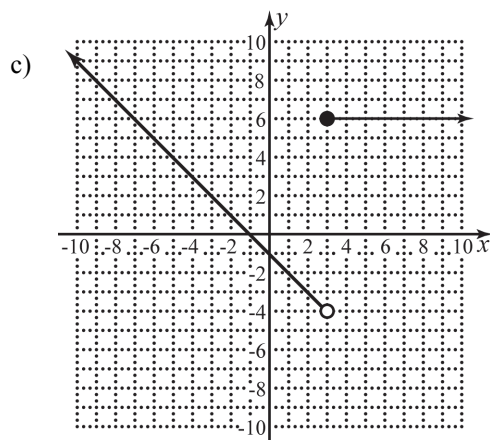
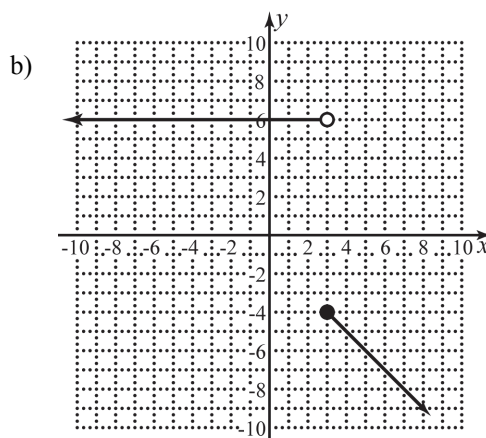
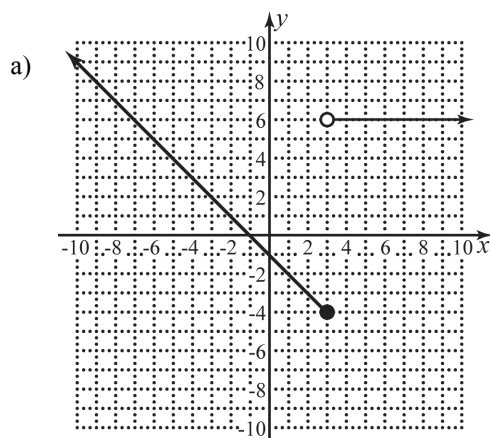
- 24) Find the average rate of change of $f(x) = x^3 + 8x$ as x changes from $a = -2$ to $b = 1$.

- a) -33 b) $1/3$ c) -5 d) 11

In exercises 25–27, use $f(x) = \begin{cases} -x-1 & \text{if } x \geq 3 \\ 6 & \text{if } x < 3 \end{cases}$.

- 25) Graph $f(x)$.

25) _____



26) Determine the value of $f(3)$. 26) _____

- a) 6 b) -4 c) 2 d) -2

27) Determine the value of $f(8)$. 27) _____

- a) -9 b) 7 c) 6 d) 2

28) Find $\frac{f(x+h)-f(x)}{h}$ for $f(x) = 2x^2 - 3x$. 28) _____

- a)
- $2h + 3$
- b)
- $4x - 1$
- c)
- $2h + 4x - 3$
- d)
- $2h + 4x + 3$

A company that produces toy cars has a monthly a monthly cost of 3300 dollars and a marginal cost of 14 dollars per toy car. The company makes 32 dollars per toy car in revenue. With this information, answer exercises 29–32.

29) Find the function, $C(x)$, that represents the total cost of producing x toy cars. 29) _____

- a)
- $C(x) = 14x$
- b)
- $C(x) = 32x + 3300$
-
- c)
- $C(x) = 3300x + 14$
- d)
- $C(x) = 14x + 3300$

30) Find the function, $R(x)$, that represents the revenue from selling x toy cars. 30) _____

- a)
- $R(x) = 32x - 3300$
- b)
- $R(x) = 18x$
-
- c)
- $R(x) = 32x$
- d)
- $R(x) = 14x$

31) Find the function, $P(x)$, that represents the profit from selling x toy cars. 31) _____

- a)
- $P(x) = 32x - 3300$
- b)
- $P(x) = 3300 - 18x$
-
- c)
- $P(x) = 18x - 3300$
- d)
- $P(x) = 18x$

32) What would the profit be from selling 750 toy cars? 32) _____

- a) \$10,200 b) \$20,700 c) \$13,500 d) -\$10,200

Form A

1) A) $(-4, 6)$; B) $(4, 8)$; C) $(-6, -3)$; D) $(0, -8)$

2) a) $[-7, \infty)$ b) $(-\infty, 8]$

3) Distance: $14\sqrt{2}$; Midpoint: $(3, -4)$

4) $(x+5)^2 + (y-7)^2 = 9^2$ or
 $(x+5)^2 + (y-7)^2 = 81$

5) $y = -2x + 7$

6) $(-4, 0), (5, 0), (0, -20)$

7) $(x-2)^2 + (y+3)^2 = 49$

8) $y = -\frac{1}{2}x + \frac{11}{2}$

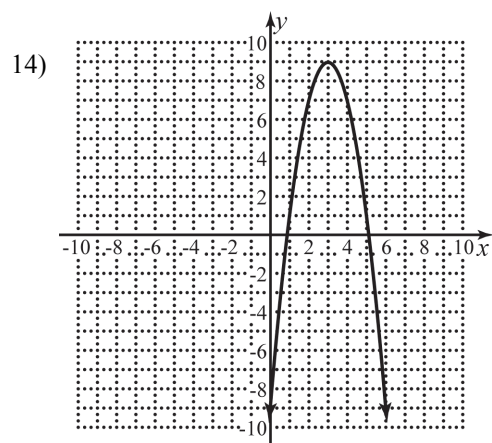
9) $(-\infty, -5] \cup [3, \infty)$

10) $f^{-1}(x) = \frac{x+11}{4}$

11) $y = \frac{3}{2}x - \frac{13}{2}$

12) a) $(-6, -2)$; b) $(-2, 3)$; c) $(-\infty, -6) \cup (3, 9)$

13) x-axis, y-axis, origin



Horizontal Shift: Right 3

Vertical Shift: Up 9

Vertical Stretch: 2

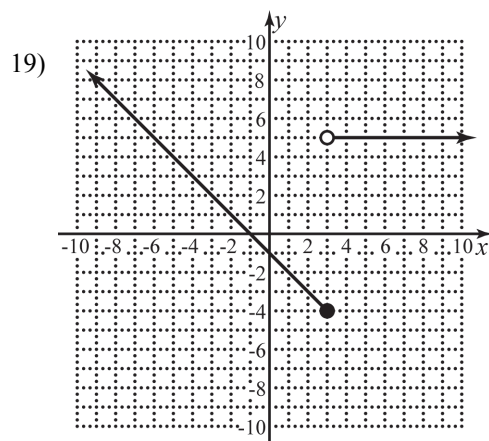
Vertical Reflection: Yes

15) $y = 1.23x + 1.94$

16) $(f \circ g)(x) = 2x - 15$; $[5, \infty)$

17) $f(x) = 2|x+2| - 4$

18) 4



$f(-3) = 2, f(3) = -4, f(6) = 5$

20) $2x + 2 = h$

21) a) $C(x) = 3x + 1500$

b) $R(x) = 8x$

c) $P(x) = 5x - 1500$

d) \$11,000

Form B

1) A) $(-6, 3)$; B) $(-3, -3)$; C) $(7, 9)$; D) $(0, 7)$

2) a) $(-\infty, 7]$ b) $[-7, \infty)$

3) Distance: $4\sqrt{5}$; Midpoint: $(3, -3)$

4) $(x-7)^2 + (y+9)^2 = 6^2$ or
 $(x-7)^2 + (y+9)^2 = 36$

5) $y = 5x + 23$

6) $(-20, 0), (0, 10)$

7) $(x+5)^2 + (y-4)^2 = 36$

8) $y = \frac{4}{5}x - \frac{11}{5}$

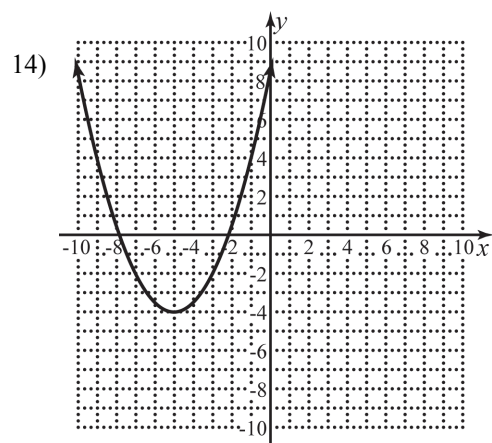
9) $(-\infty, -6] \cup [2, \infty)$

10) $f^{-1}(x) = \frac{x+8}{3}$

11) $y = \frac{3}{2}x + 1$

12) a) $(-9, -6) \cup (-2, 3)$; b) $(3, \infty)$; c) $(-6, -2)$

13) y -axis



Horizontal Shift: Left 5

Vertical Shift: Down 4

Vertical Stretch: $\frac{1}{2}$

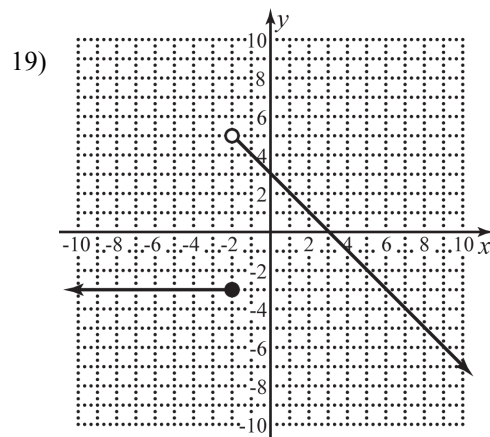
Vertical Reflection: No

15) $y = 1.07x + 3.85$

16) $(f \circ g)(x) = \frac{x+8}{x+14}; [-7, \infty)$

17) $f(x) = \frac{1}{5}|x-1| + 4$

18) -9



$f(-4) = -3, f(-2) = -3, f(2) = 1$

20) $-4x + 3 - 2h$

21) a) $C(x) = 8x + 2000$

b) $R(x) = 15x$

c) $P(x) = 7x - 2000$

d) \$20,750

Form C

1) A) $(-9, 2)$; B) $(-8, -2)$; C) $(0, -6)$; D) $(8, -5)$

2) a) $(-2, \infty)$ b) $(-\infty, 3]$

3) Distance: $2\sqrt{53}$; Midpoint: $(6, -2)$

4) $(x+2)^2 + (y-9)^2 = 3^2$ or
 $(x+2)^2 + (y-9)^2 = 9$

5) $y = -3x + 1$

6) $(16, 0), (0, -2)$

7) $(x-3)^2 + (y+5)^2 = 25$

8) $y = -\frac{5}{6}x - \frac{2}{3}$

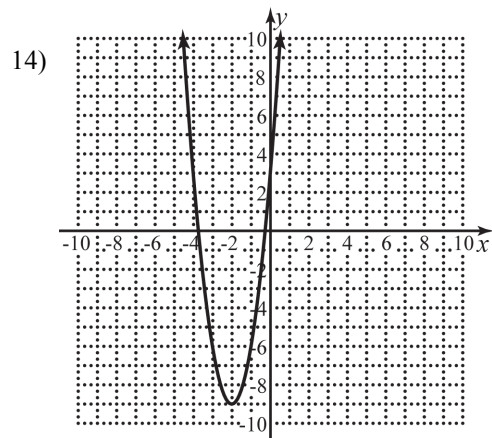
9) $(-\infty, -6] \cup [4, \infty)$

10) $f^{-1}(x) = \frac{x+5}{8}$

11) $y = \frac{5}{3}x + \frac{59}{3}$

12) a) $(2, 6)$; b) $(-\infty, -4) \cup (6, 8)$; c) $(-4, 2)$

13) x -axis



Horizontal Shift: Left 2

Vertical Shift: Down 9

Vertical Stretch: 3

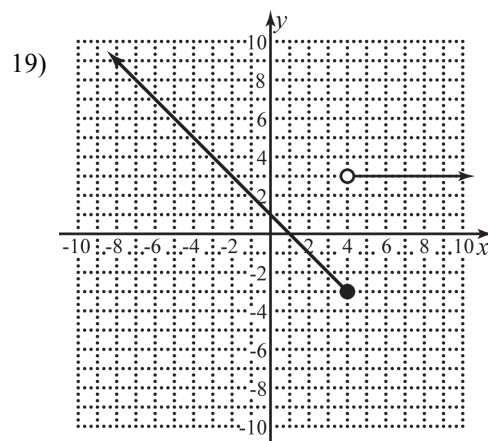
Vertical Reflection: No

15) $y = 1.09x + 2.30$

16) $(f \circ g)(x) = 23 - 3x$; $(-\infty, 7]$

17) $f(x) = -2|x - 5| - 1$

18) -10



$f(-4) = 5, f(4) = -3, f(8) = 3$

20) $8x - 7 + 4h$

21) a) $C(x) = 5x + 1800$

b) $R(x) = 13x$

c) $P(x) = 8x - 1800$

d) \$10,200

Form D

1) A) $(-7, 6)$; B) $(-4, -7)$; C) $(0, -8)$; D) $(5, -1)$

2) a) $(-\infty, -2)$ b) $[-4, \infty)$

3) Distance: $10\sqrt{2}$; Midpoint: $(-1, -4)$

4) $(x+7)^2 + (y-8)^2 = 11^2$ or
 $(x+7)^2 + (y-8)^2 = 121$

5) $y = 4x + 11$

6) $(-3, 0), (0, 27)$

7) $(x-7)^2 + (y+4)^2 = 9$

8) $y = \frac{4}{5}x - \frac{6}{5}$

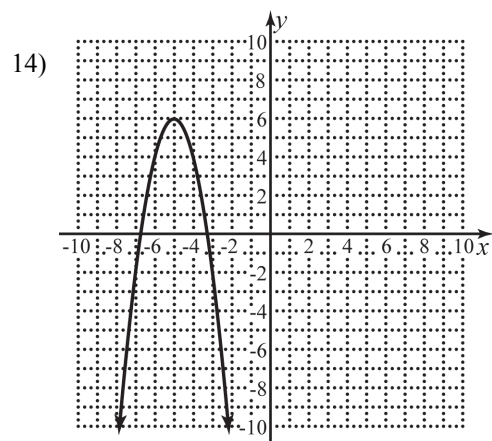
9) $(-\infty, -2] \cup [5, \infty)$

10) $f^{-1}(x) = \frac{11-x}{5}$

11) $y = \frac{3}{4}x + 11$

12) a) $(-6, -2) \cup (6, \infty)$; b) $(4, 6)$; c) $(-2, 4)$

13) origin



Horizontal Shift: Left 5;

Vertical Shift: Up 6

Vertical Stretch: 2

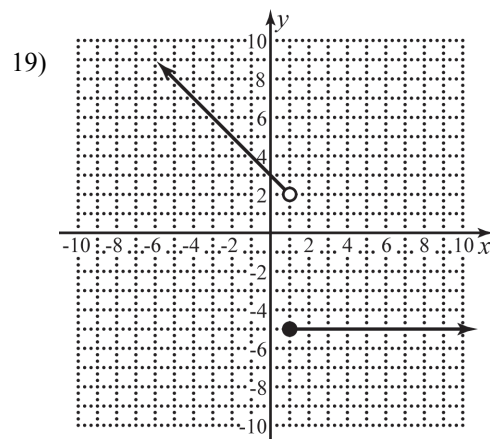
Vertical Reflection: Yes

15) $y = 0.92x + 7.65$

16) $(f \circ g)(x) = \frac{x-2}{x+1}; [2, \infty)$

17) $f(x) = -\frac{1}{2}|x-4| - 3$

18) 2



$f(-1) = 4, f(1) = -5, f(5) = -5$

20) $3x^2 + 1 + 3hx + h^2$

21) a) $C(x) = 10x + 2400$

b) $R(x) = 25x$

c) $P(x) = 15x - 2400$

d) \$6600

Form E

- | | |
|-------|-------|
| 1) A | 17) C |
| 2) B | 18) D |
| 3) B | 19) B |
| 4) D | 20) B |
| 5) D | 21) D |
| 6) B | 22) C |
| 7) B | 23) D |
| 8) A | 24) C |
| 9) D | 25) D |
| 10) C | 26) B |
| 11) C | 27) A |
| 12) C | 28) B |
| 13) C | 29) C |
| 14) D | 30) B |
| 15) A | 31) B |
| 16) B | 32) D |

Form F

- | | |
|-------|-------|
| 1) A | 17) A |
| 2) A | 18) A |
| 3) A | 19) C |
| 4) C | 20) A |
| 5) A | 21) A |
| 6) A | 22) D |
| 7) D | 23) B |
| 8) D | 24) D |
| 9) B | 25) B |
| 10) B | 26) B |
| 11) B | 27) A |
| 12) D | 28) C |
| 13) A | 29) D |
| 14) A | 30) C |
| 15) B | 31) C |
| 16) C | 32) A |