Intermediate Algebra 13th edition Bittinger Test Bank

SKU: 9780134707365-TEST-BANK

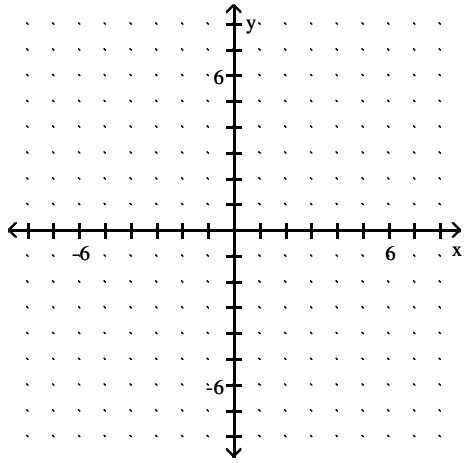
Exam

Name_____

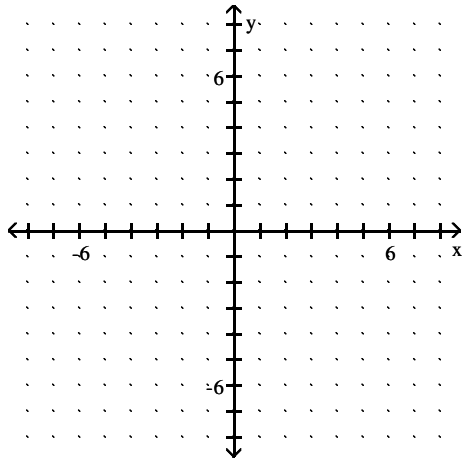
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Plot the ordered pairs on the rectangular coordinate system provided.

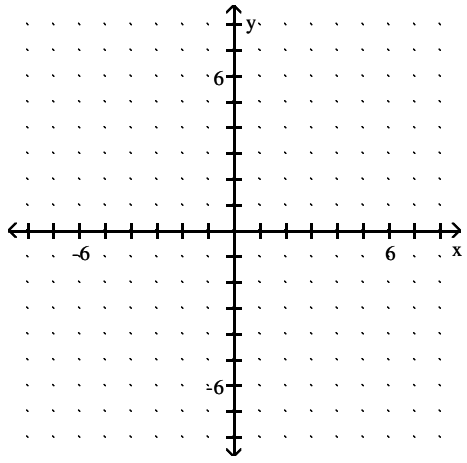
1) A(2, 2), B(–3, 1) 1) _____



2) A(5, –3), B(–2, 2) 2) _____



3) A(–6, –2), B(–3, 4) 3) _____



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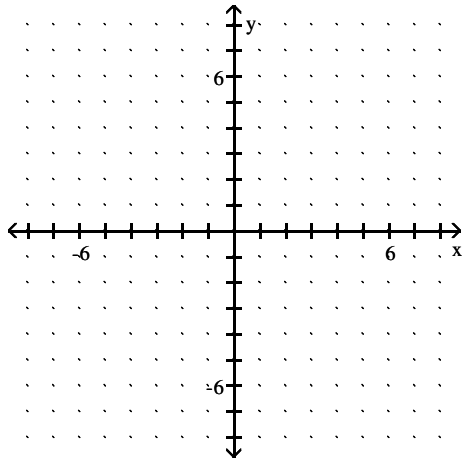
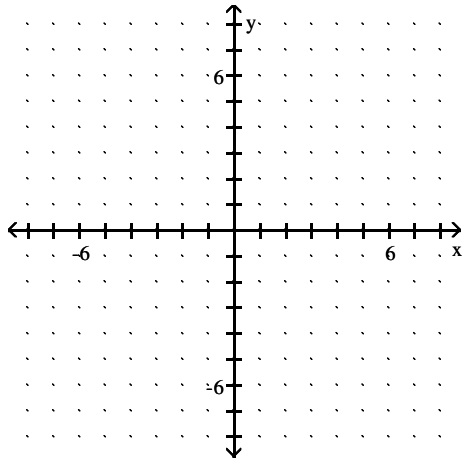
4) A(4, 5), B(1, –3)

4) _____



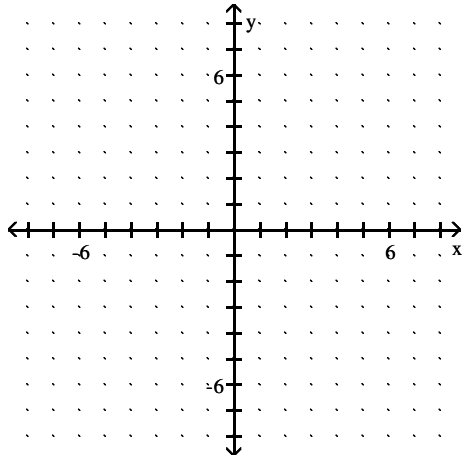
5) A(6, 5), B(–4, –2)

5) _____



6) A$\left(-\frac{1}{2}, -3\right)$, B(–1, 1)

6) _____



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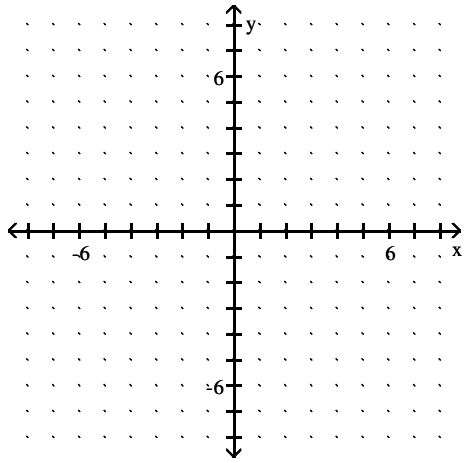
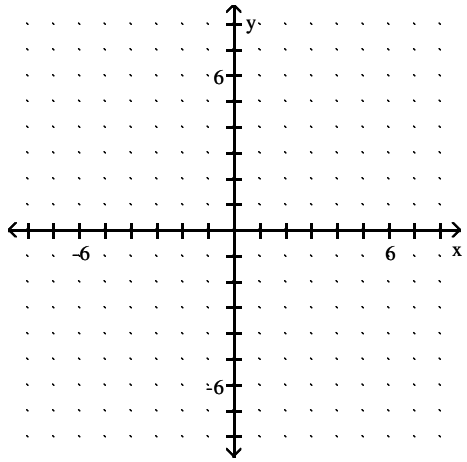
7) A(0, 6), B (0, –3) 7) _____



8) A(–2, 0), B (4, 0) 8) _____



MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine whether the given point is a solution of the equation.

9) $x + y = 11$; (7, 4) 9) _____
A) Yes B) No

10) $x + y = 10$; (5, 7) 10) _____
A) Yes B) No

11) $x - y = 4$; (2, 3) 11) _____
A) No B) Yes

12) $4x + y = 24$; (5, 4) 12) _____
A) No B) Yes

13) $5x + 4y = 36$; (4, 4) 13) _____
A) Yes B) No

14) $3x - 3y = 15$; (2, 3) 14) _____
A) Yes B) No

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15) $-3x - 2y = 11$; $(-5, 2)$ 15) _____

A) Yes B) No

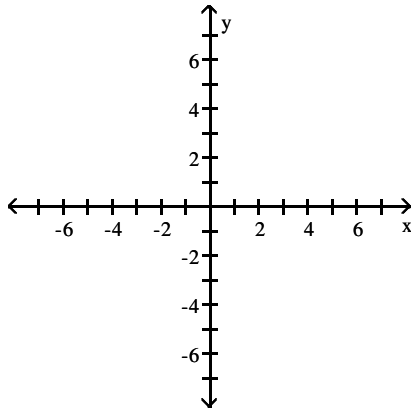
16) $y = 2x$; $(-2, -4)$ 16) _____

A) Yes B) No

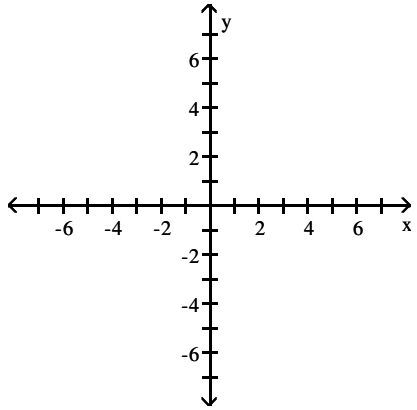
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Show that the two ordered pairs are solutions to the given equation. Then use the graph of the two points to determine another solution. Answers may vary.

17) $y = x - 1$; $(7, 6)$, $(-2, -3)$ 17) _____



18) $y = x + 1$; $(2, 3)$, $(-3, -2)$ 18) _____



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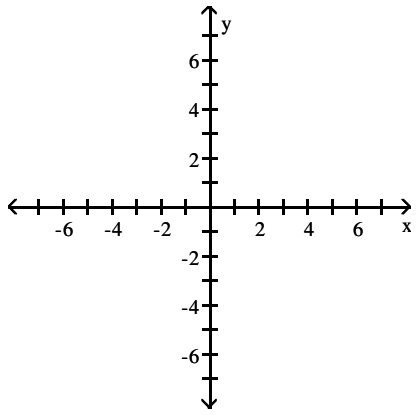
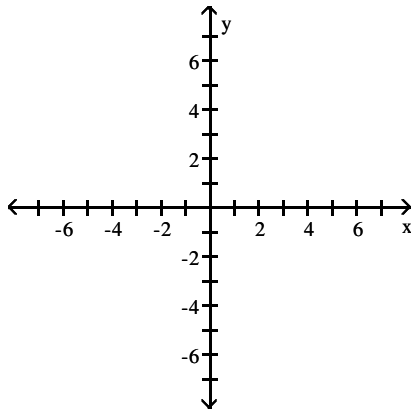
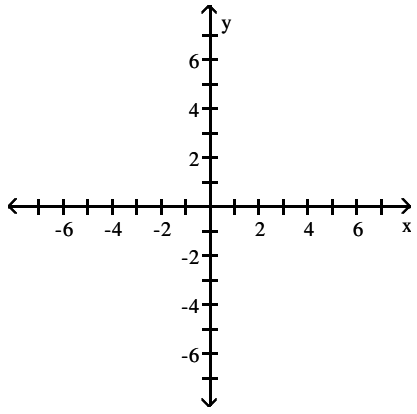
19) $y = \frac{1}{2}x + 3$; (2, 4), (–4, 1) 19) _____



20) $y = \frac{1}{2}x - 2$; (4, 0), (–2, –3) 20) _____



21) $2x + y = 7$; (3, 1), (4, –1) 21) _____



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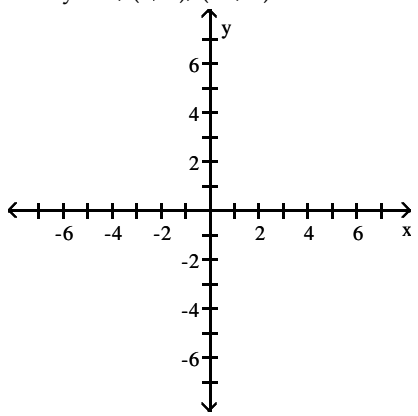
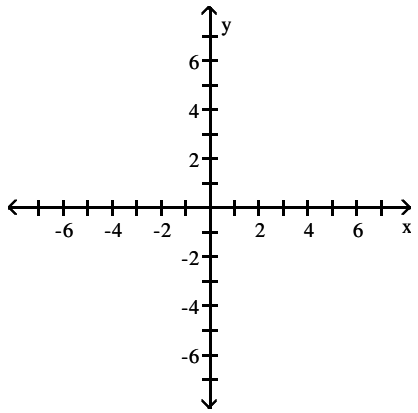
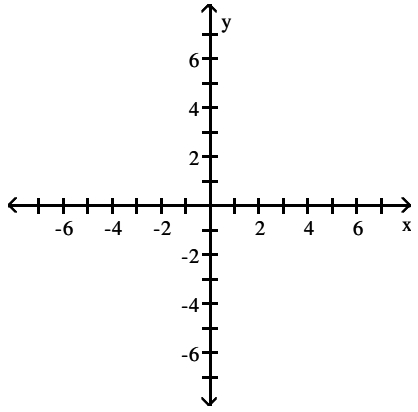
22) $x + 2y = 8$; (2, 3), (−2, 5) 22) _____



23) $6x - 2y = 4$; (0, −2), (3, 7) 23) _____



24) $3x - 3y = 9$; (−2, −5), (7, 4) 24) _____



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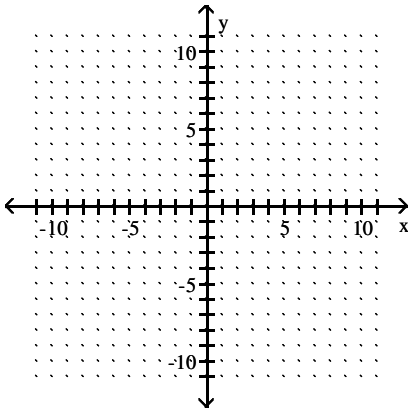
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Graph the linear equation.

25) $y = 2x + 2$ 25) _____



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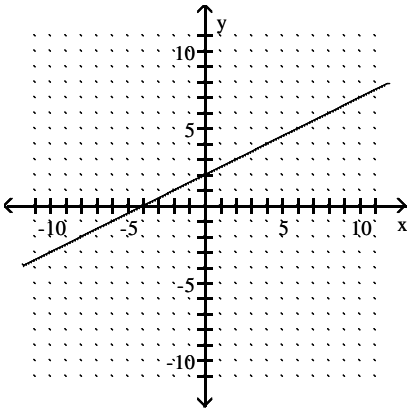

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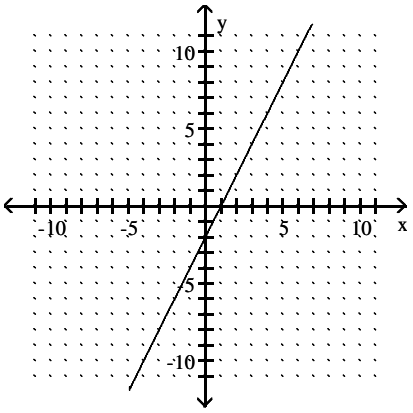

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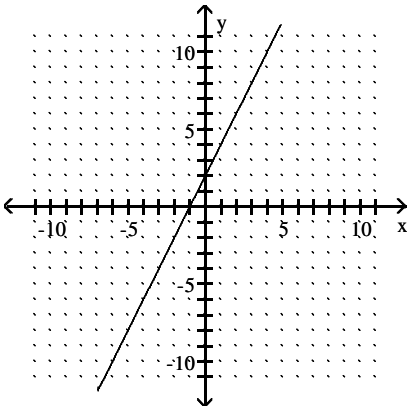
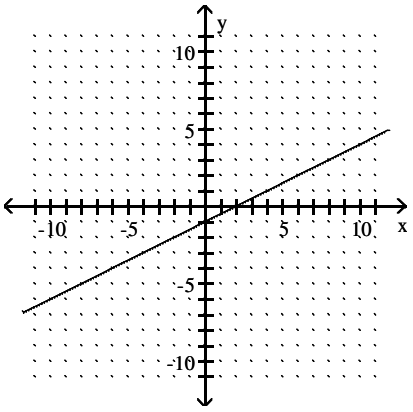


D)



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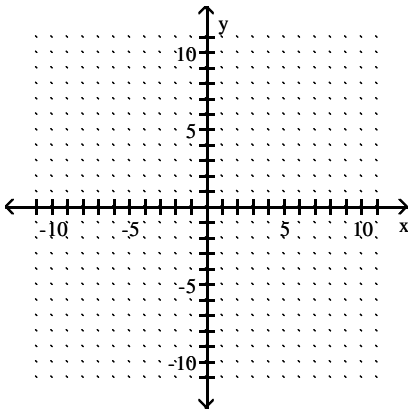
26) $y = \frac{2}{5}x - 1$ 26) _____



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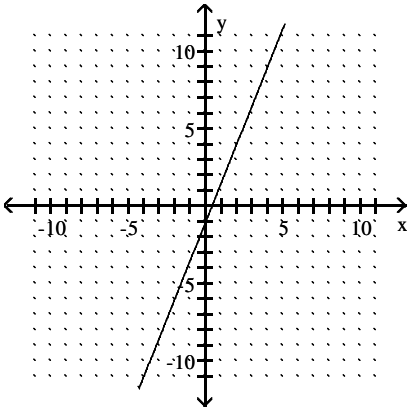

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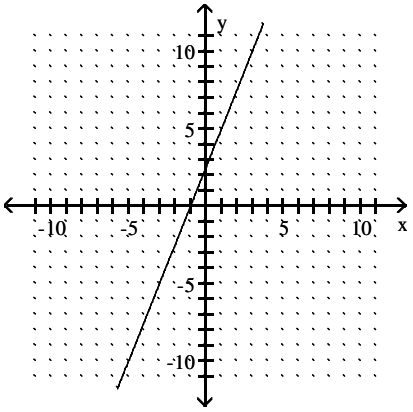

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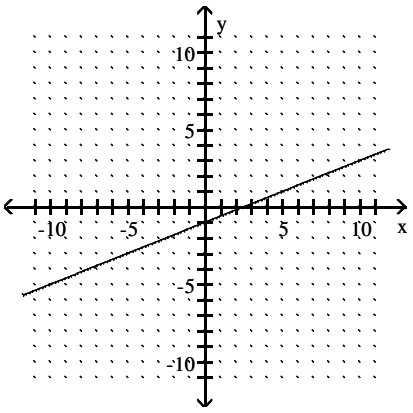

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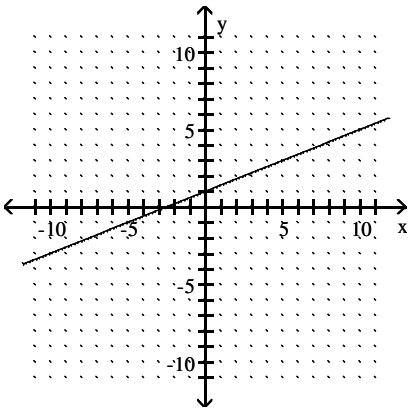

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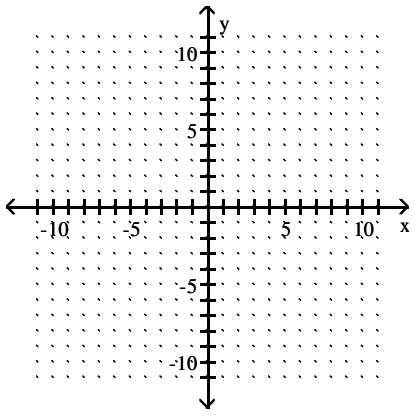
27) $y = \frac{1}{5}x - \frac{1}{5}$ 27) _____



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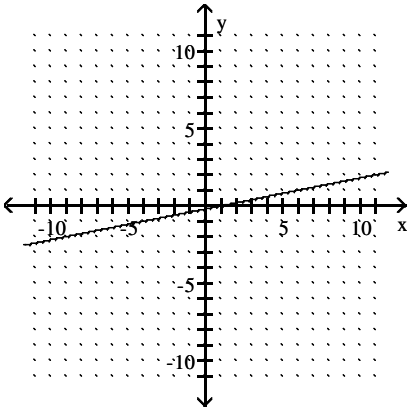

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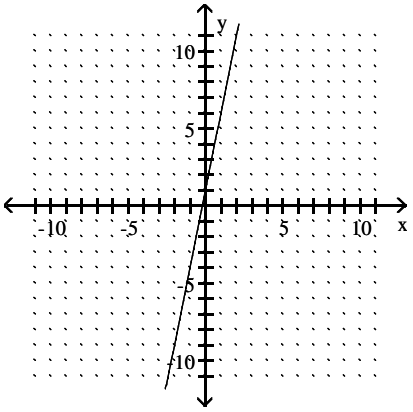

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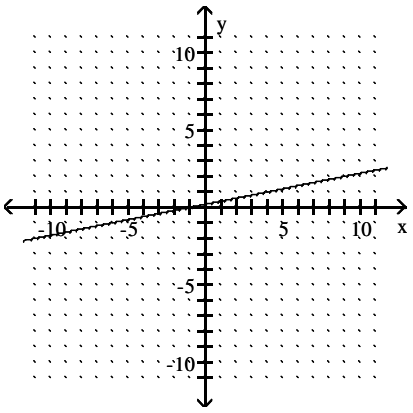

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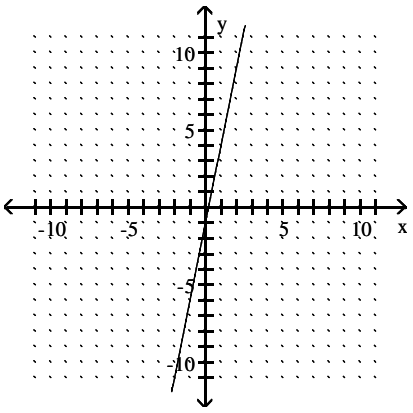

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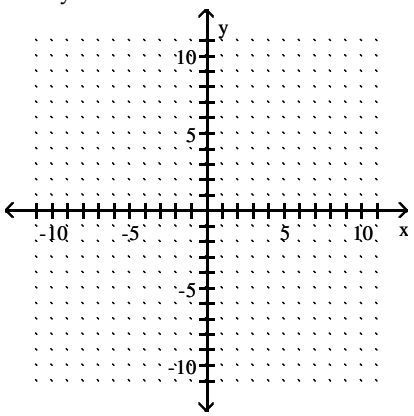
28) $x - 8y = 7$ 28) _____



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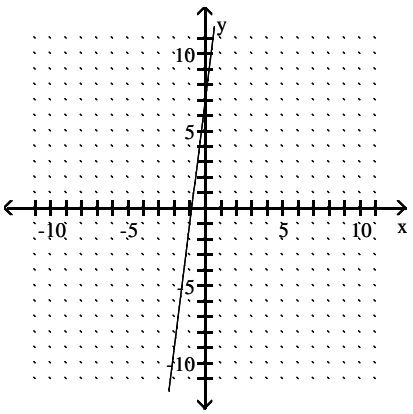

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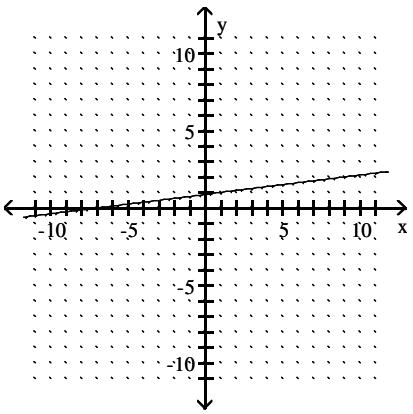

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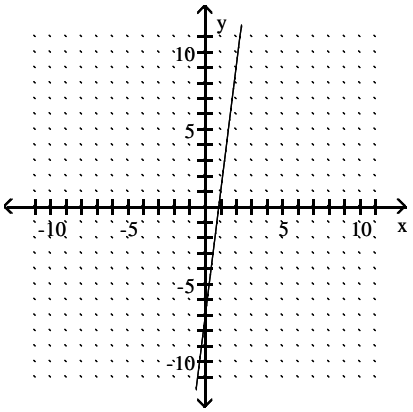

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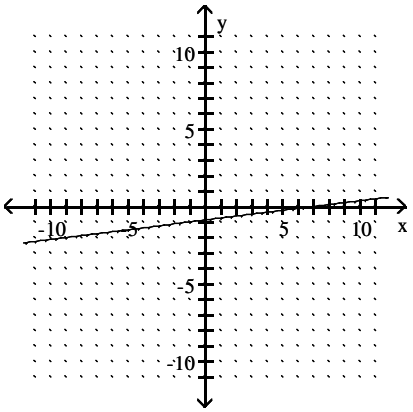

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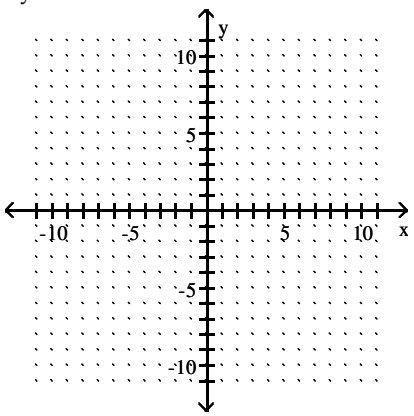
29) $3y - 9x = -27$ 29) _____



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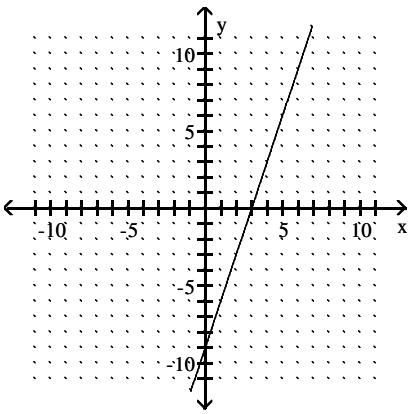

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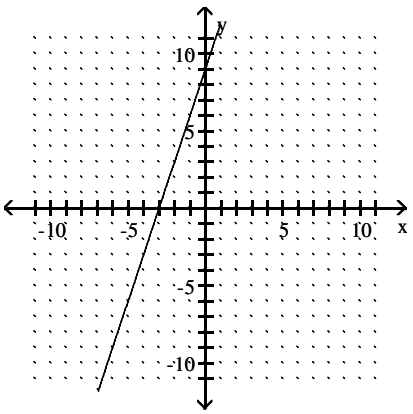

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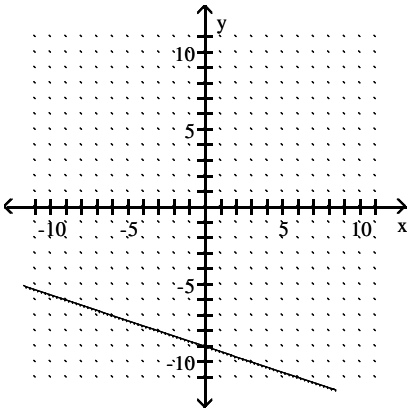

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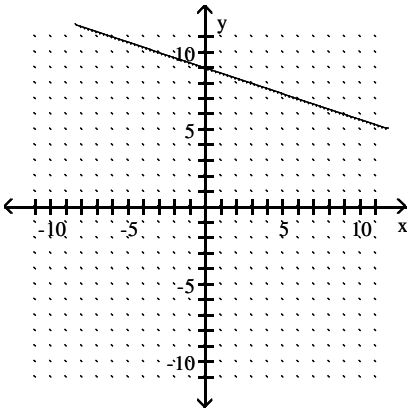

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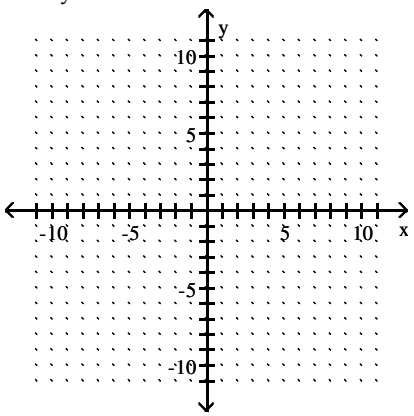
30) $7x - y = 1$ 30) _____



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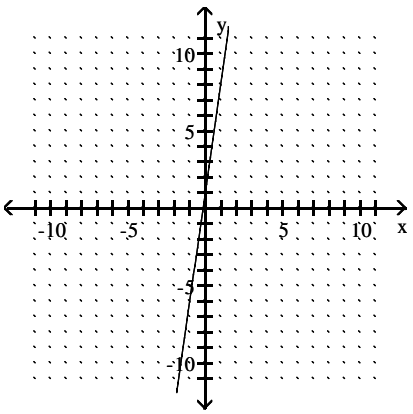

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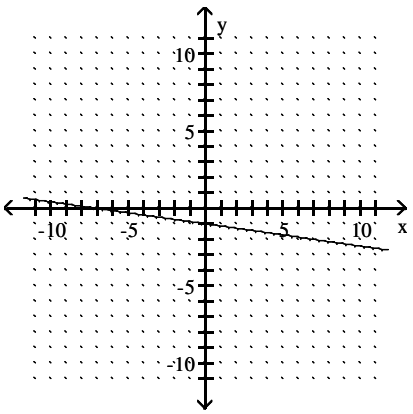

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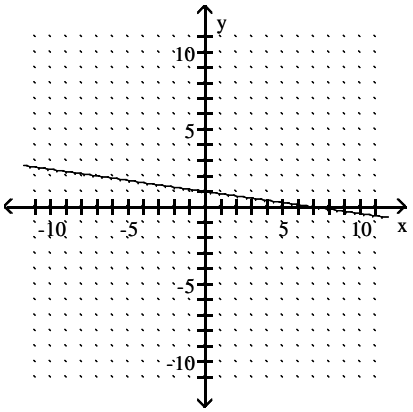
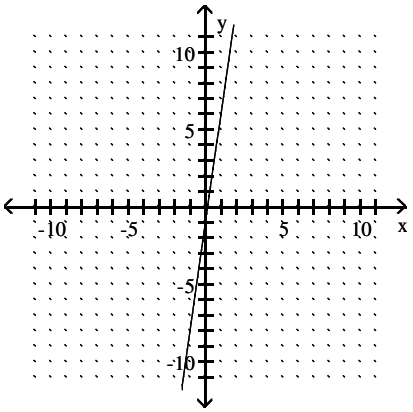


D)



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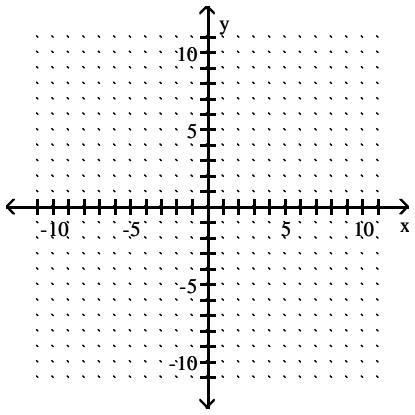
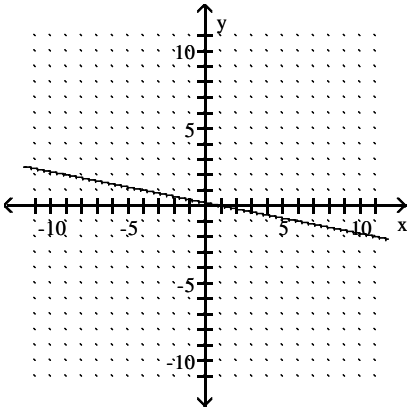
31) $y = -\frac{1}{5}x - \frac{1}{5}$ 31) _____



A)



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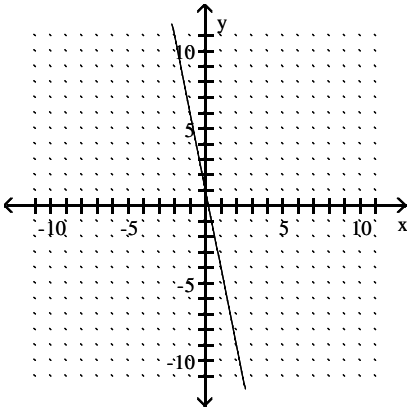
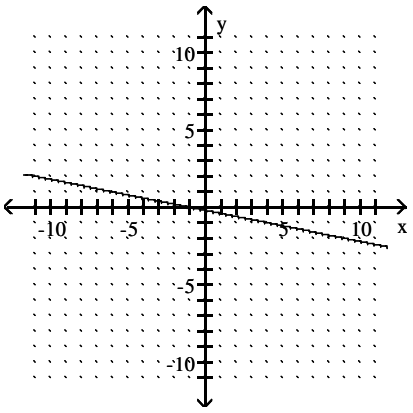


C)



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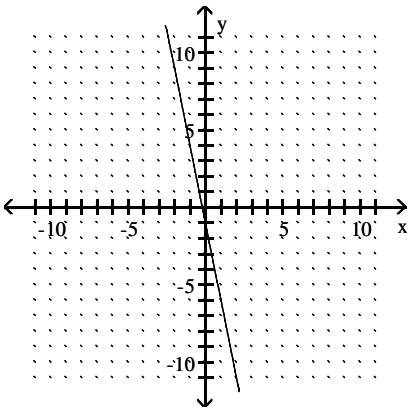

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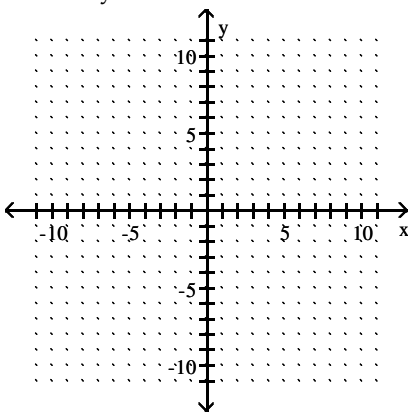
32) $-2x + 16y = -14$ 32) _____



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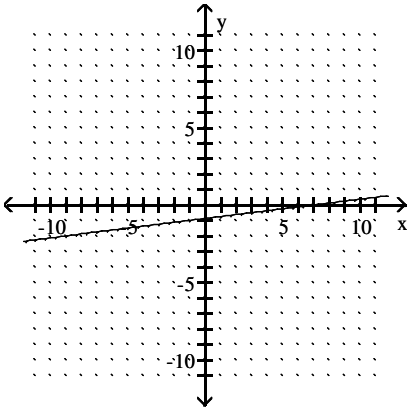

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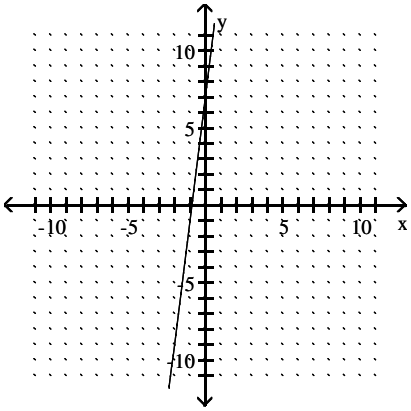

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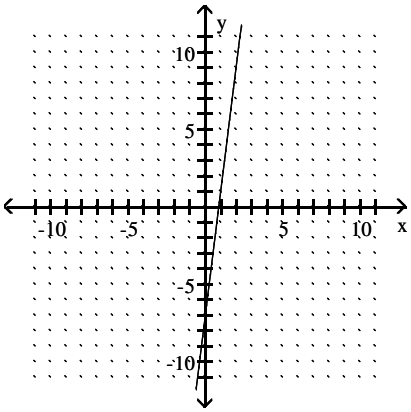

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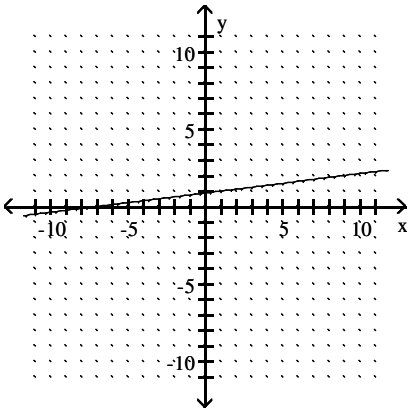

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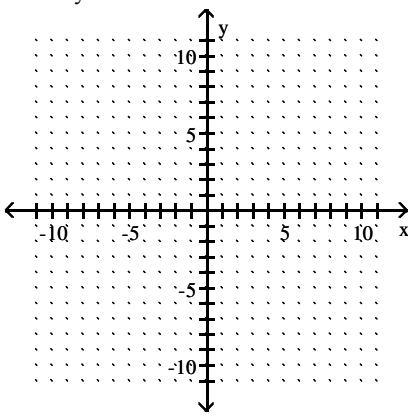
33) $-9x - y = 0$ 33) _____



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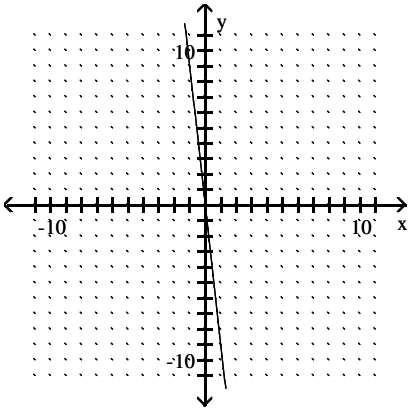

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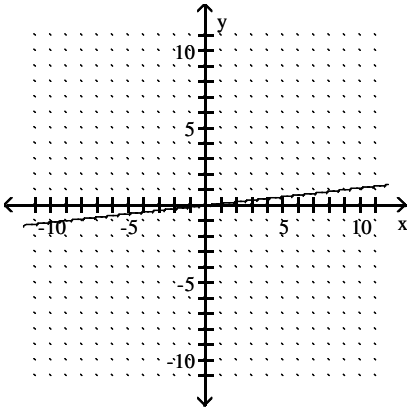

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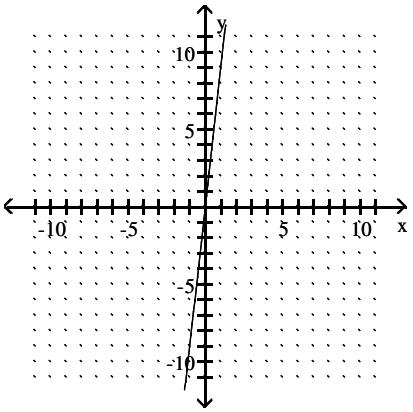

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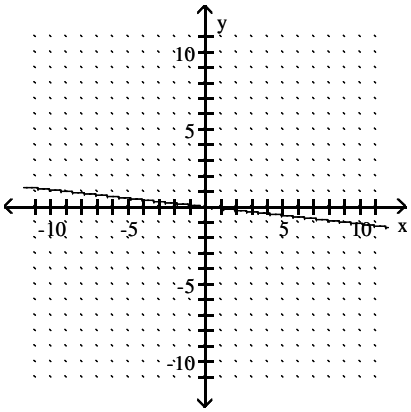

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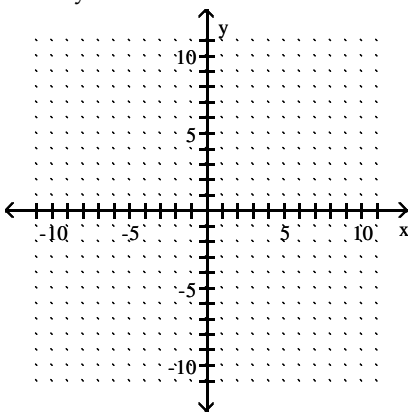
34) $-3x + y = 0$ 34) _____



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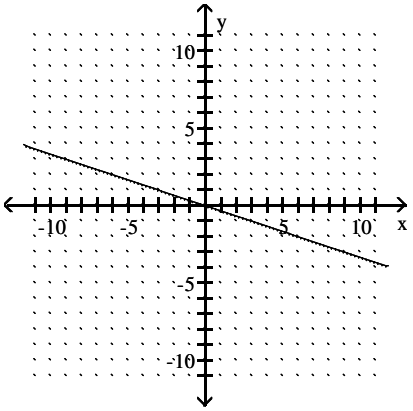

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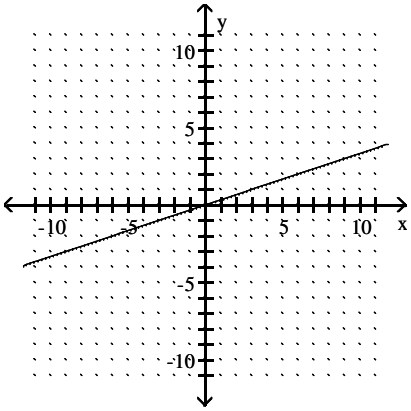

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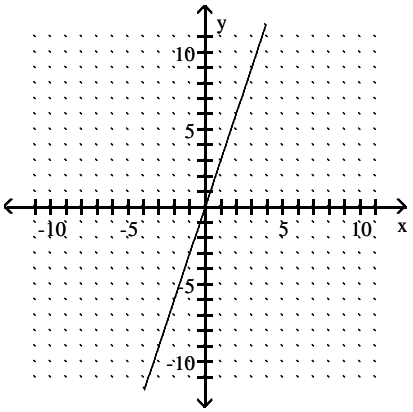

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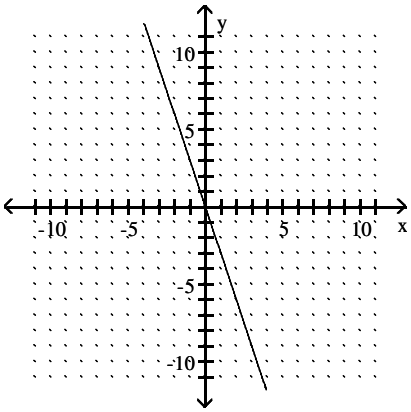

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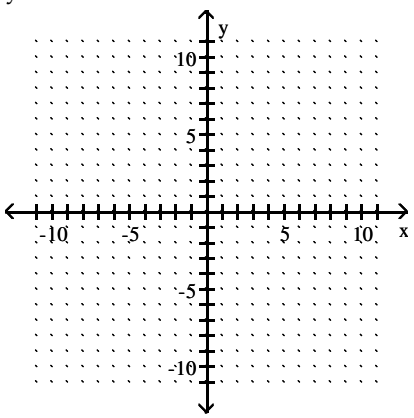
Graph.

35) $y = 4x^2$ 35) _____



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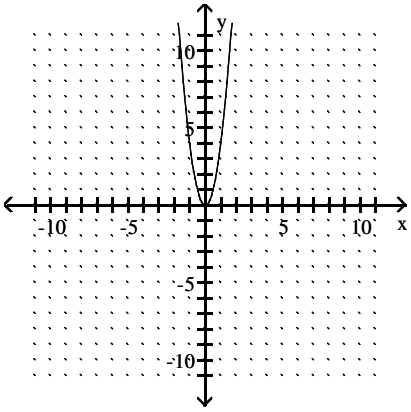

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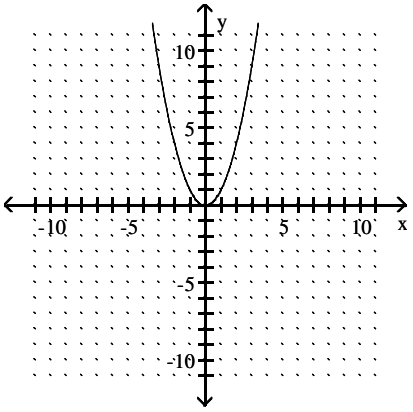

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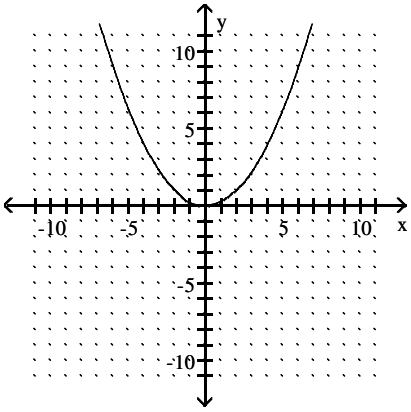

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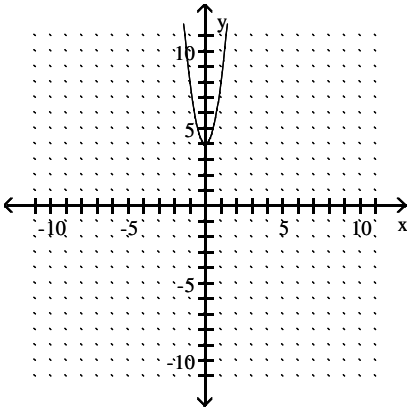

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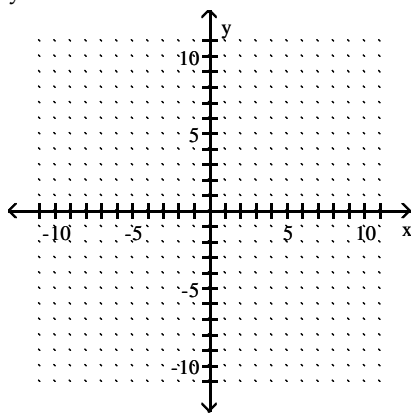
36) $y = x^2 + 4$ 36) _____



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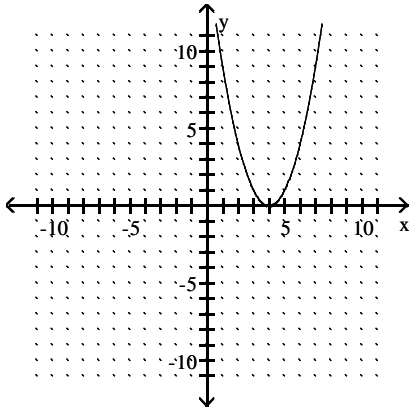

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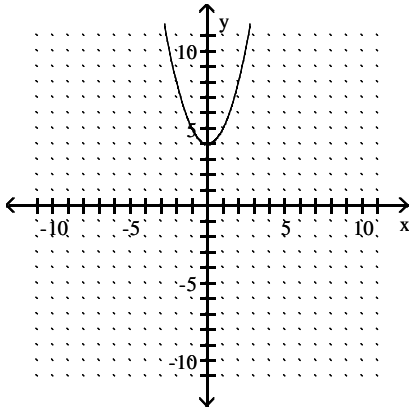

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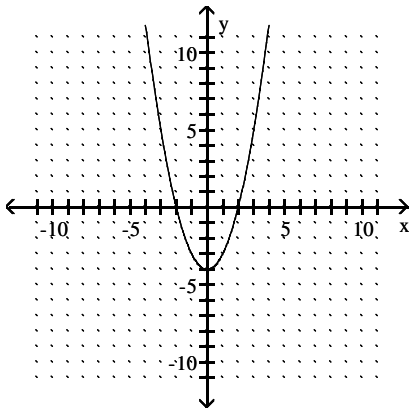

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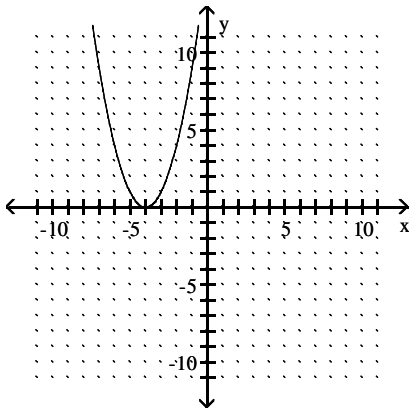

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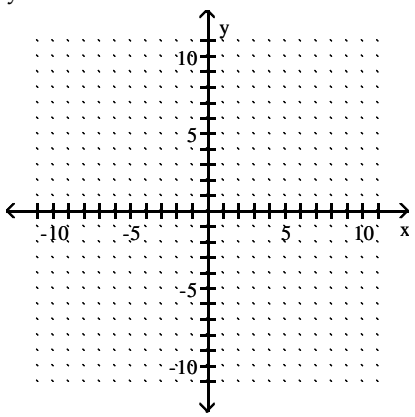
37) $y = -x^2 - 5$ 37) _____



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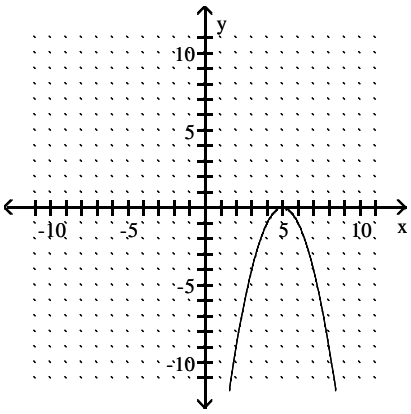

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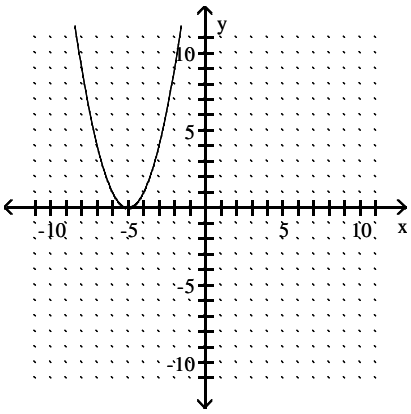

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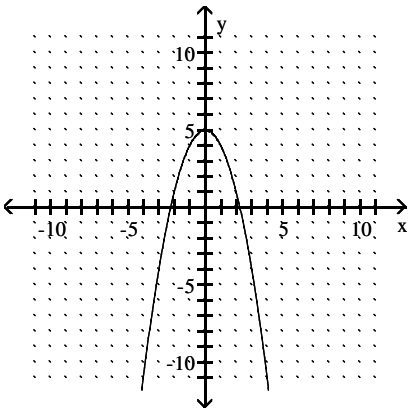

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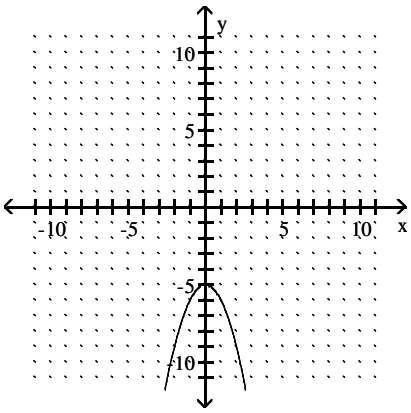

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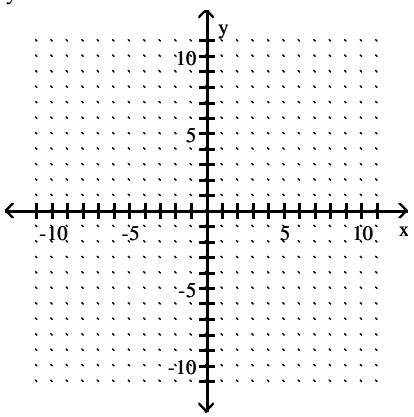
38) $y = 4x^2 - 3$ 38) _____



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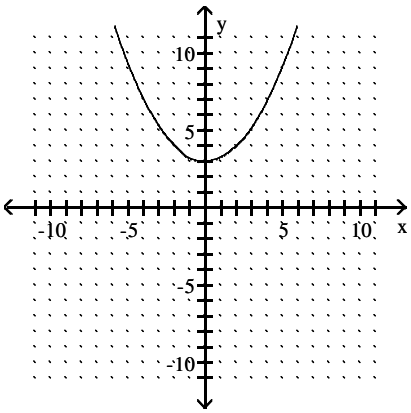

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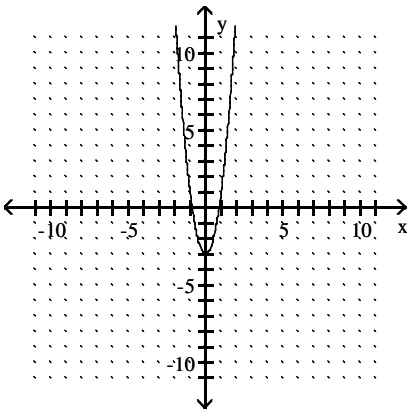

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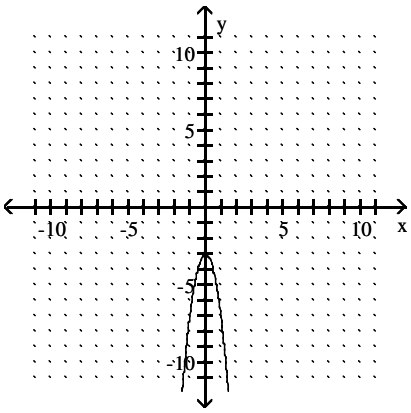

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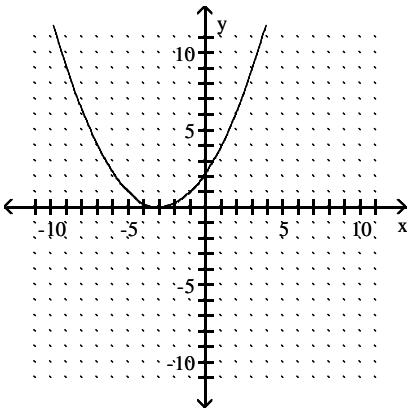

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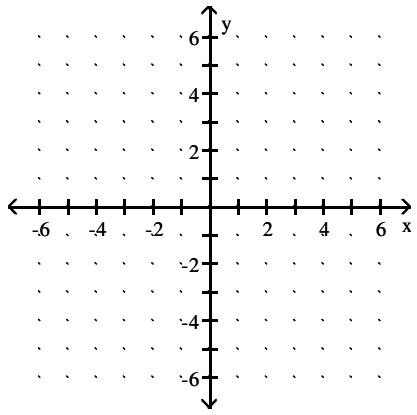
39) $y = \frac{6}{x}$ 39) _____



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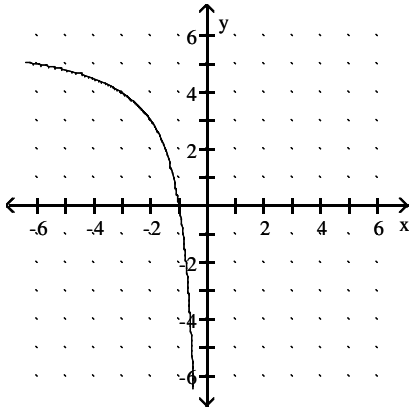

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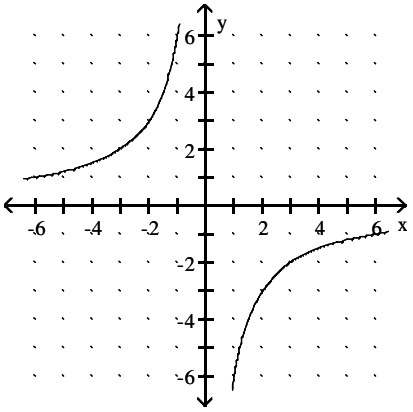

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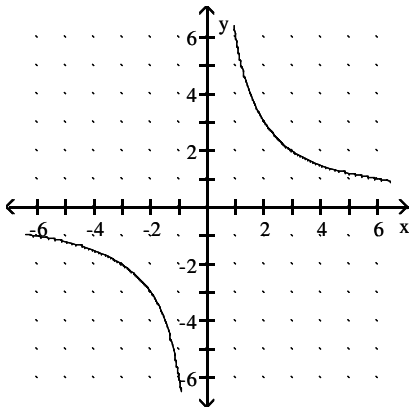

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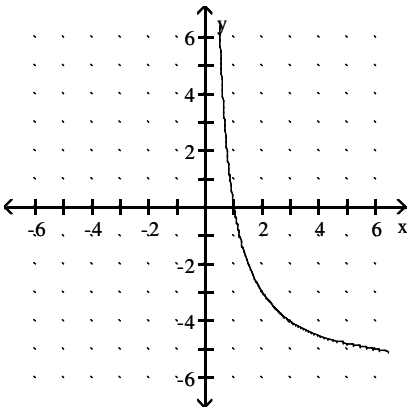

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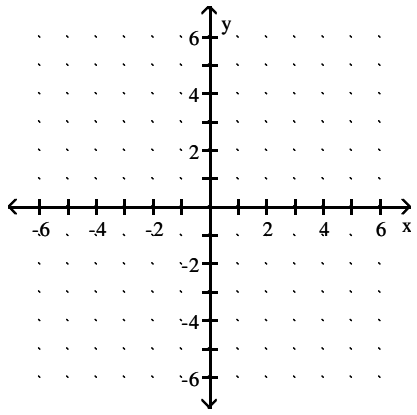
40) $y = -\frac{6}{x}$ 40) _____



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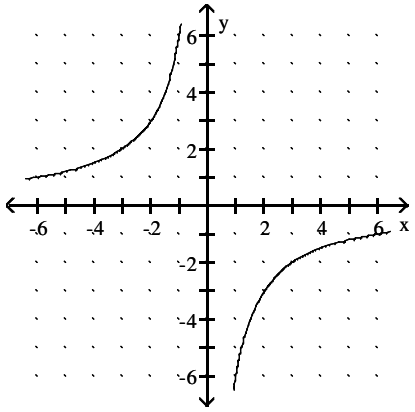

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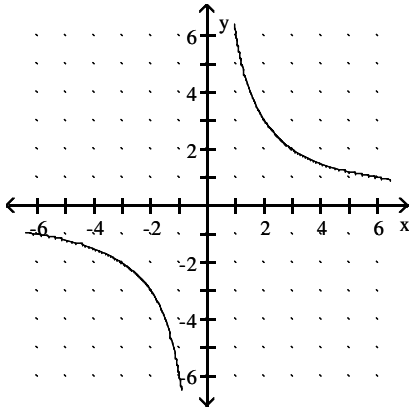

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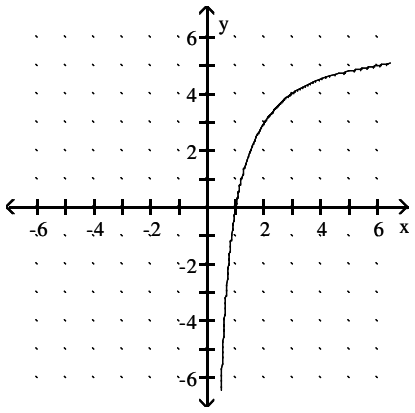

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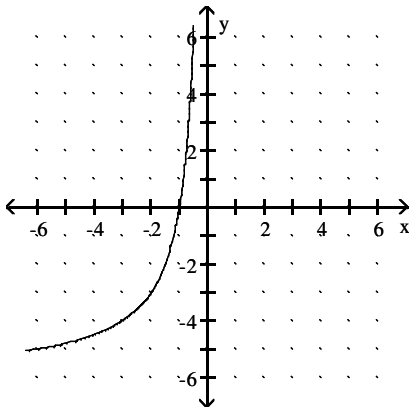

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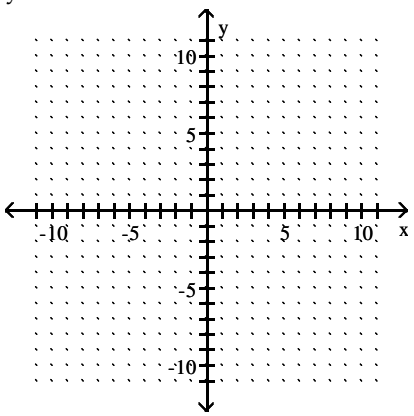
41) $y = |6 - x|$ 41) _____



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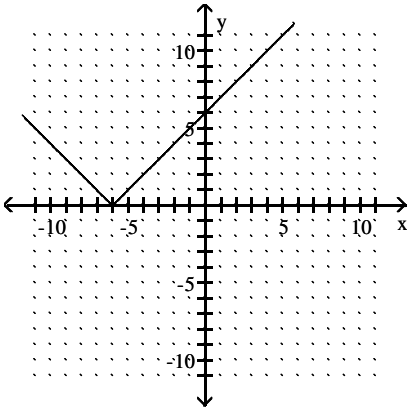

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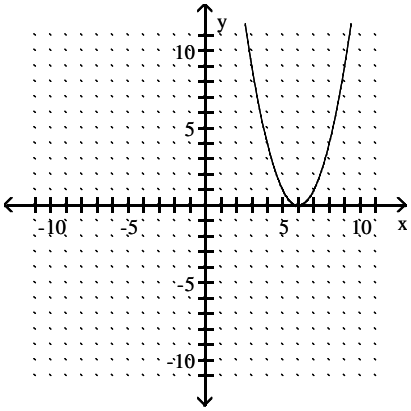

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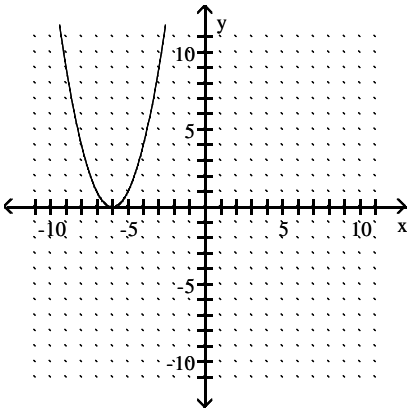

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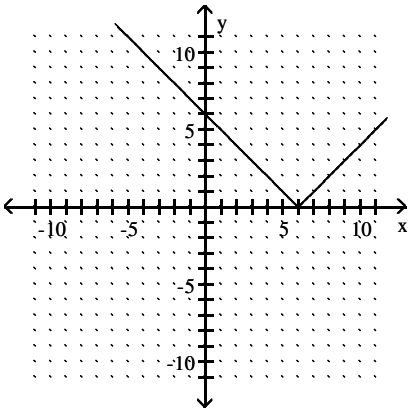

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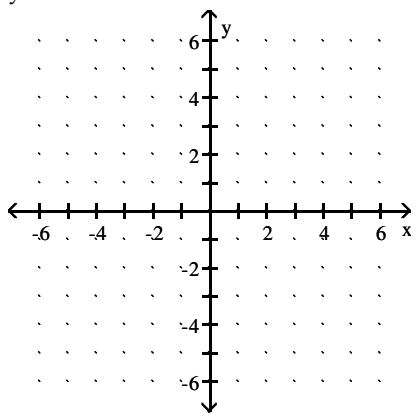
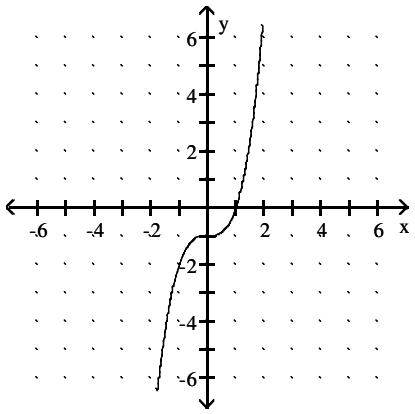
42) $y = x^3 - 1$ 42) _____



A)



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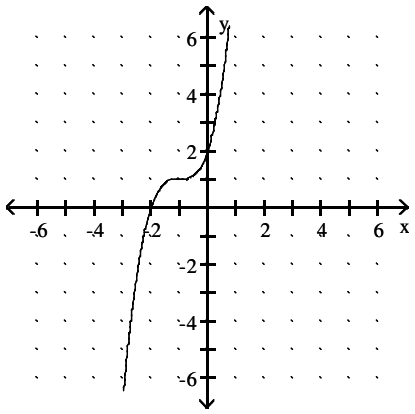

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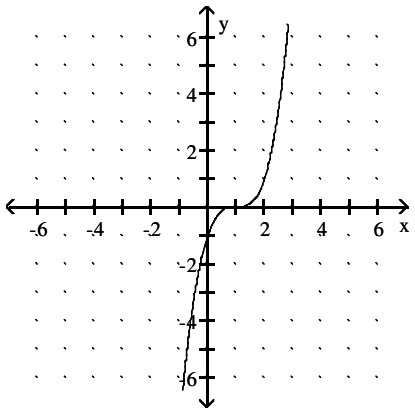
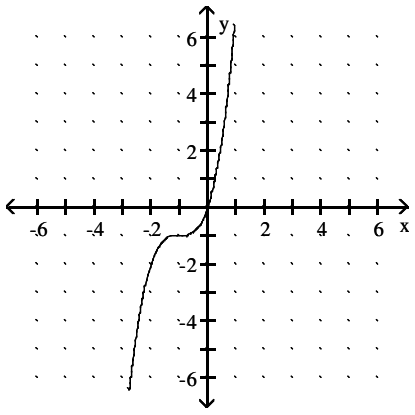


D)



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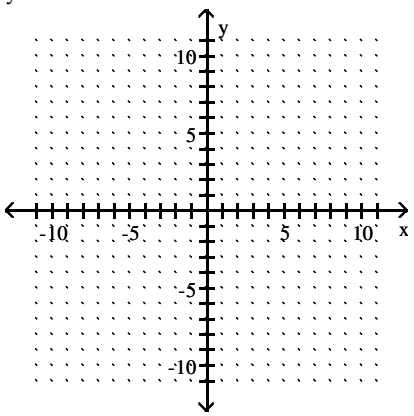
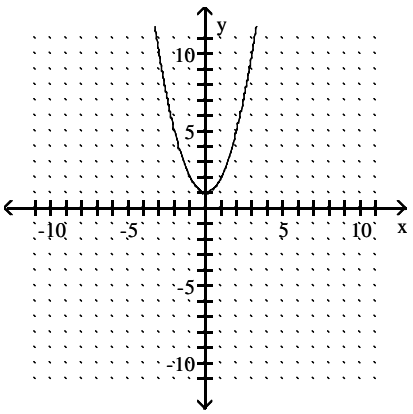
43) $y = |x| + 1$ 43) _____



A)



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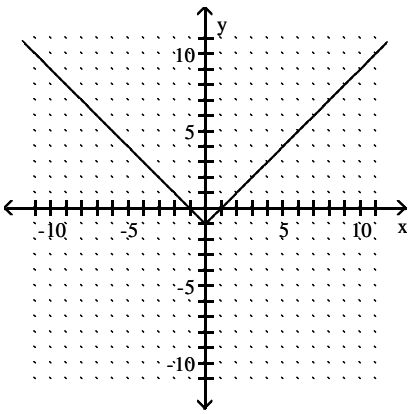
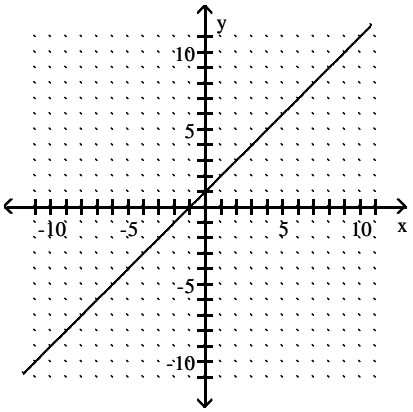
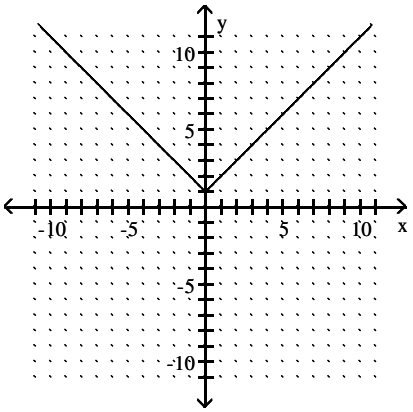


C)

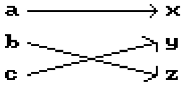


D)



Is the following correspondence a function?

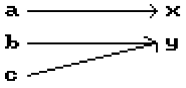
44) 44) _____



A) Yes

B) No

45) 45) _____



A) No

B) Yes

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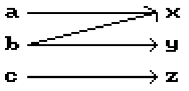
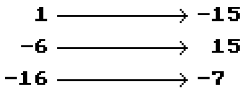
46) 

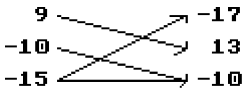
46) _____

A) No B) Yes

47) 

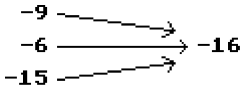
47) _____

A) No B) Yes

48) 

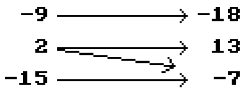
48) _____

A) Yes B) No

49) 

49) _____

A) Yes B) No

50) 

50) _____

A) Yes B) No

51) Domain: All students attending Laughlin Community College
Correspondence: Each student's Social Security Number
Range: A set of Social Security Numbers
51) _____

A) Yes B) No

52) Domain: All students attending the University of Ohio
Correspondence: Each student's teachers
Range: A set of teachers
52) _____

A) Yes B) No

53)
53) _____

Name	Test Score
Bob L.	88
Susan H.	83
Jim H.	76
Bruce B.	96

A) No B) Yes

Find the function value.

54) Find f(4) when f(x) = –x + 7.
54) _____

A) 12 B) 3 C) 4 D) –3

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55) Find f(3) when $f(x) = -4x + 18$. 55) _____

A) −72 B) 8 C) 6 D) 18

56) Find f(−8) when $f(x) = 8x - 9$. 56) _____

A) −76 B) −73 C) 73 D) −26

57) Find g(a − 1) when $g(x) = 2x - 2$. 57) _____

A) 2a − 2 B) 2a + 1 C) 2a − 4 D) $\frac{1}{2}a - 2$

58) Find f(−12) when $f(x) = -6$. 58) _____

A) −12 B) 6 C) 72 D) −6

59) Find f(−2) when $f(x) = x^2 - 3x + 4$. 59) _____

A) 14 B) 6 C) 2 D) −6

60) Find f(0) when $f(x) = x^2 + 2x + 5$. 60) _____

A) 5 B) 0 C) 25 D) −5

61) Find f(2a) when $f(x) = 5x^2 + 4x$. 61) _____

A) $5a^2 + 8a$ B) $20a^2 + 4a$ C) $10a^2 + 8a$ D) $20a^2 + 8a$

62) Find f(2) when $f(x) = 2x^2 - 5x + 7$. 62) _____

A) −9 B) 5 C) 1 D) 25

63) Find f(−6) when $f(x) = |x - 7|$. 63) _____

A) −13 B) 13 C) −6 D) 7

64) Find f(7) when $f(x) = x^3$. 64) _____

A) 21 B) 216 C) 2187 D) 343

65) Find f(−3) when $f(x) = x^4 + 1$. 65) _____

A) 13 B) −80 C) 82 D) 28

Solve the problem.

66) It has been determined that the number of fish f(t) that can be caught in t minutes in a certain pond using a certain bait is $f(t) = .23t + 1$, for $t > 10$. Find the approximate number of fish that can be caught if you fish for 24 minutes. 66) _____

A) About 6 fish B) About 28 fish C) About 26 fish D) About 14 fish

67) The function $P(d) = 1 + \frac{d}{33}$ gives the pressure, in atmospheres (atm), at a depth d feet in the sea. 67) _____

Find the pressure at 44 feet.

A) $\frac{4}{3}$ atm B) $\frac{7}{3}$ atm C) $\frac{1}{3}$ atm D) $\frac{15}{11}$ atm

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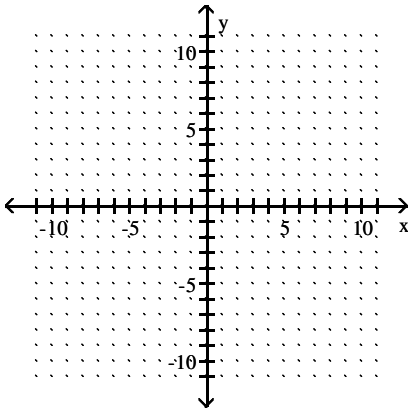
68) The function F described by $F(C) = \frac{9}{5}C + 32$ gives the Fahrenheit temperature corresponding to the Celsius temperature C. Find the Fahrenheit temperature equivalent to 10 °C. 68) _____

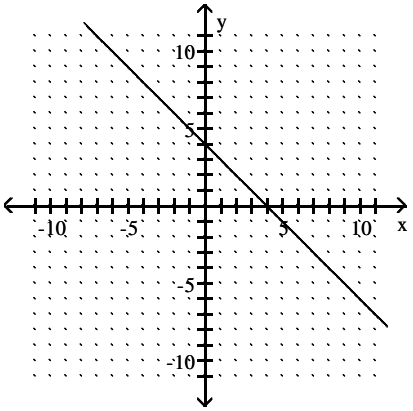
A) 86 °F B) 50 °F C) 104 °F D) 68 °F

Graph the function.

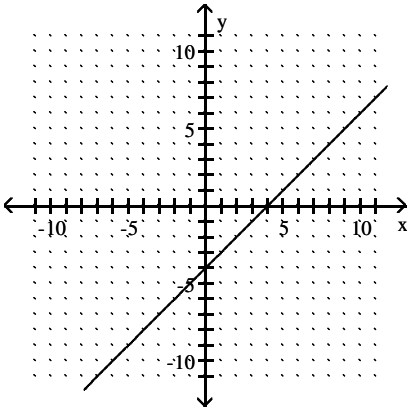
69) f(x) = x – 4 69) _____



A)



B)



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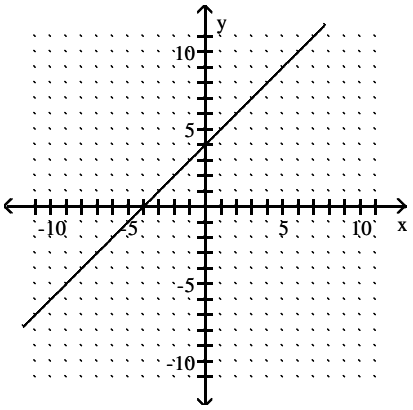
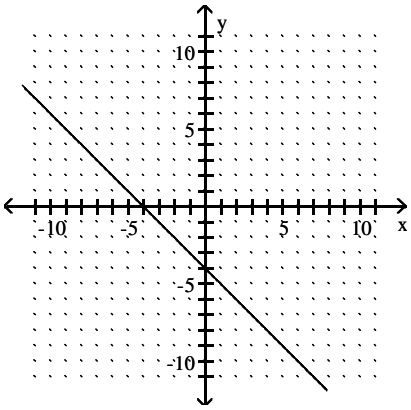


D)



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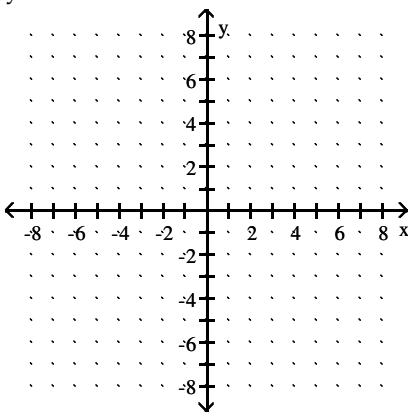
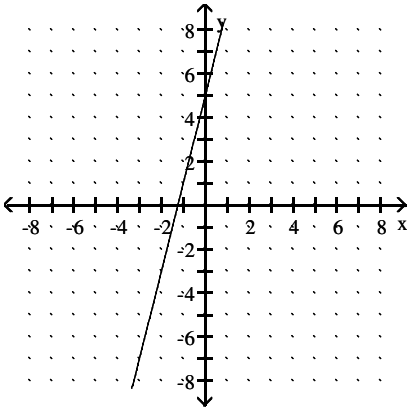
70) $y = -4x - 5$ 70) _____



A)



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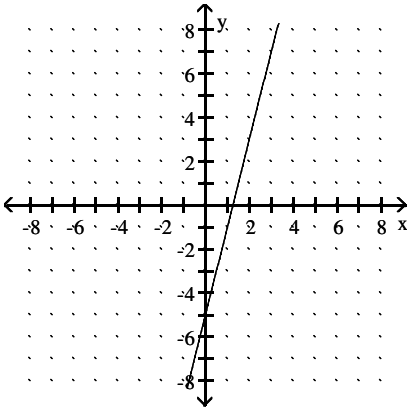

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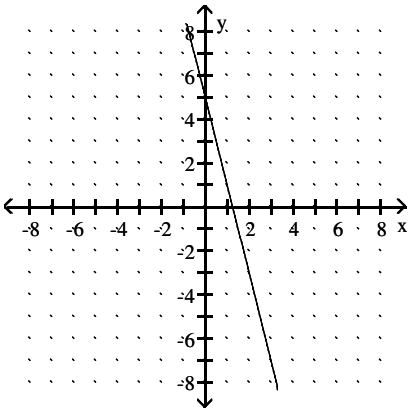
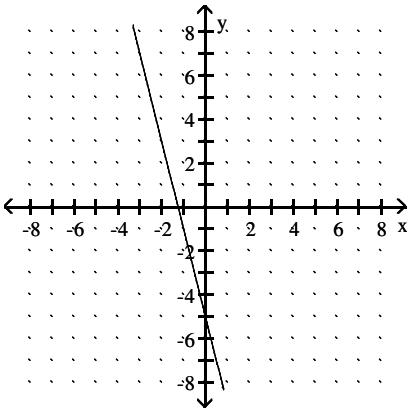


D)



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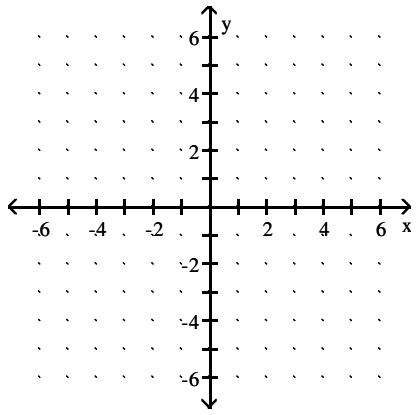
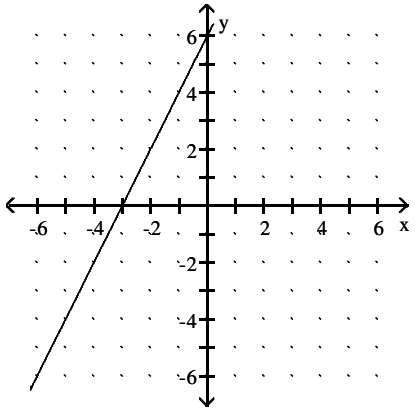
71) $f(x) = \frac{1}{2}x + 6$ 71) _____



A)



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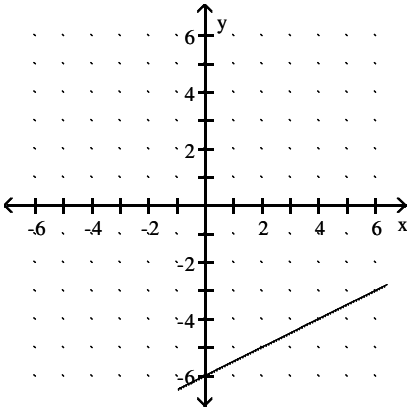

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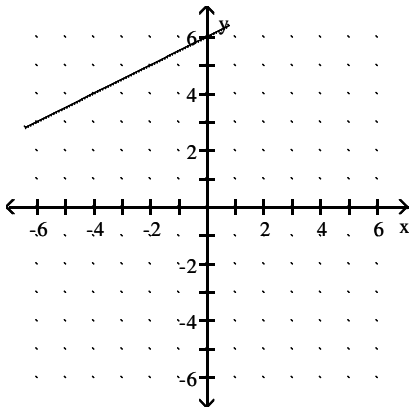

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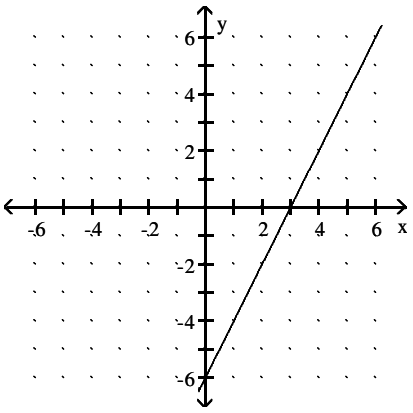

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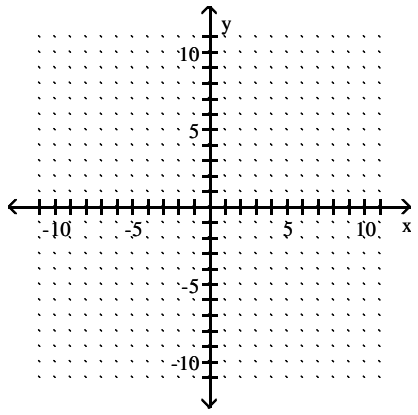
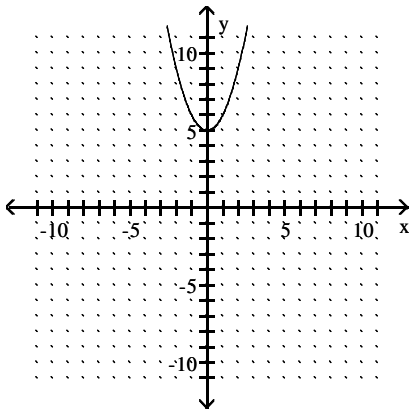
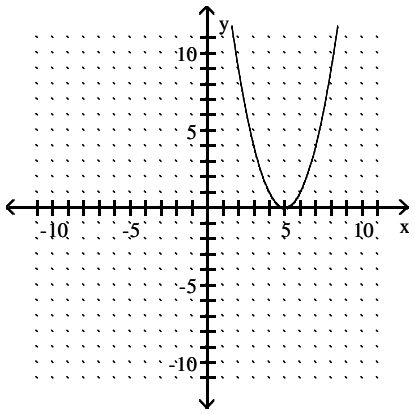
72) $f(x) = x^2 - 5$ 72) _____



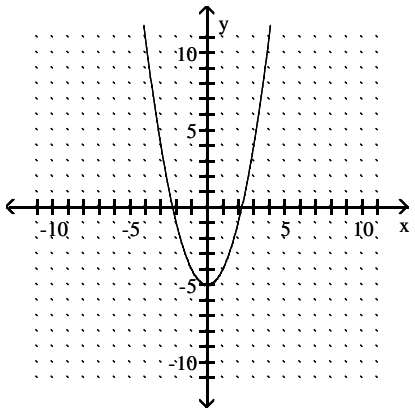
A)



B)



C)



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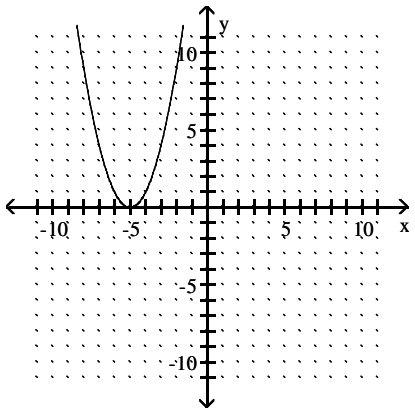

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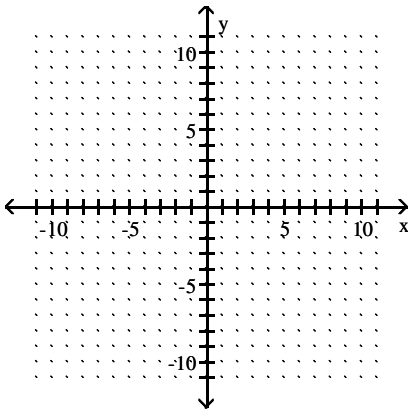
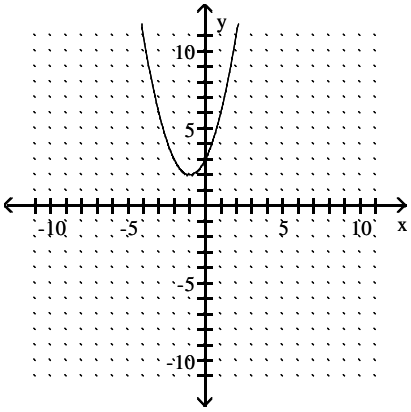
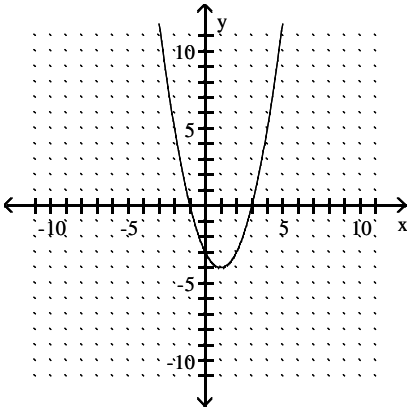
73) $f(x) = x^2 + 2x - 3$ 73) _____



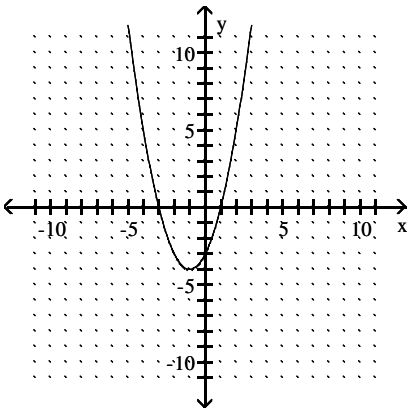
A)



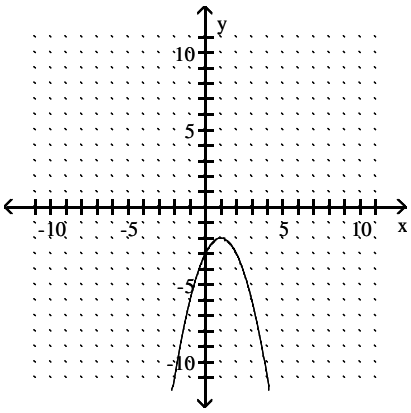
B)



C)



D)



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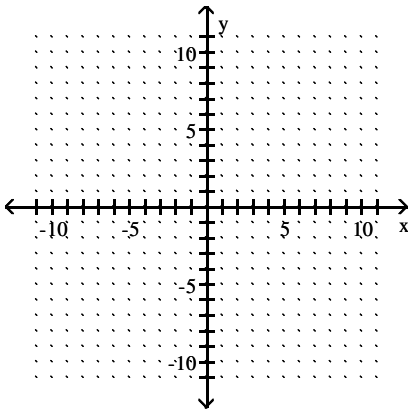
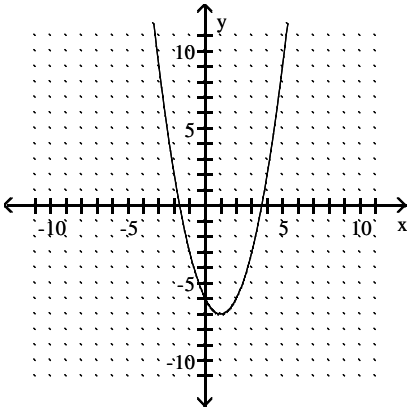
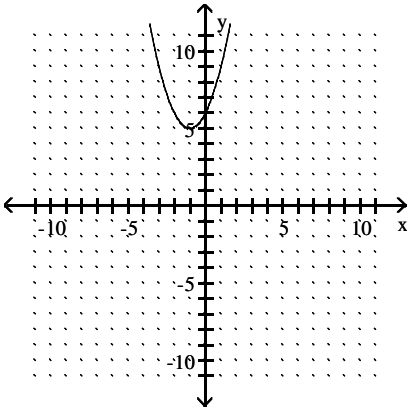
74) $f(x) = -x^2 + 2x - 6$ 74) _____



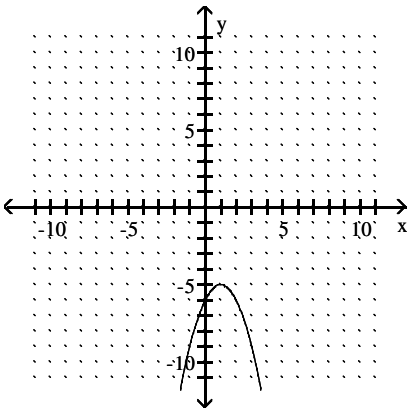
A)



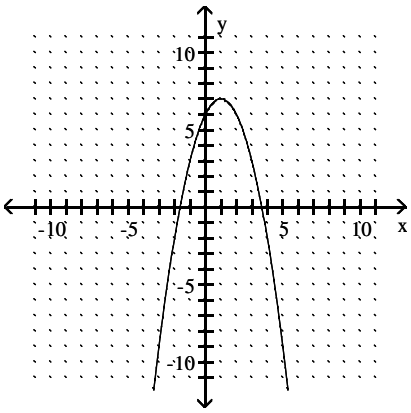
B)



C)



D)



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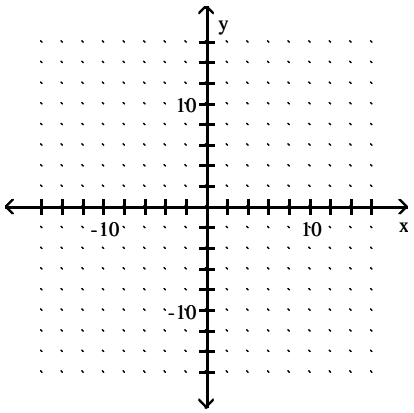
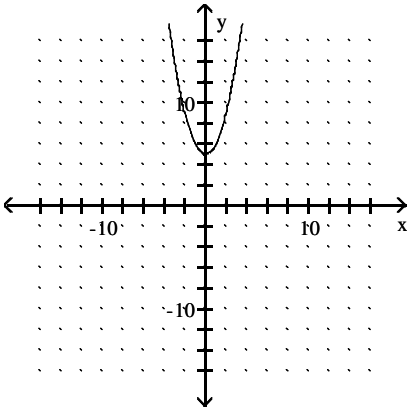
75) $f(x) = 5 - x^2$ 75) _____



A)



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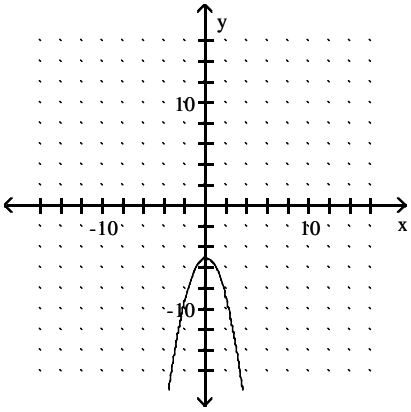
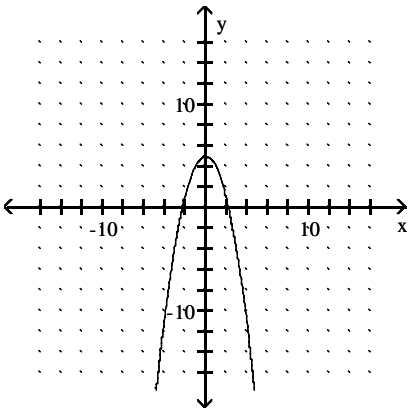
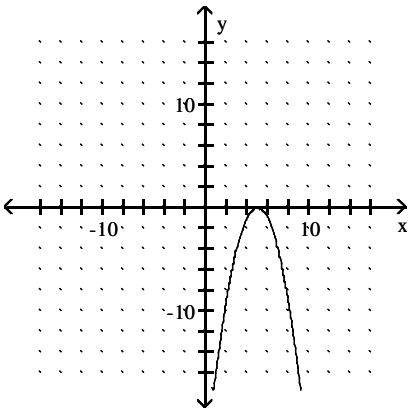


C)



D)



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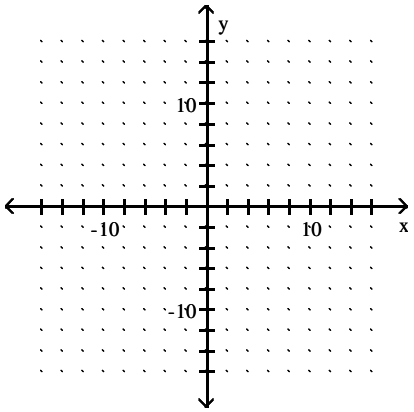
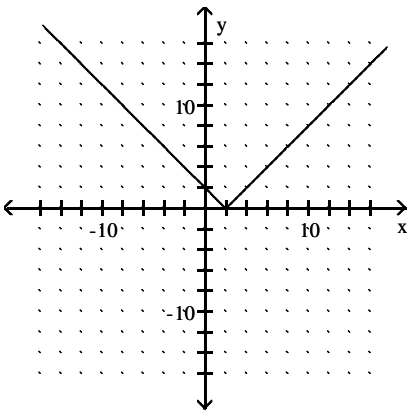
76) $f(x) = |2 - x|$ 76) _____



A)



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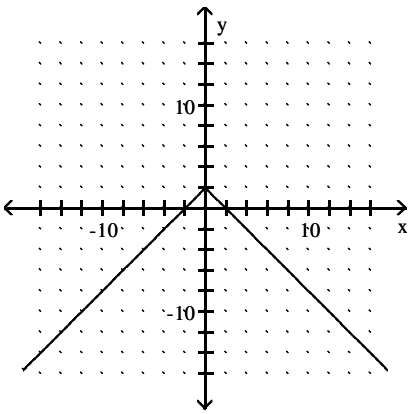
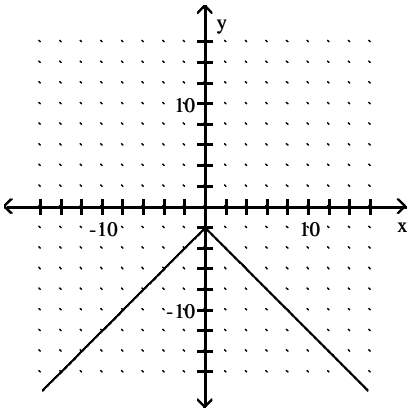
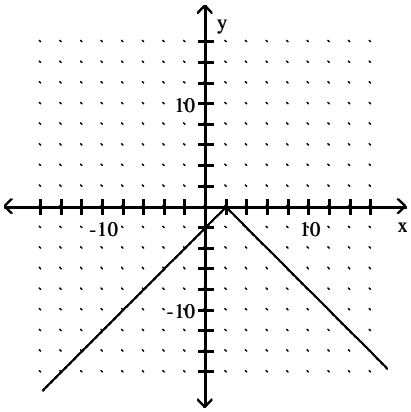


C)



D)



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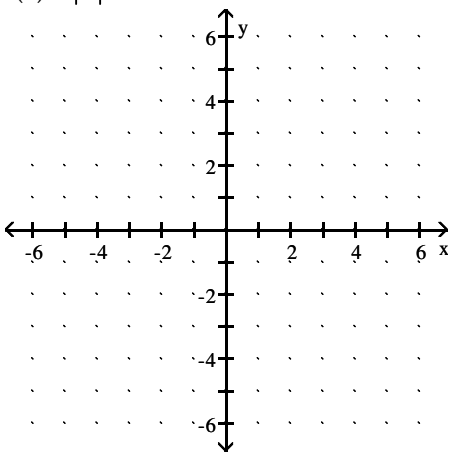
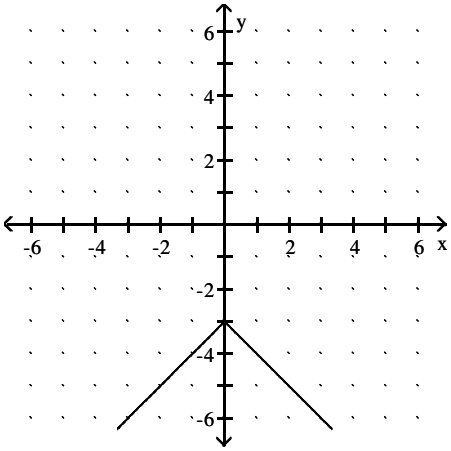
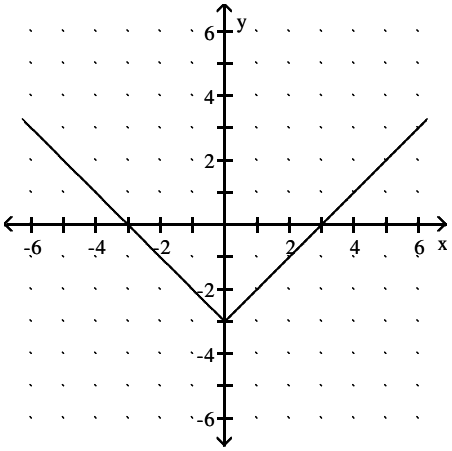
77) $f(x) = |x| + 3$ 77) _____



A)



B)



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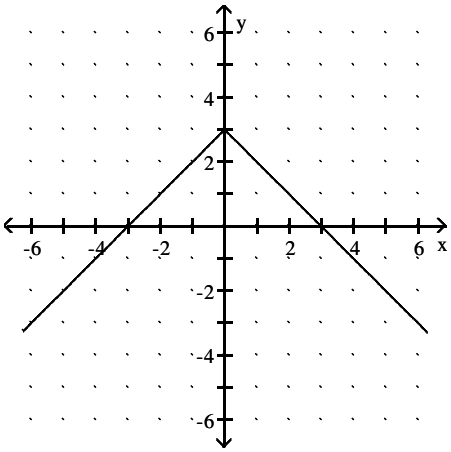
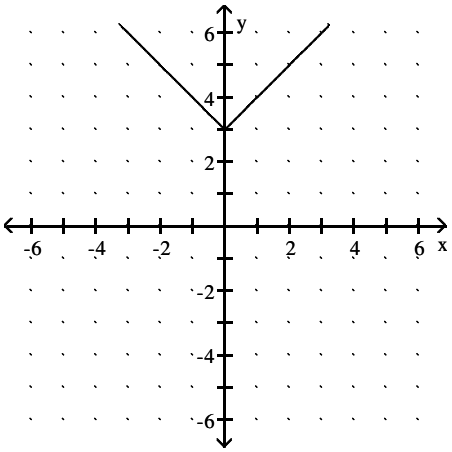


D)



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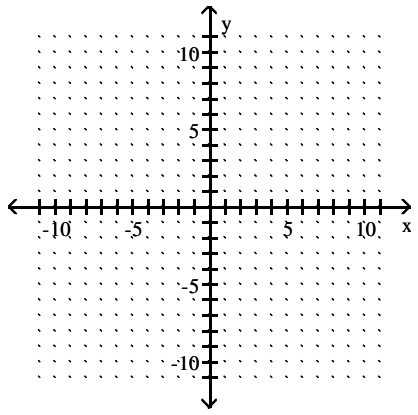
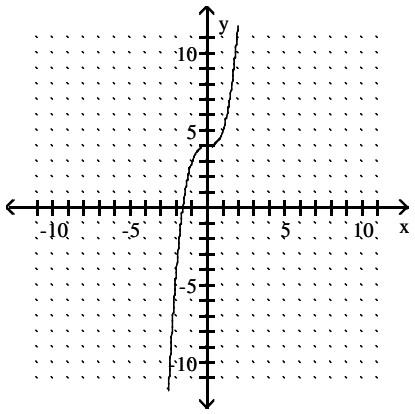
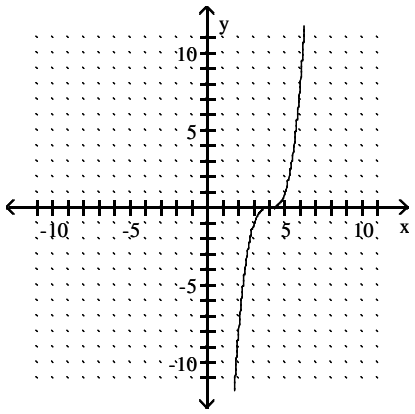
78) $f(x) = x^3 - 4$ 78) _____



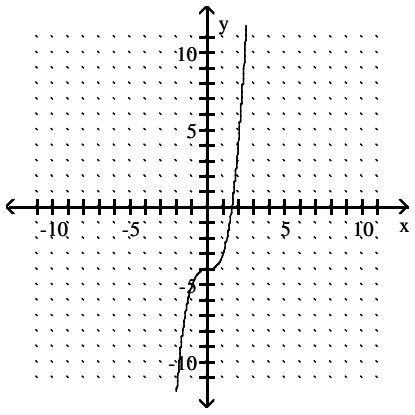
A)



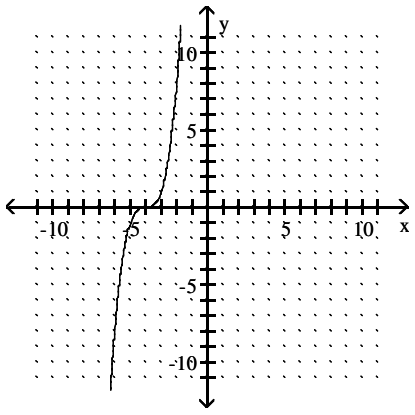
B)



C)



D)



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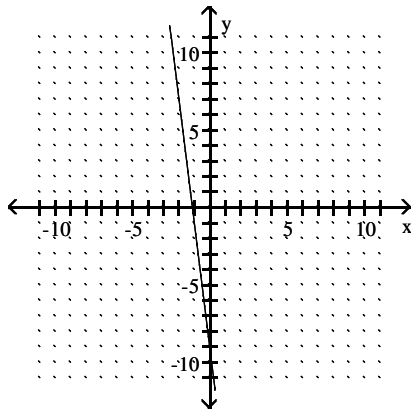
Determine whether the graph is the graph of a function.

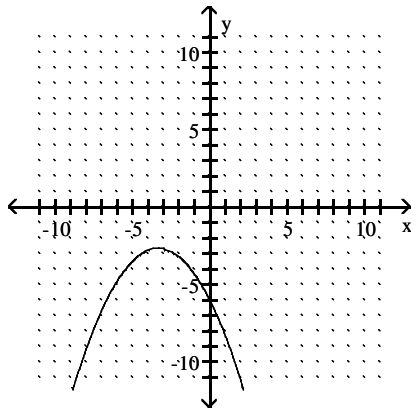
79) 79) _____



A) Not a function

B) Function

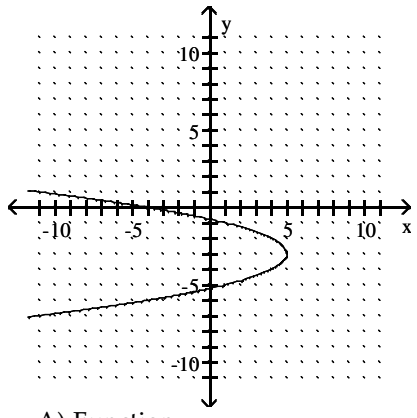
80) 80) _____



A) Function

B) Not a function

81) 81) _____



A) Function

B) Not a function

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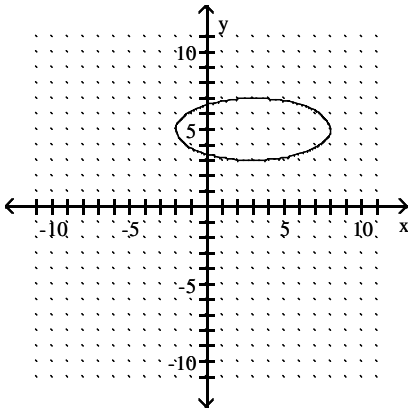
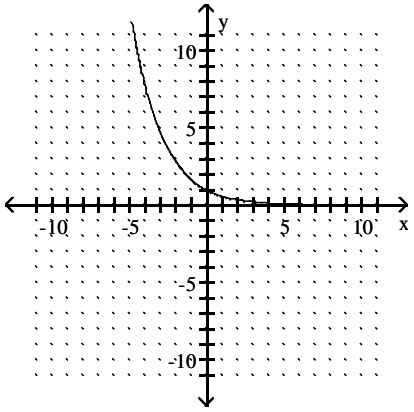
82) 82) _____



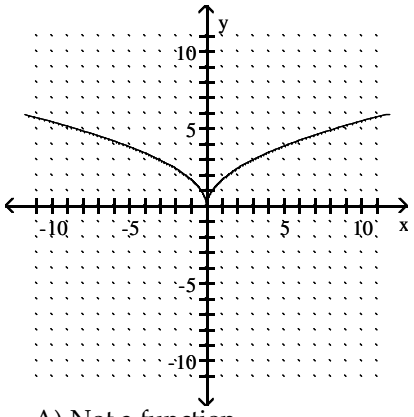
A) Function B) Not a function

83) 83) _____



A) Not a function B) Function

84) 84) _____



A) Not a function B) Function

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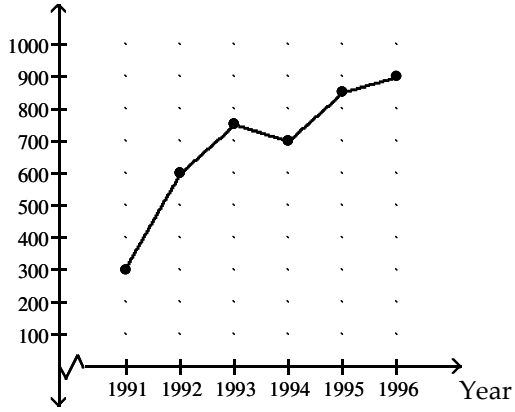
Solve.

85) Cars sold

85) _____

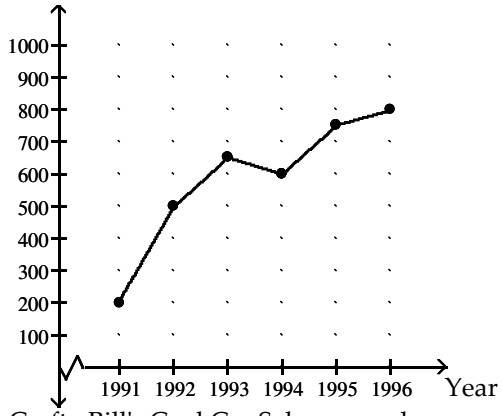


Crafty Bill's Cool Car Sales opened as a used car sales lot in 1991. The graph shows the number of ca as a function of time. What is the approximate number of cars sold in 1993?

A) 700 cars B) 750 cars C) 600 cars D) 150 cars

86) Cars sold

86) _____



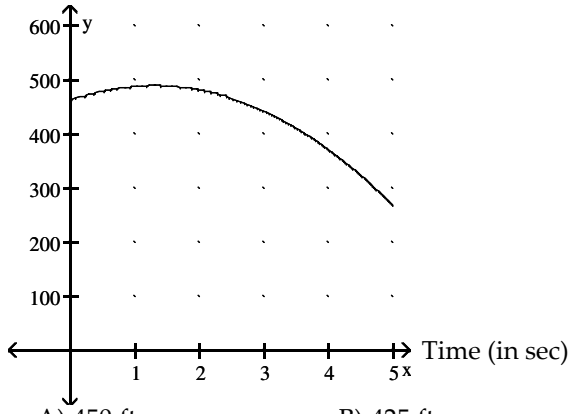
Crafty Bill's Cool Car Sales opened as a used car sales lot in 1991. The graph shows the number of ca as a function of time. What is the approximate number of cars sold in 1995?

A) 750 cars B) 600 cars C) 350 cars D) 700 cars

87) The height h in feet of a projectile thrown upward from the roof of a building after time t seconds is shown in the graph below. How high will the projectile be after 0.7 seconds?

87) _____

Height (in ft)



A) 450 ft B) 425 ft C) 500 ft D) 475 ft

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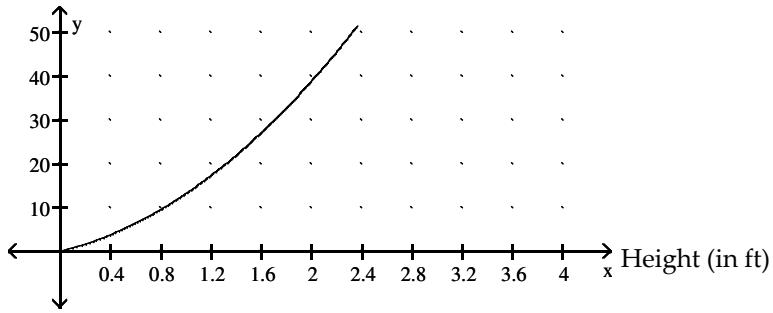
88) The surface area a of a cylinder is shown in the graph below. What is the radius if the surface area is 25 m^2? 88) _____

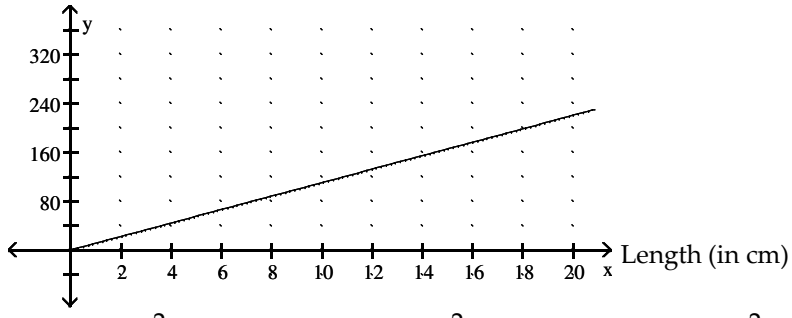
Surface Area (in m^2)



A) 1.8 m B) 1.2 m C) 1.6 m D) 1.4 m

89) The graph shows the relationship between the area A of a rectangle and the length L, if the width is fixed. Find the area if the length is 14 cm. 89) _____

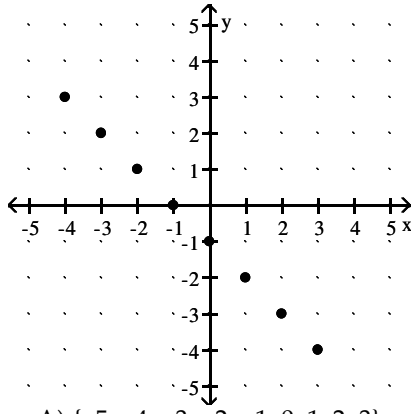
Area (in cm^2)



A) 121 cm^2 B) 132 cm^2 C) 154 cm^2 D) 176 cm^2

For the function represented in the graph, determine the domain or range, as requested.

90) Find the domain. 90) _____



A) {–5, –4, –3, –2, –1, 0, 1, 2, 3}
B) [–1, 1]
C) [–4, 4]
D) {–4, –3, –2, –1, 0, 1, 2, 3}

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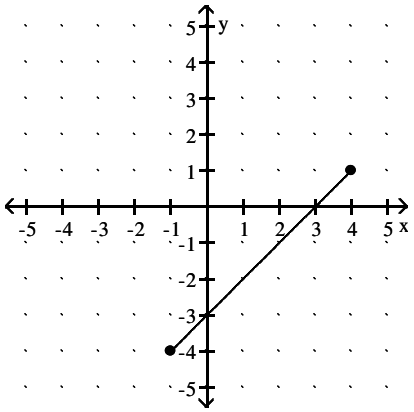
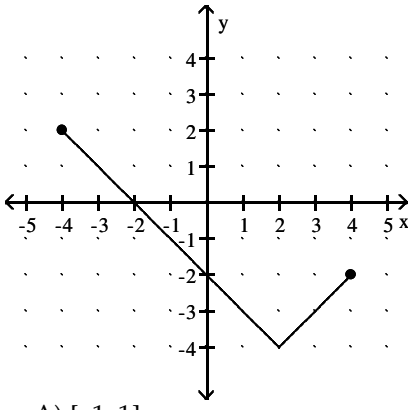
91) Find the domain. 91) _____



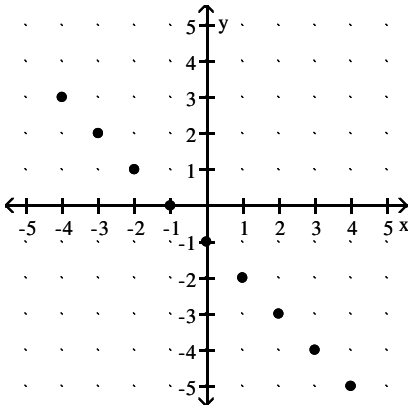
A) [–4, 7] B) [–1, 4] C) [4, –4] D) [–5, 5]

92) Find the domain. 92) _____



A) [–1, 1] B) [–3, 4]
C) {–5, –4, –3, –2, –1, 0, 1, 2, 3, 4, 5} D) [–4, 4]

93) Find the range. 93) _____



A) {–4, –3, –2, –1, 0, 1, 2, 3, 4} B) [–5, 3]
C) [–1, 1] D) {–5, –4, –3, –2, –1, 0, 1, 2, 3}

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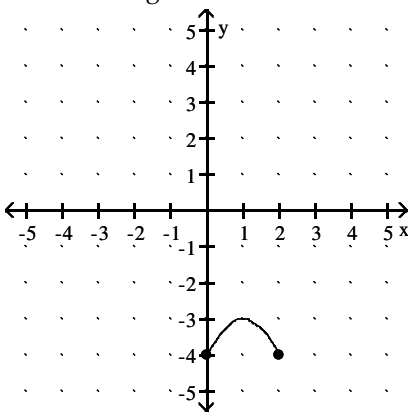
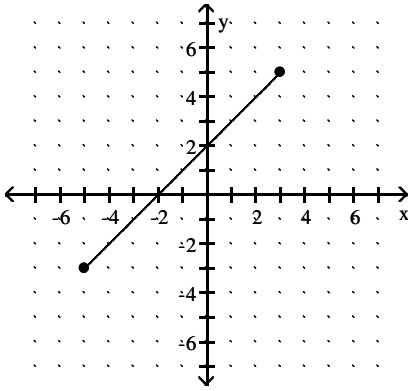
94) Find the range. 94) _____



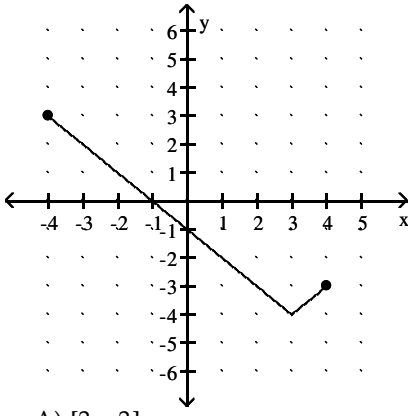
A) [–4, –3] B) [–5, 5] C) [0, 2] D) [–1, 1]

95) Find the range. 95) _____



A) [–5, 5] B) [–3, 5]
C) {–3, –2, –1, 0, 1, 2, 3, 4, 5} D) [–5, 3]

96) Find the range. 96) _____



A) [3, –3] B) [–4, 3]
C) {–5, –4, –3, –2, –1, 0, 1, 2, 3, 4, 5} D) [–3, 3]

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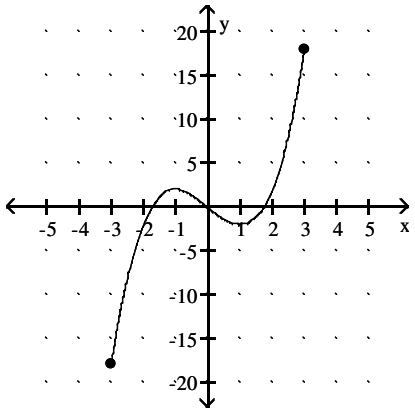
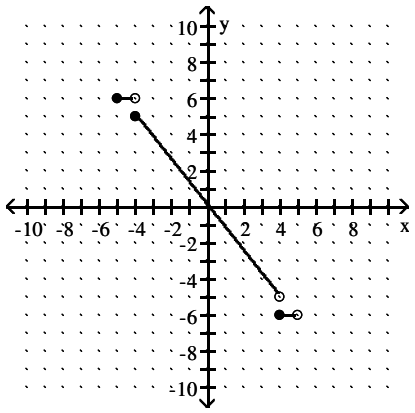
97) Find the domain. 97) _____



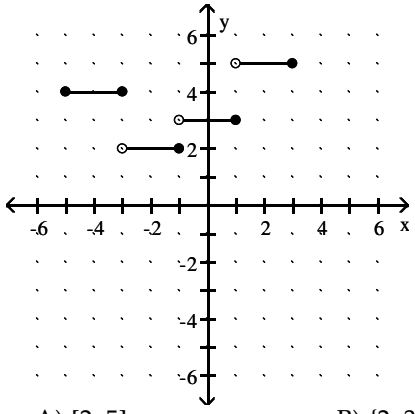
A) [–3, 3]
B) [–18, 18]
C) all real numbers
D) [–5, 5]

98) Find the domain. 98) _____



A) [–4, 4]
B) [–5, 5)
C) (–5, 5)
D) [–5, 5]

99) Find the range. 99) _____



A) [2, 5]
B) {2, 3, 4, 5}
C) [–5, 3]
D) {–5, –3, –1, 1, 3}

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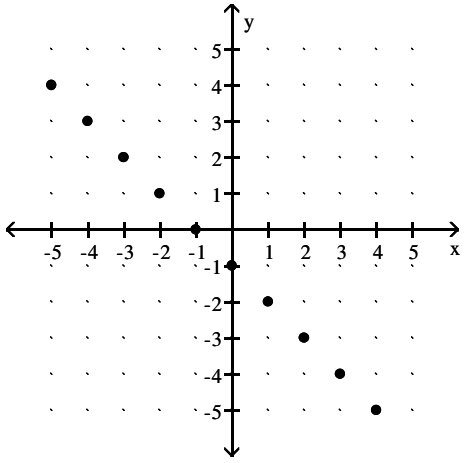
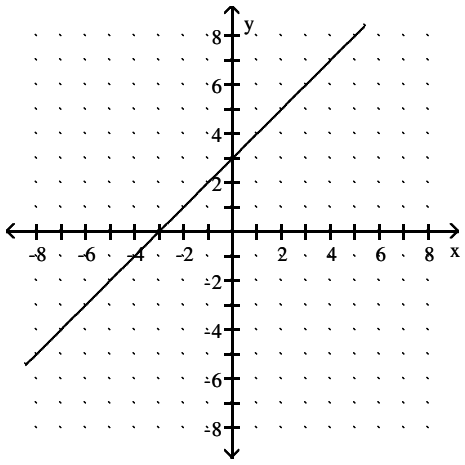
The graph of a function f is provided. Determine the requested function value.

100) f(–4) 100) _____



A) –5 B) 3 C) –3 D) 5

101) f(1) 101) _____



A) –2 B) –4 C) 4 D) 1

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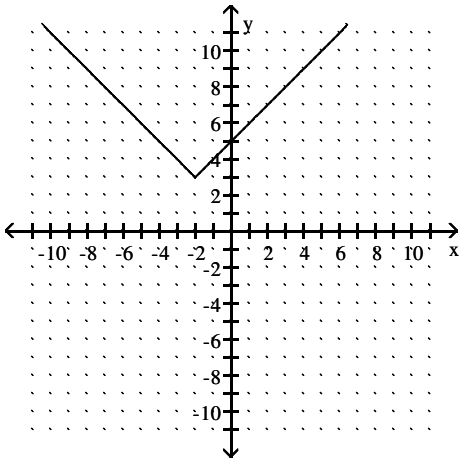
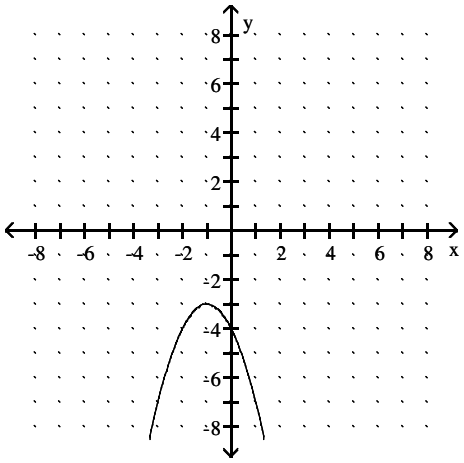
102) f(5) 102) _____



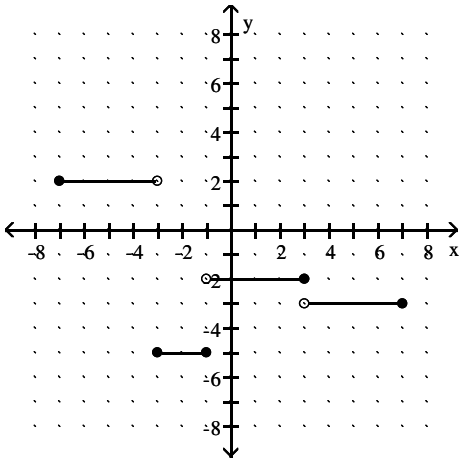
A) 0 B) 4 C) 10 D) 6

103) f(0) 103) _____



A) –4 B) –12 C) –2 D) 2

104) f(1) 104) _____



A) –2 B) 1 C) –3 D) –5

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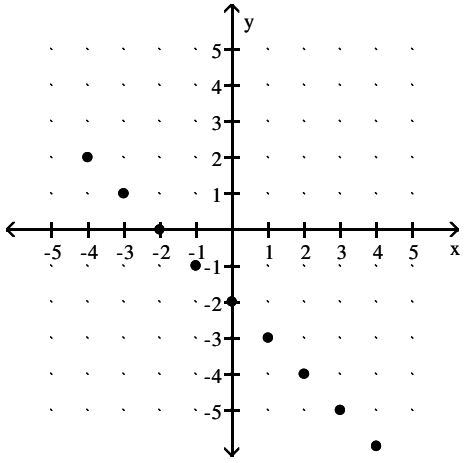
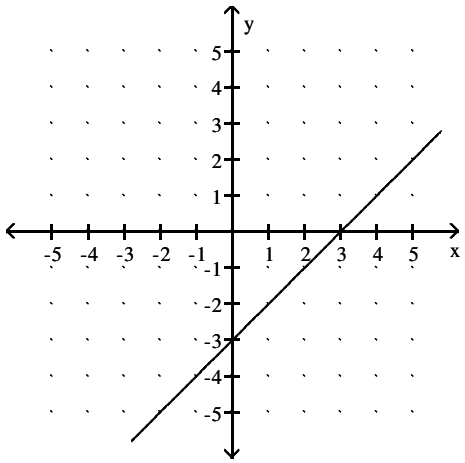
A function f is depicted in the graph. Find any input values that produce the indicated output.

105) f(x) = 1 105) _____



A) –2 B) –3 C) 1 D) –1

106) f(x) = 1 106) _____



A) –3 B) –2 C) 4 D) –4

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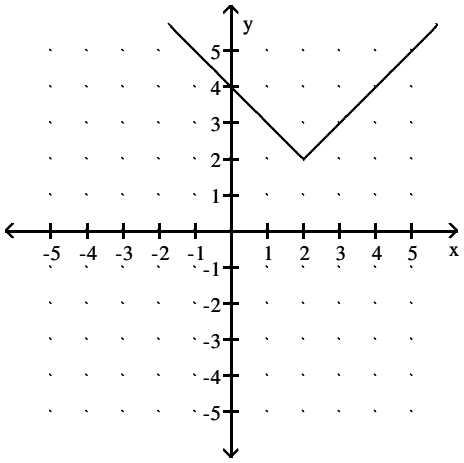
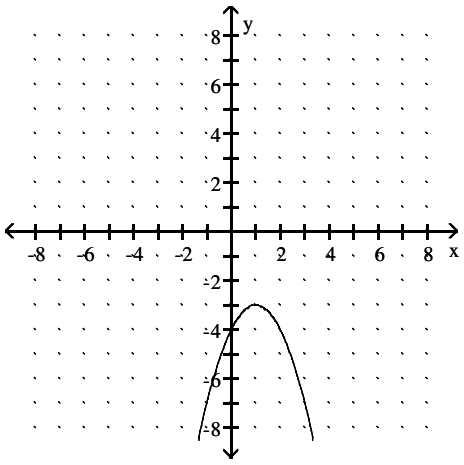
107) f(x) = 3 107) _____



A) x = 7 and x = –3
B) x = –1 and x = –3
C) x = 1
D) x = 1 and x = 3

108) f(x) = –4 108) _____



A) x = 0
B) x = 2 and x = 0
C) x = –1 and x = 3
D) x = 2

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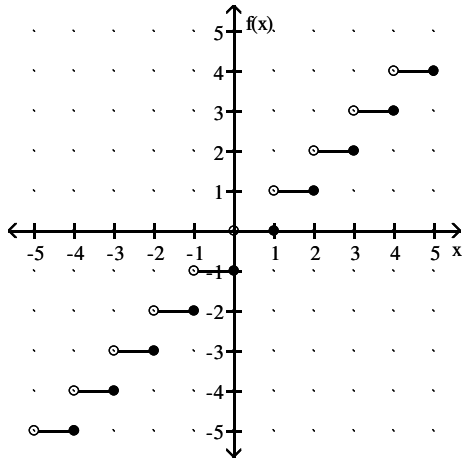
109) f(x) = –2 109) _____



A) {x| –2 ≤ x ≤ –1} B) {x| –2 < x ≤ –1} C) –1 D) {x| –2 < x < –1}

Find the domain.

110) $f(x) = \frac{2}{x - 1}$ 110) _____

A) {x| x is a real number and x ≠ 1}
B) {x| x is a real number and x ≠ 2}
C) {x| x is a real number and x ≠ –1}
D) {x| x is a real number and x ≠ –2}

111) $f(x) = \frac{8}{9 - x}$ 111) _____

A) {x| x is a real number and x ≠ 9}
B) {x| x is a real number and x ≠ –9}
C) {x| x is a real number and x ≠ –8}
D) {x| x is a real number and x ≠ 8}

112) f(x) = –6x + 9 112) _____

A) {x| x is a real number and x ≠ 1.5}
B) {x| x is a real number and x ≠ –6}
C) {x| x is a real number and x ≠ 9}
D) All real numbers

113) f(x) = 7x – 1 113) _____

A) All real numbers
B) {x| x is a real number and x ≠ –2}
C) {x| x is a real number and x ≠ –0.5}
D) {x| x is a real number and x ≠ 2}

114) $f(x) = x^2 + 5$ 114) _____

A) {x| x is a real number and x ≠ 5}
B) {x| x is a real number and x ≠ –5}
C) {x| x is a real number and x ≠ $\sqrt{5}$}
D) All real numbers

115) f(x) = |7x + 1| 115) _____

A) {x| x is a real number and x ≠ –0.14285714}
B) {x| x is a real number and x ≠ –1}
C) All real numbers
D) {x| x is a real number and x ≠ –7}

116) $f(x) = \frac{1}{|4 - x|}$ 116) _____

A) All real numbers
B) {x| x is a real number and x ≠ 4}
C) {x| x is a real number and x ≠ –4}
D) {x| x is a real number and x < 4}

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117) $f(x) = x^3 + 9$ 117) _____

A) {x| x is a real number and $x \neq 9$}

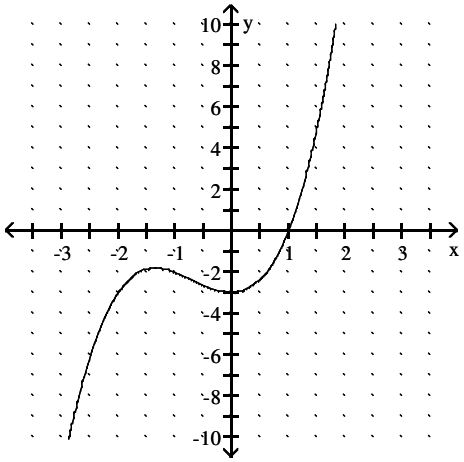
B) {x| x is a real number and $x \neq \sqrt[3]{9}$}

C) All real numbers

D) {x| x is a real number and $x \neq -9$}

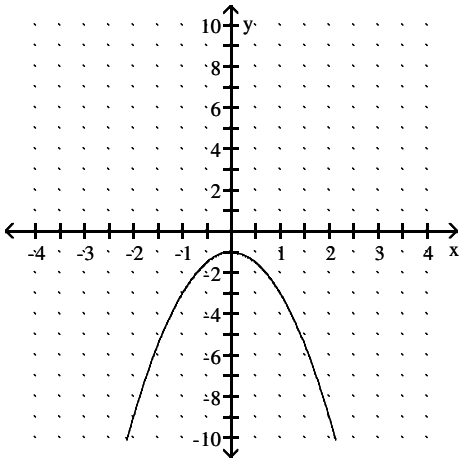
Find the function value.

118) f(−1) 118) _____



A) −4 B) −1 C) −2 D) 0

119) f(−2) 119) _____



A) −8 B) −11 C) −7 D) −9

Determine the slope and the y–intercept.

120) $y = 6x + 7$ 120) _____

A) Slope 7, y–intercept (0, 6)

B) Slope −6, y–intercept (0, 7)

C) Slope 6, y–intercept (0, 7)

D) Slope 7, y–intercept (0, −6)

121) $f(x) = -4x + 5$ 121) _____

A) Slope −4, y–intercept (0, 5)

B) Slope 4, y–intercept (0, 5)

C) Slope 5, y–intercept (0, −4)

D) Slope 5, y–intercept (0, 4)

122) $y = -3x + 3.5$ 122) _____

A) Slope 3.5, y–intercept (0, −3)

B) Slope −3, y–intercept (0, 3.5)

C) Slope 3, y–intercept (0, 3.5)

D) Slope −3, y–intercept (0, −3.5)

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123) $y = 1.4x + 2$ 123) _____

A) Slope 1.4, y–intercept (0, 2)
B) Slope –1.4, y–intercept (0, 2)
C) Slope 2, y–intercept (0, –1.4)
D) Slope 2, y–intercept (0, 1.4)

124) $6x - 9y = -27$ 124) _____

A) Slope 1, y–intercept (0, –3)
B) Slope $\frac{2}{3}$, y–intercept (0, 3)
C) Slope –1, y–intercept (0, 3)
D) Slope $-\frac{2}{3}$, y–intercept (0, –3)

125) $3x - 4y - 4 = 0$ 125) _____

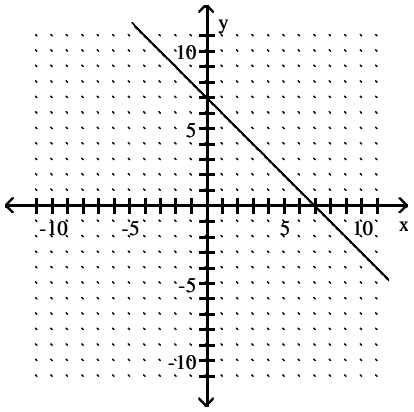
A) Slope $\frac{3}{4}$, y–intercept (0, –1)
B) Slope $\frac{4}{3}$, y–intercept (0, 1)
C) Slope $-\frac{4}{3}$, y–intercept (0, –1)
D) Slope $-\frac{3}{4}$, y–intercept (0, 1)

126) $14y + 2x + 7 = 4 + 2x$ 126) _____

A) Slope 0, y–intercept $(0, \frac{3}{14})$
B) Slope $-\frac{1}{7}$, y–intercept $(0, -\frac{3}{7})$
C) Slope 0, y–intercept $(0, -\frac{3}{14})$
D) Slope $\frac{1}{7}$, y–intercept $(0, -\frac{3}{14})$

Find the slope of the line.

127) 127) _____



A) 1 B) 7 C) –7 D) –1

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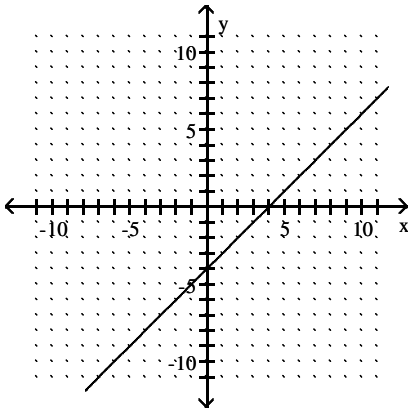
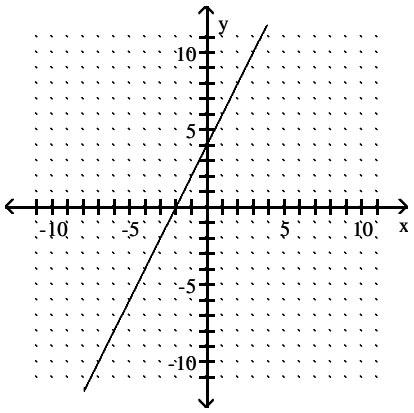
128) 128) _____



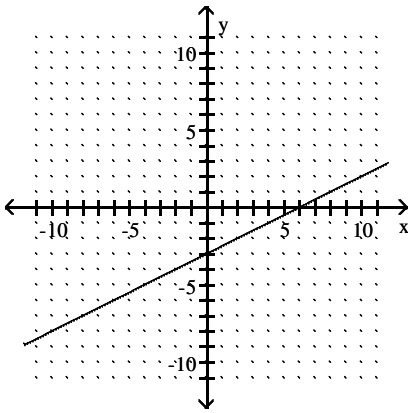
A) –1 B) 4 C) 1 D) –4

129) 129) _____



A) 2 B) $-\frac{1}{2}$ C) $\frac{1}{2}$ D) –2

130) 130) _____



A) $\frac{1}{2}$ B) $-\frac{1}{2}$ C) –2 D) 2

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Find the slope of the line containing the two given points.

131) (9, 4) and (2, 6) 131) _____

A) $\frac{2}{7}$ B) $\frac{10}{11}$ C) $-\frac{7}{2}$ D) $-\frac{2}{7}$

132) (–4, 3) and (7, –4) 132) _____

A) $\frac{7}{11}$ B) $-\frac{7}{11}$ C) $-\frac{11}{7}$ D) $-\frac{1}{3}$

133) (–3, 3) and (9, 3) 133) _____

A) 0 B) 1 C) Undefined D) $\frac{1}{2}$

134) (16, 12) and (–8, –13) 134) _____

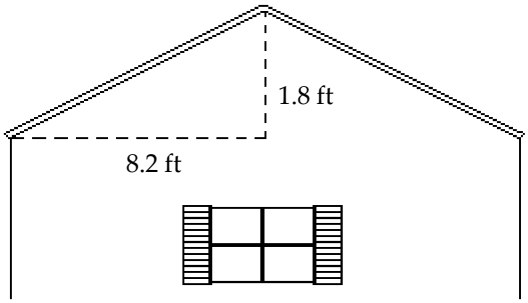
A) $\frac{25}{24}$ B) $-\frac{1}{8}$ C) $-\frac{25}{24}$ D) $\frac{24}{25}$

135) (–9.6, 5.8) and (16.6, 15.2) 135) _____

A) $\frac{131}{47}$ B) $-\frac{47}{131}$ C) $\frac{47}{131}$ D) $-\frac{131}{47}$

Find the slope (or rate of change). Use appropriate units.

136) Find the slope (or pitch) of the roof. 136) _____



A) 22% B) 455.6% C) 4.56% D) 0.22%

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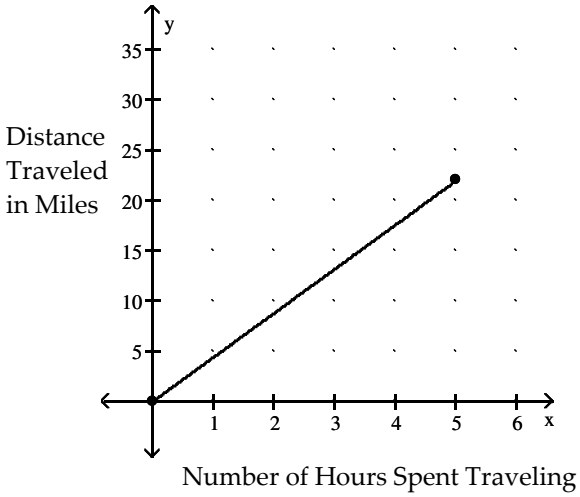
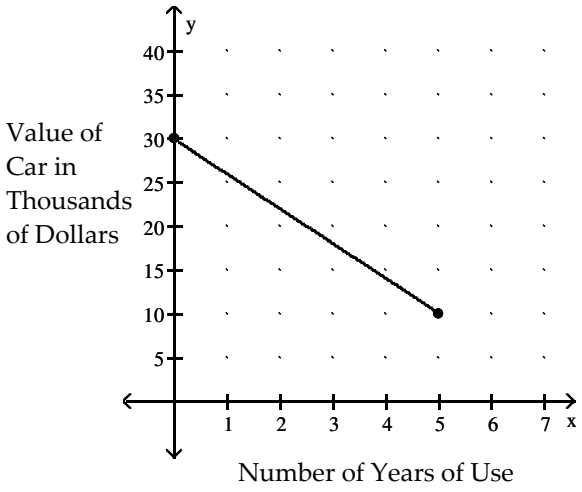
137) 137) _____



A) 0.4 miles per hour B) 2.4 miles per hour
C) 4.4 miles per hour D) 0.2 miles per hour

138) 138) _____



A) $5000 per year B) –$5000 per year C) –$4000 per year D) $4000 per year

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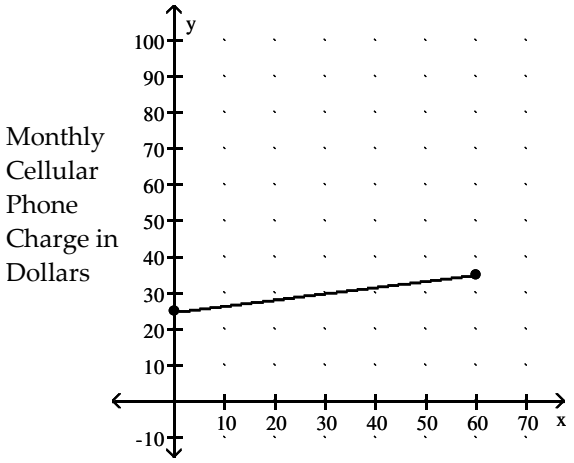
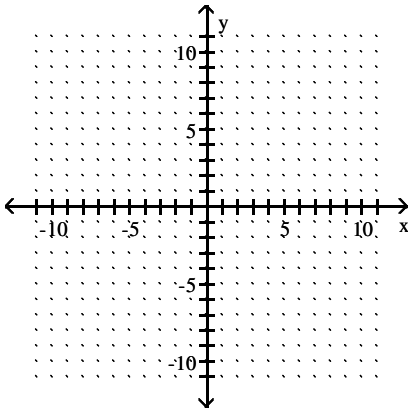
139) 139) _____



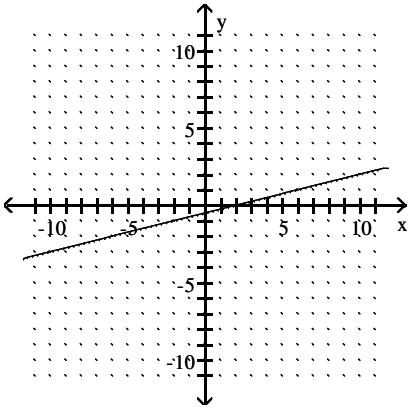
A) $1.00 per minute
B) $2.20 per minute
C) $0.17 per minute
D) $6.00 per minute

Find the intercepts and then graph the line.

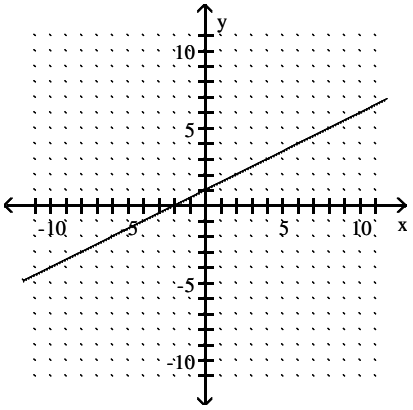
140) $12y - 3x = -6$ 140) _____



A) $(0, -\frac{1}{2})$; (2, 0)



B) $(0, \frac{1}{2})$; (−2, 0)



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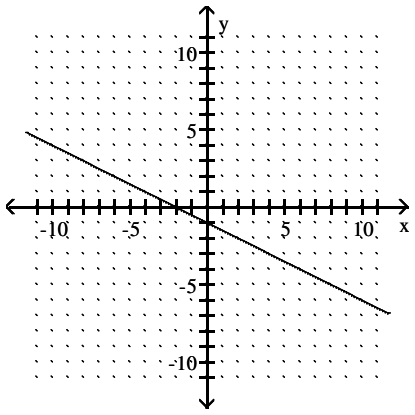
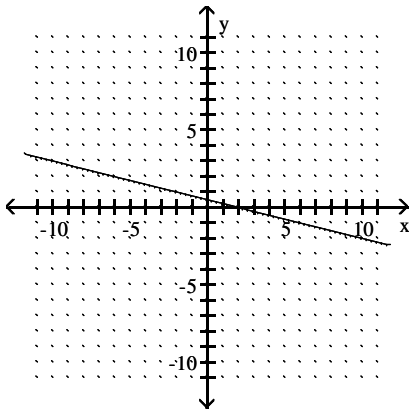
C) $(0, -\frac{1}{2})$; $(-2, 0)$



D) $(0, \frac{1}{2})$; $(2, 0)$



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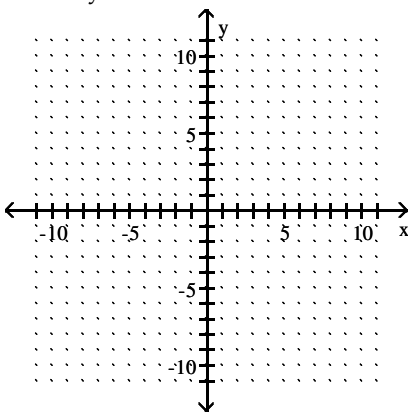
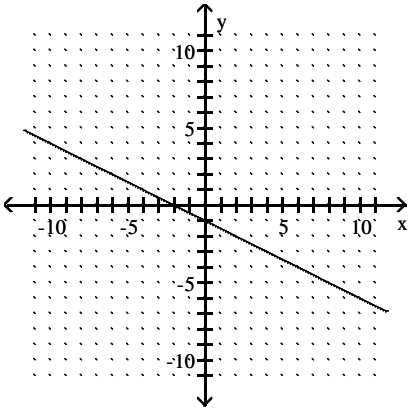
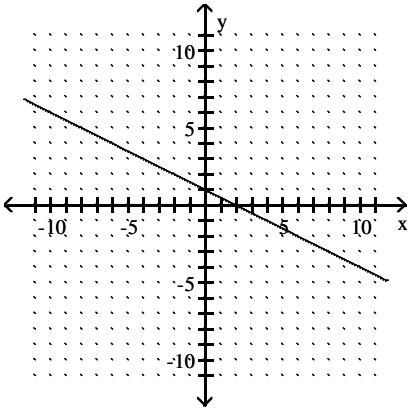
141) $-4x - 8y = 8$ 141) _____



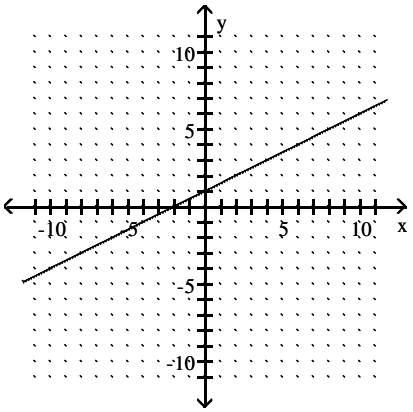
A) (0, –1); (–2, 0)



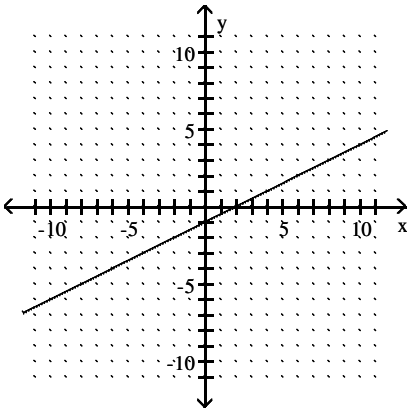
B) (0, 1); (2, 0)



C) (0, 1); (–2, 0)



D) (0, –1); (2, 0)



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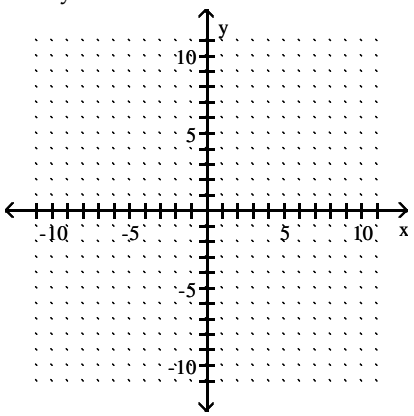
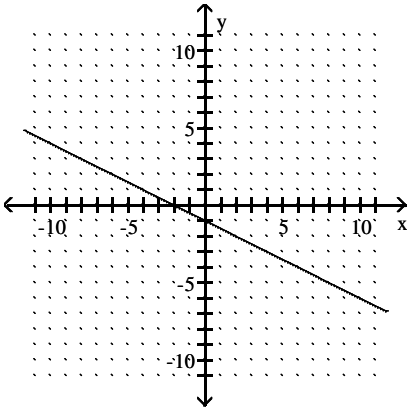
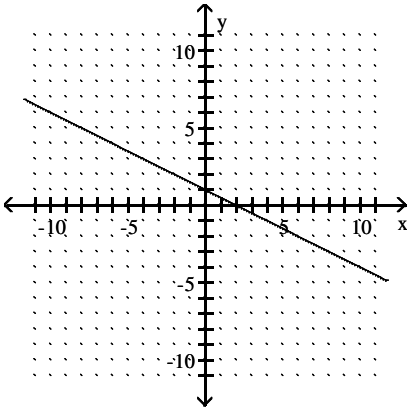
142) $x - 2y = 2$ 142) _____



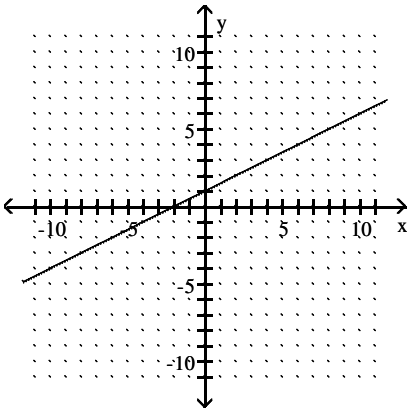
A) (0, –1); (–2, 0)



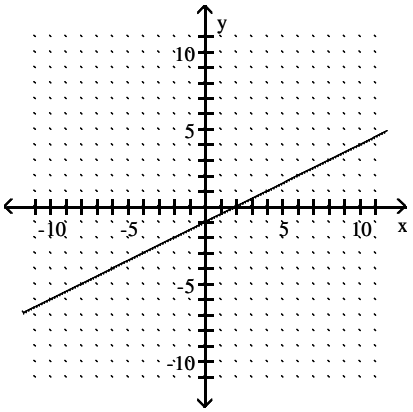
B) (0, 1); (2, 0)



C) (0, 1); (–2, 0)



D) (0, –1); (2, 0)



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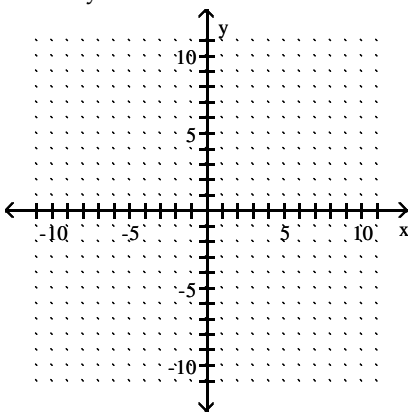
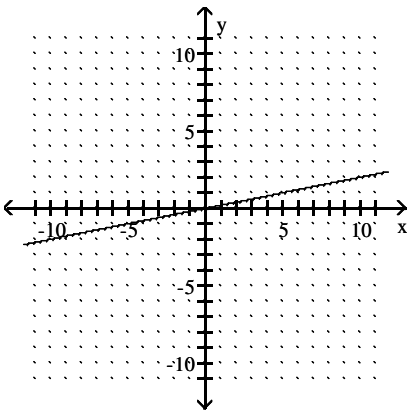
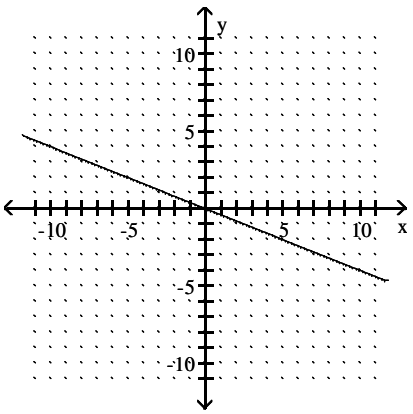
143) $2x - 10y = 0$ 143) _____



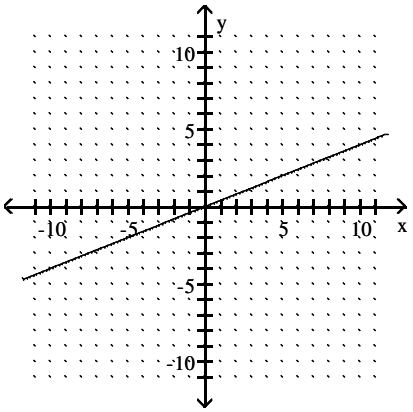
A) (0, 0); (0, 0)



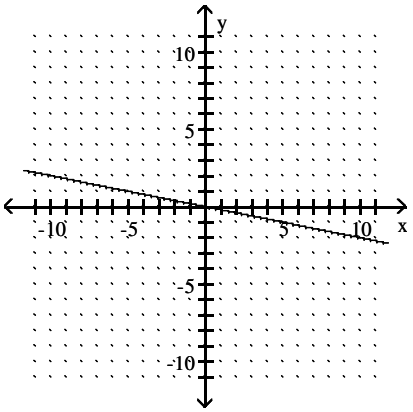
B) (0, 0); (0, 0)



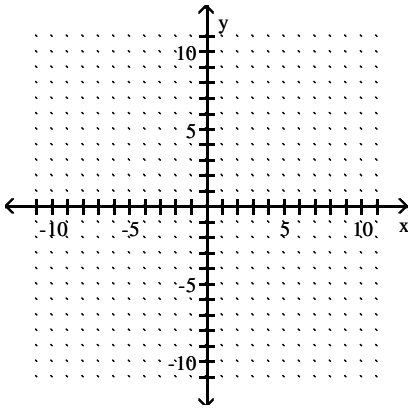
C) (0, 0); (0, 0)



D) (0, 0); (0, 0)



144) $8x - 5 = y$ 144) _____



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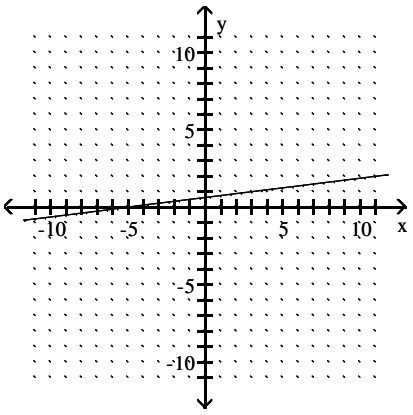
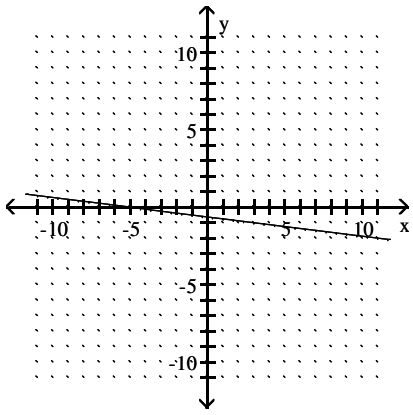
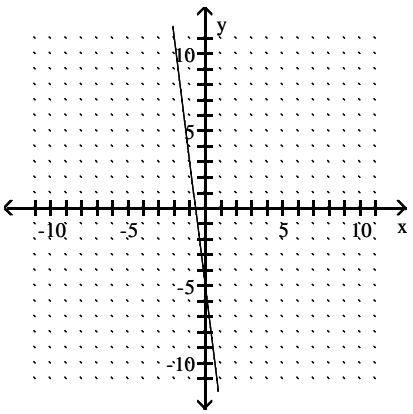
A) $(0, \frac{5}{8})$; (–5, 0)



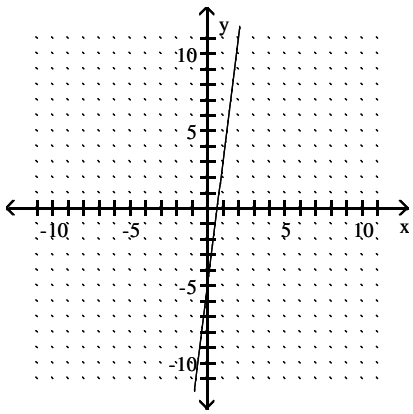
B) $(0, -\frac{5}{8})$; (–5, 0)



C) (0, –5); $(-\frac{5}{8}, 0)$

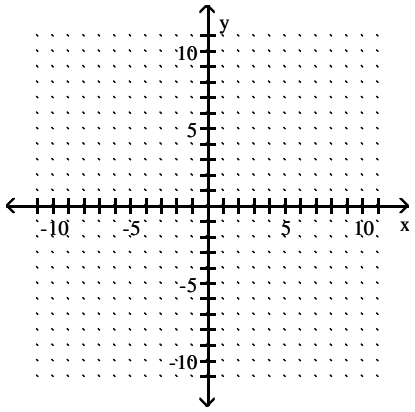


D) (0, –5); $(\frac{5}{8}, 0)$



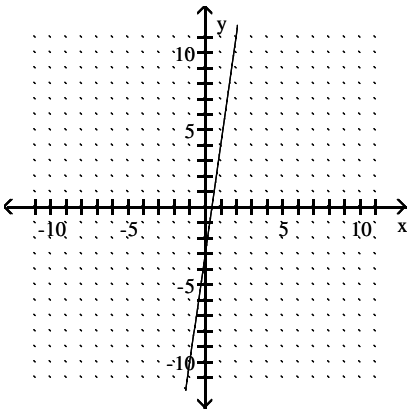
145) f(x) = –3 – 7x

145) _____

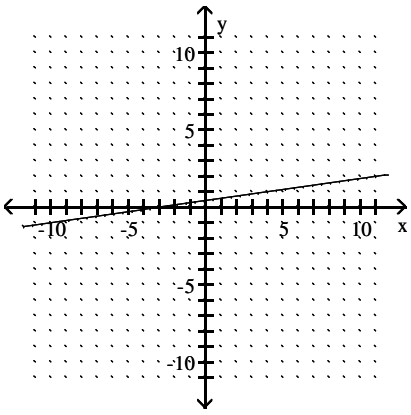


Intermediate Algebra 13th edition Bittinger Test Bank

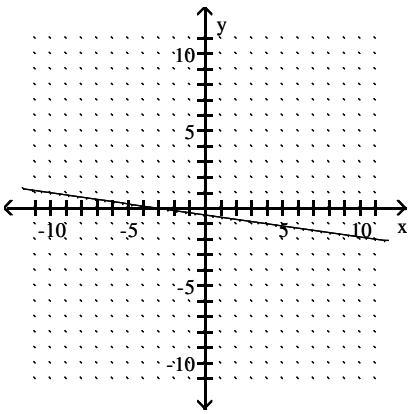
A) $(0, -3); (\frac{3}{7}, 0)$



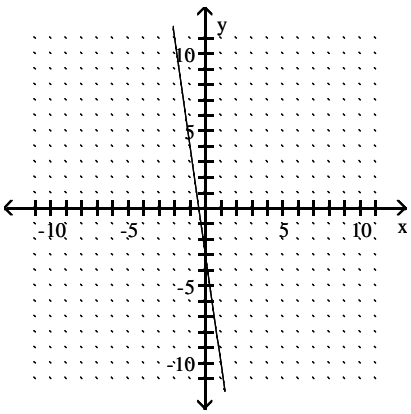
B) $(0, \frac{3}{7})$; $(-3, 0)$



C) $(0, -\frac{3}{7})$; $(-3, 0)$



D) $(0, -3); (-\frac{3}{7}, 0)$



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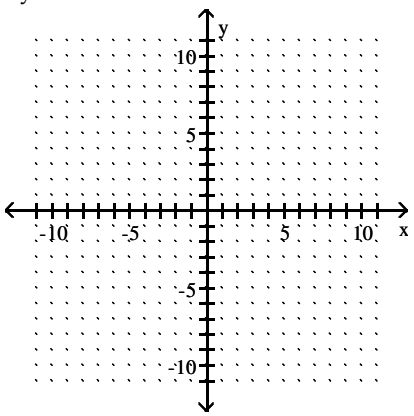
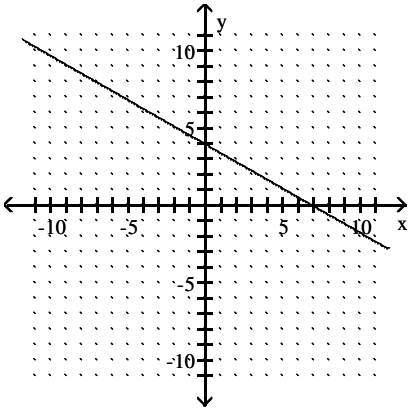
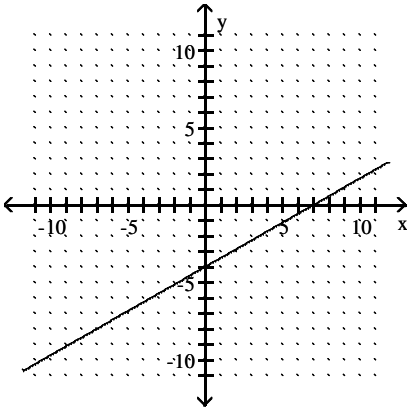
146) $7y = -28 + 4x$ 146) _____



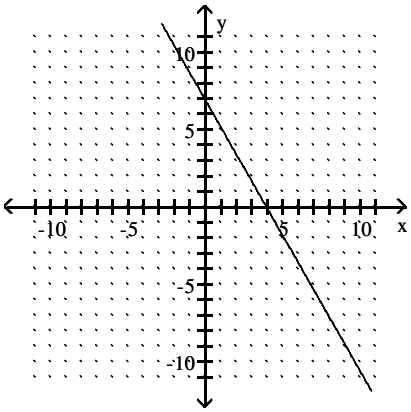
A) (0, 4); (7, 0)



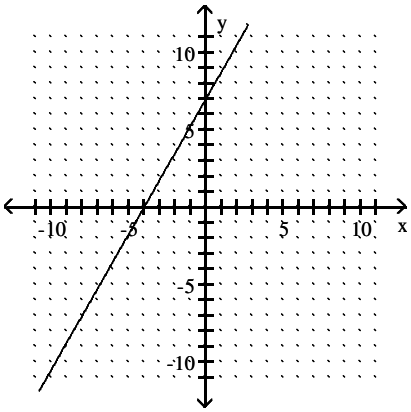
B) (0, −4); (7, 0)



C) (0, 7); (4, 0)



D) (0, 7); (−4, 0)



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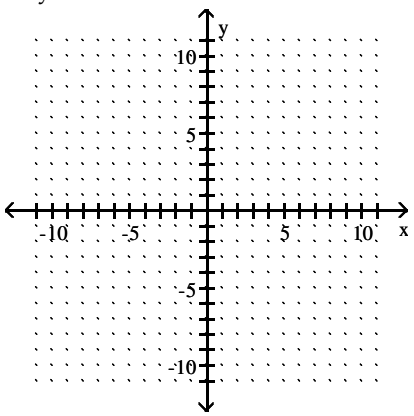
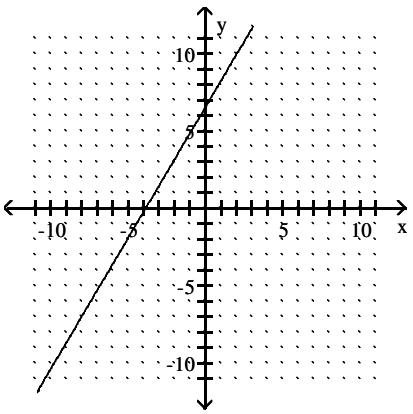
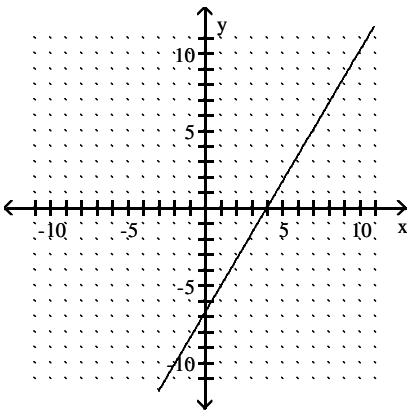
147) 1.3y – 2.2x = 8.58 147) _____



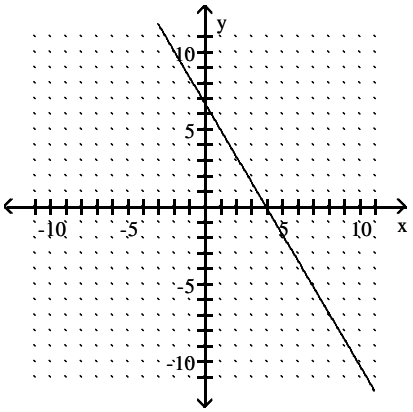
A) (0, 6.6); (–3.9, 0)



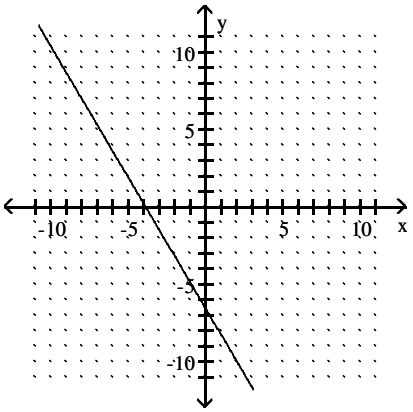
B) (0, –3.9); (6.6, 0)



C) (0, 3.9); (6.6, 0)



D) (0, –6.6); (–3.9, 0)



Graph using the slope and the y–intercept.

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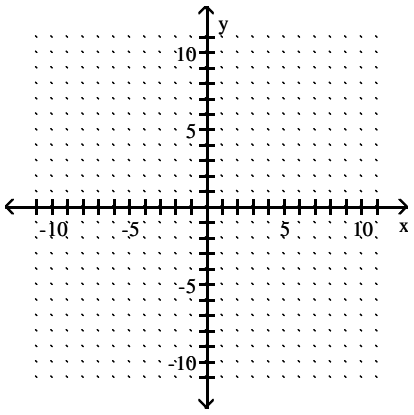
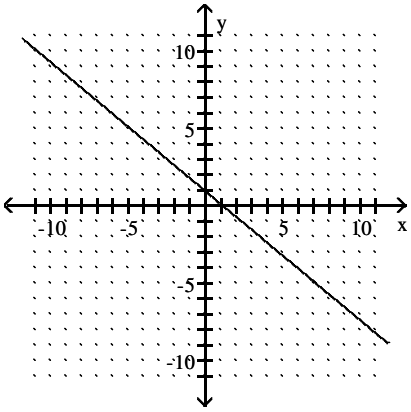
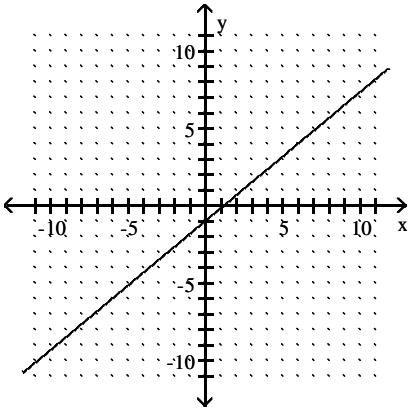
148) $y = \frac{5}{6}x + 1$ 148) _____



A)



B)



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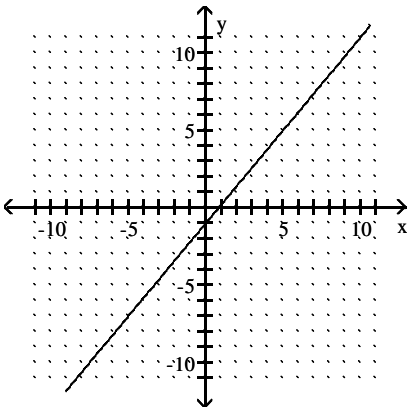
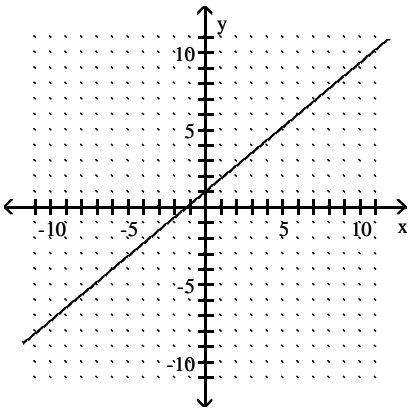


D)



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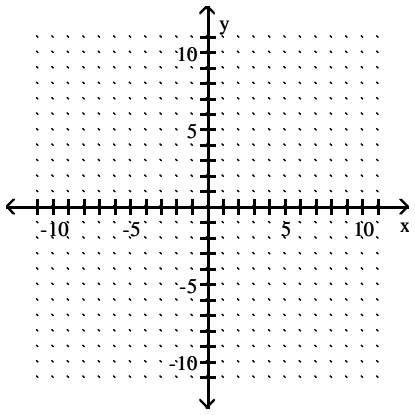
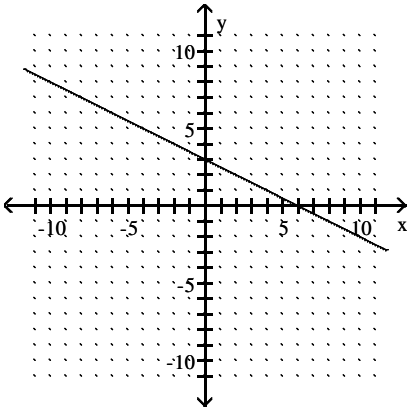
149) $f(x) = -\frac{1}{2}x + 3$ 149) _____



A)



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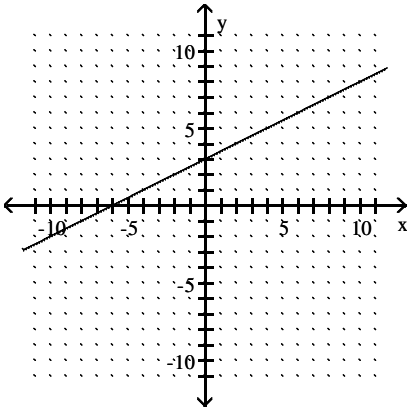

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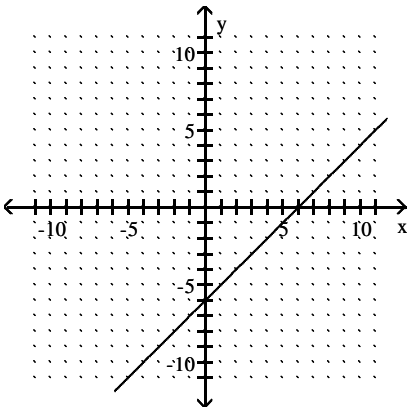
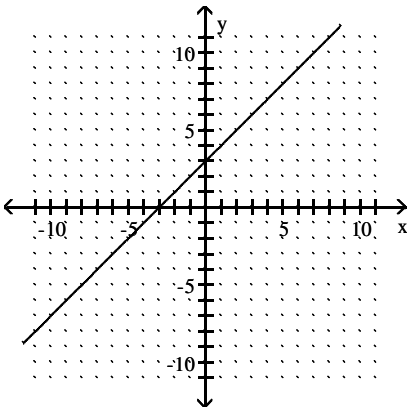


D)



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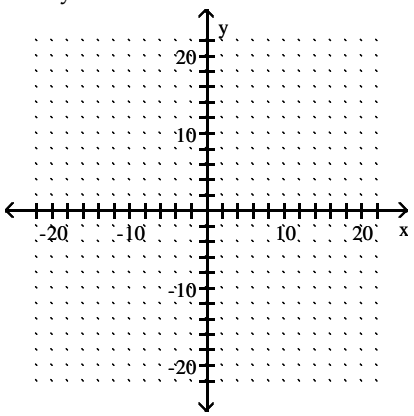
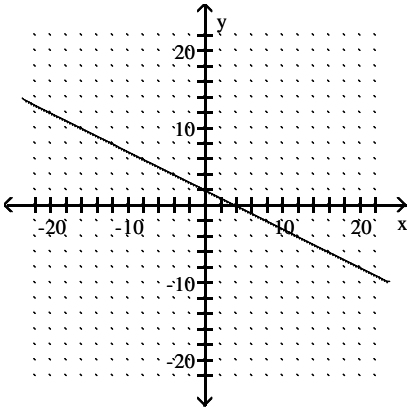
150) $x - 2y = 4$ 150) _____



A)



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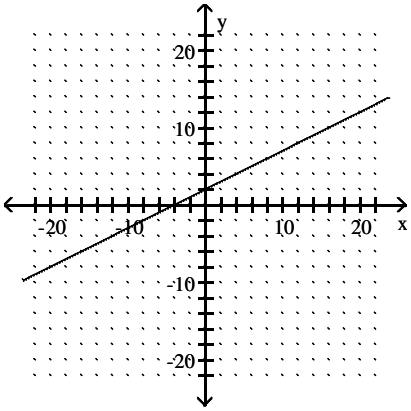
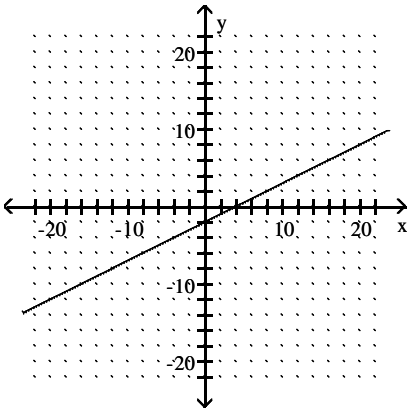
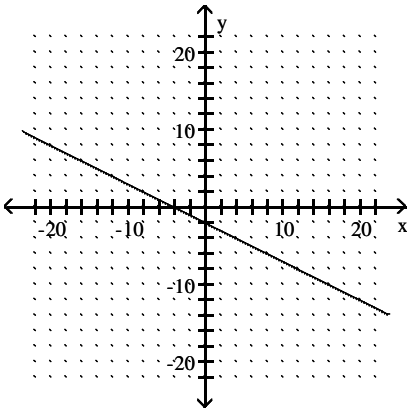


C)



D)



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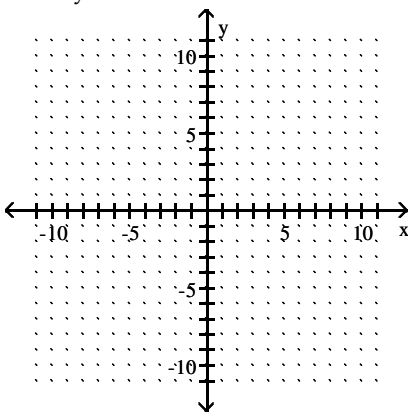
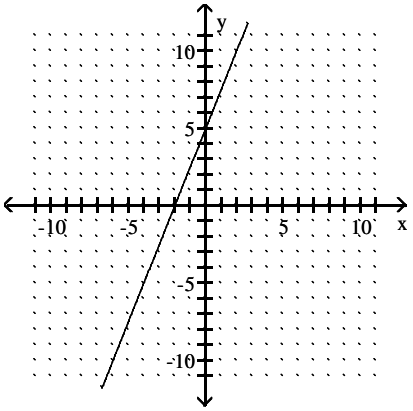
151) $2x + 5y = 10$ 151) _____



A)



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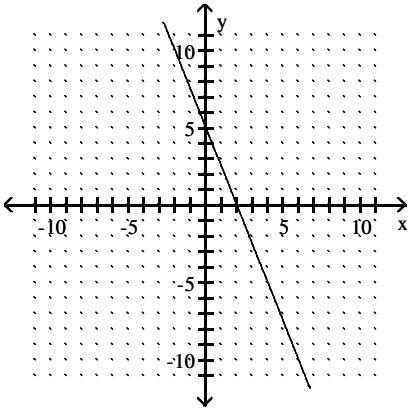
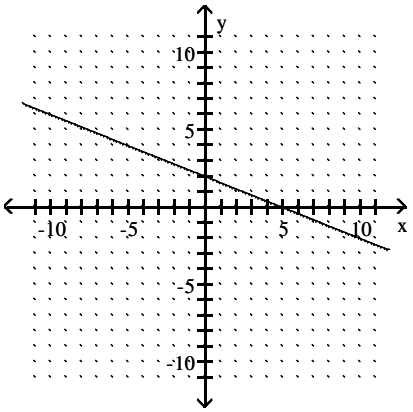


C)



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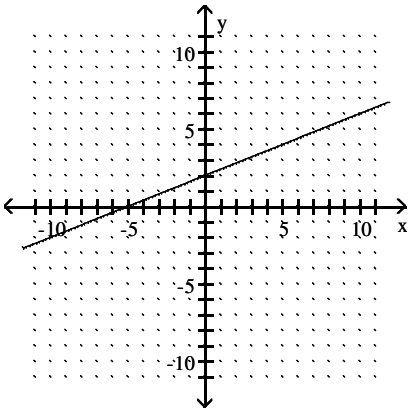

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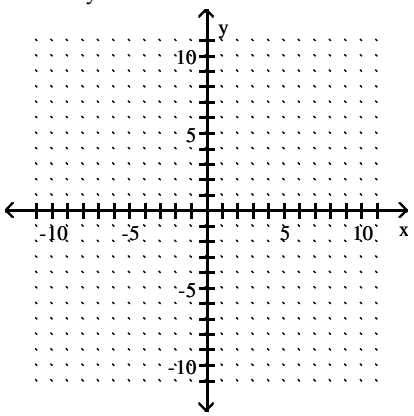
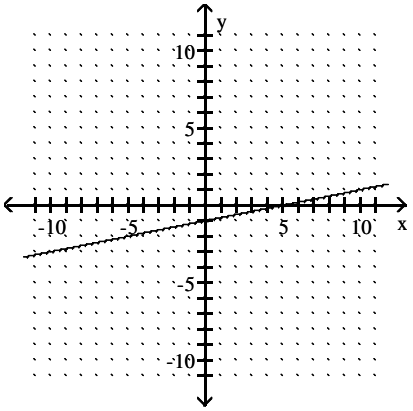
152) $3x - 15y = 15$ 152) _____



A)



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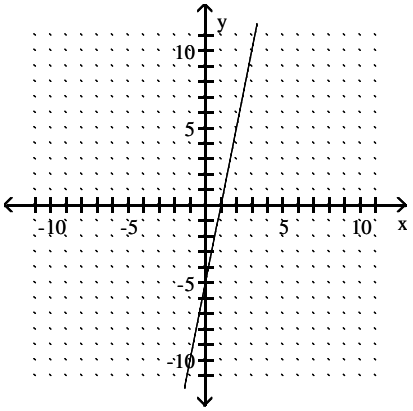

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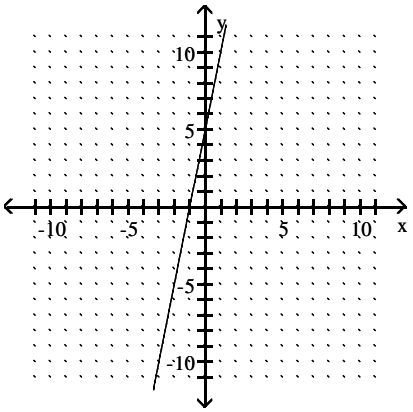
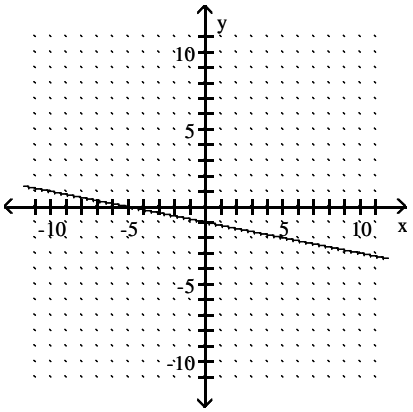


D)



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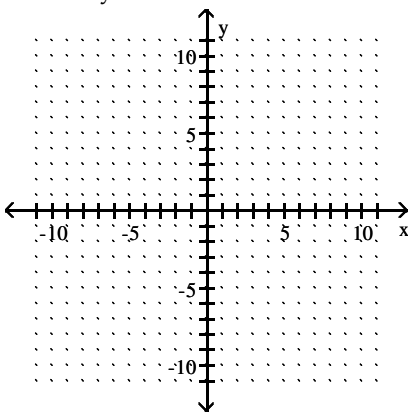
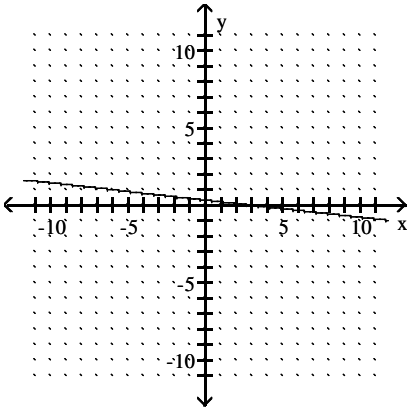
153) $-3x - 27y = 9$ 153) _____



A)



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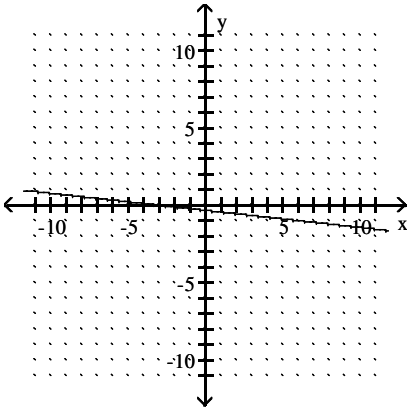
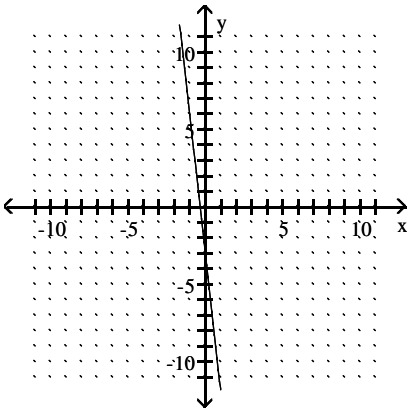
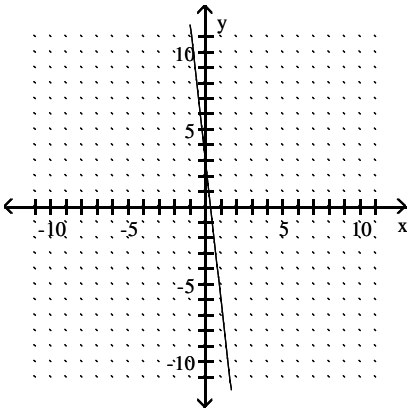


C)



D)



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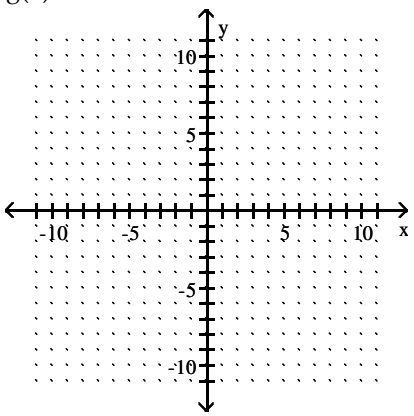
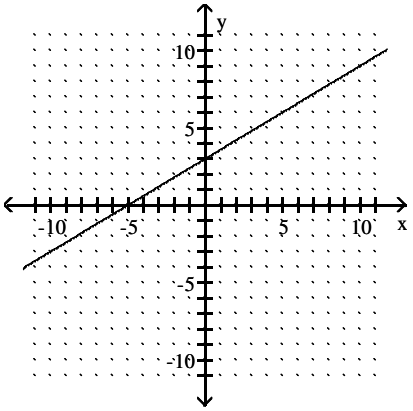
154) $g(x) = -0.6x + 3$ 154) _____



A)



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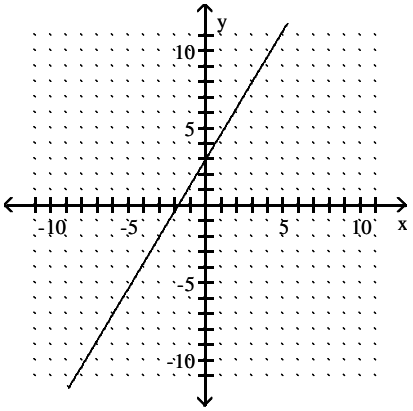
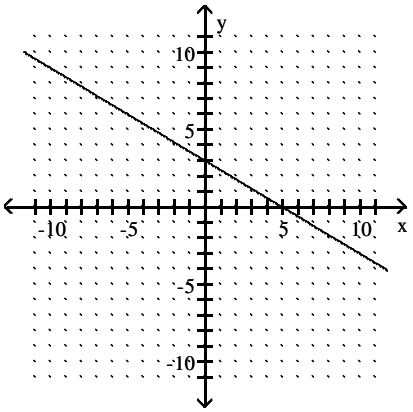


C)



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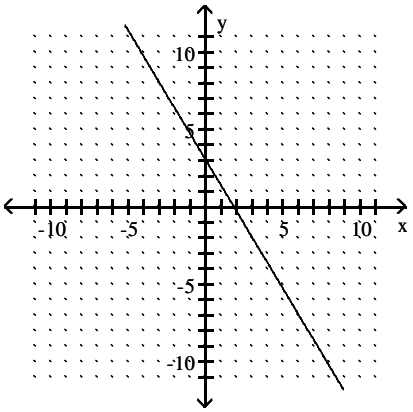

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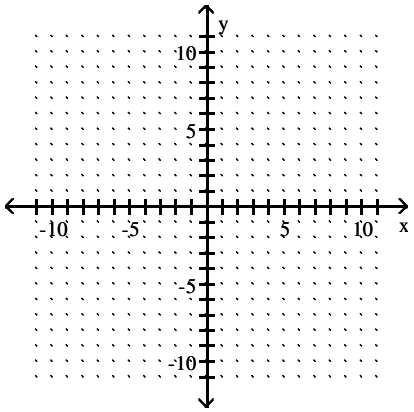
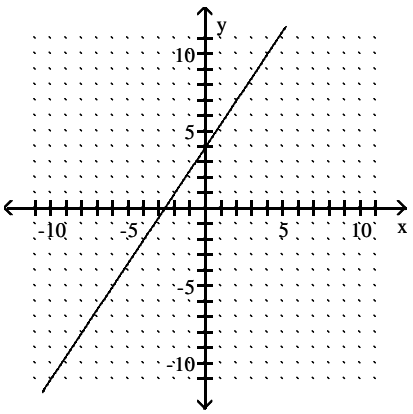
155) $6 \cdot f(x) = 4x - 16$ 155) _____



A)



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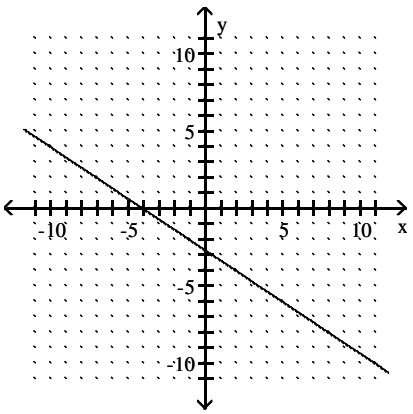

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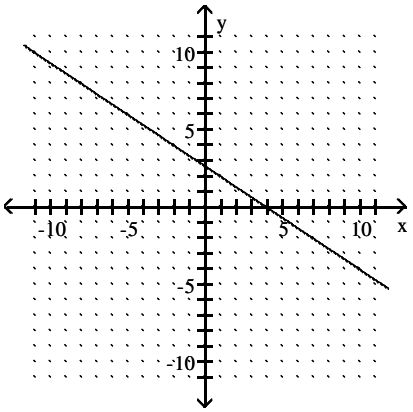
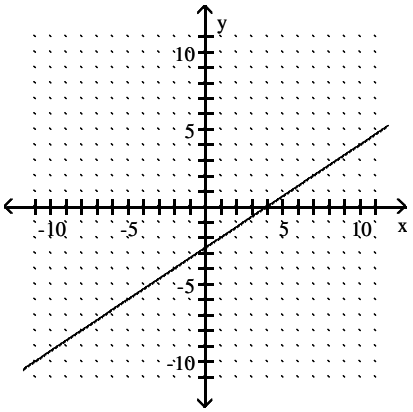


D)



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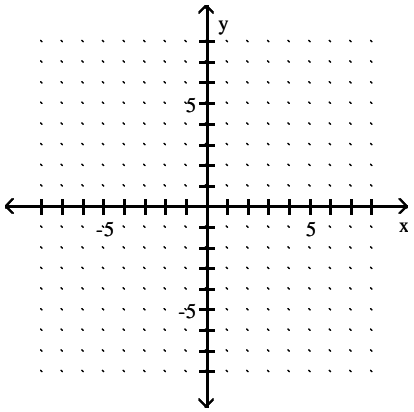
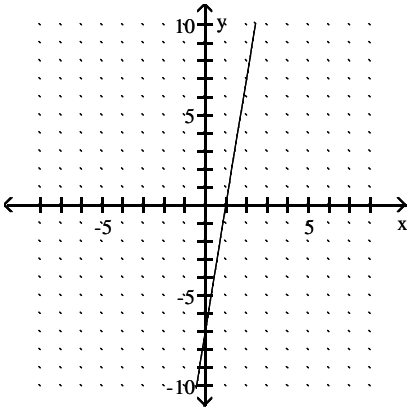
156) $-2x + 14 \cdot f(x) = -14$ 156) _____



A)



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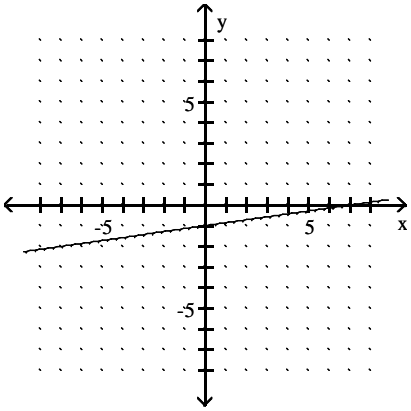

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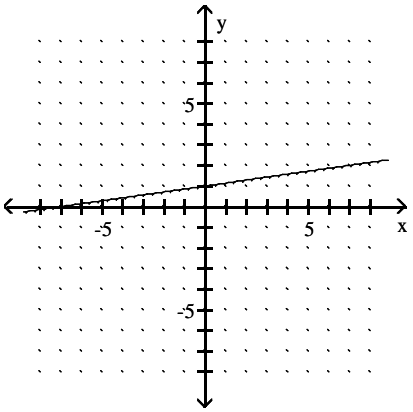

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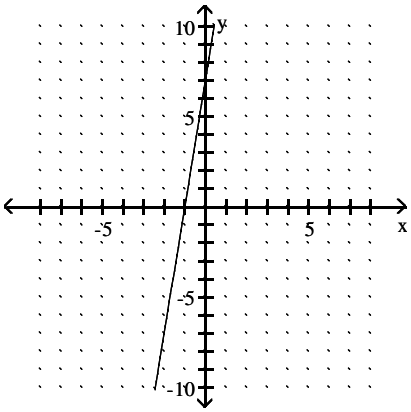

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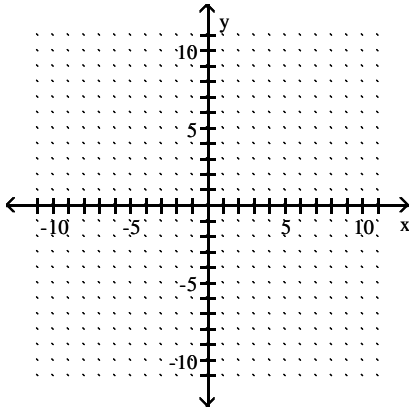
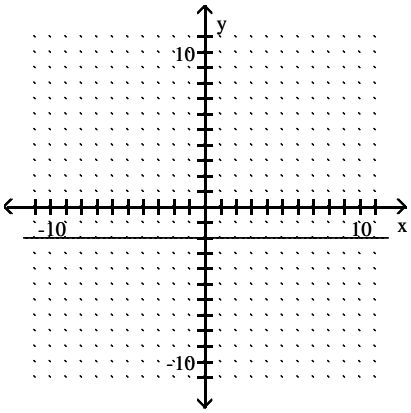
Graph.

157) $y = 2$ 157) _____



A)



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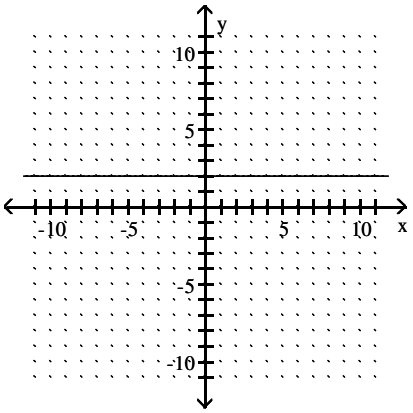

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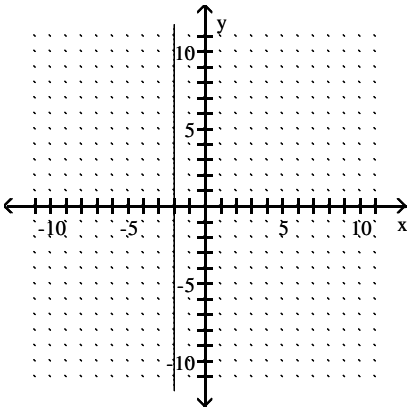
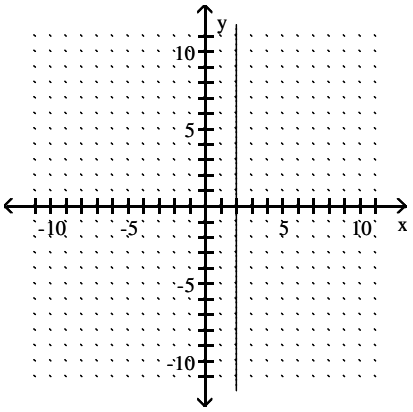


D)



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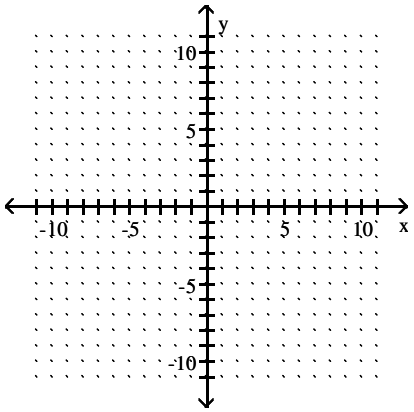
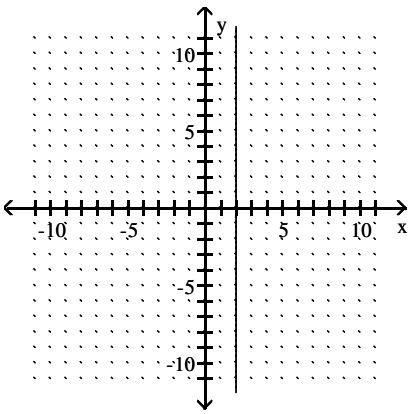
158) x = 2

158) _____



A)



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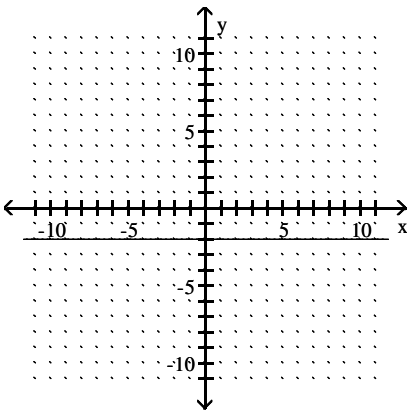

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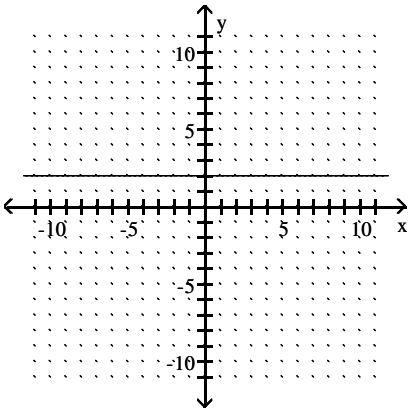
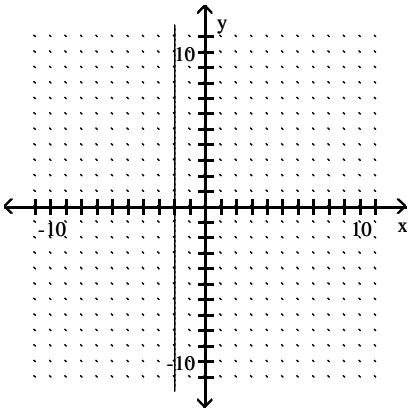


D)



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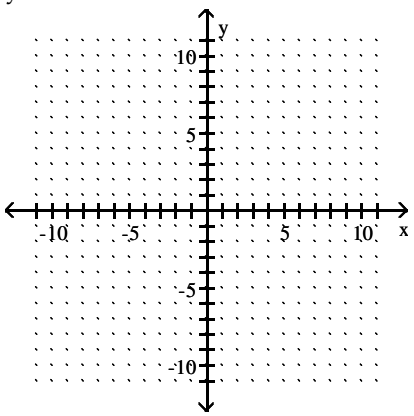
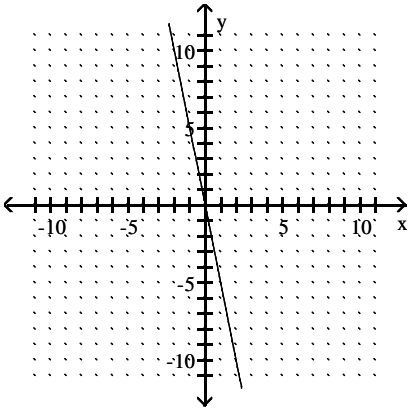
159) $y + 5 = 0$ 159) _____



A)



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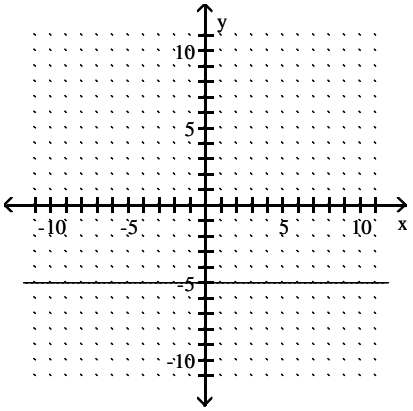

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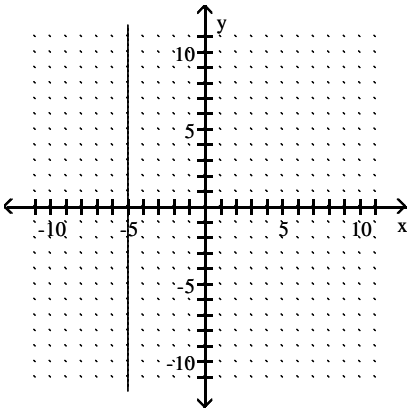
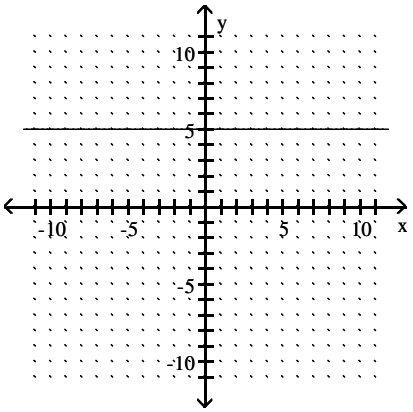


D)



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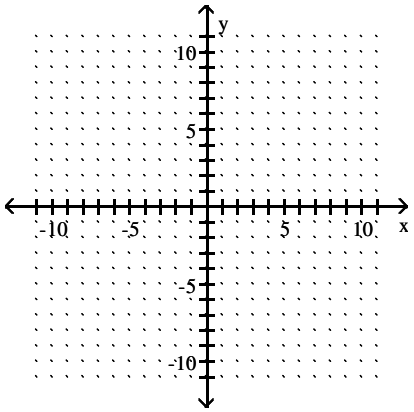
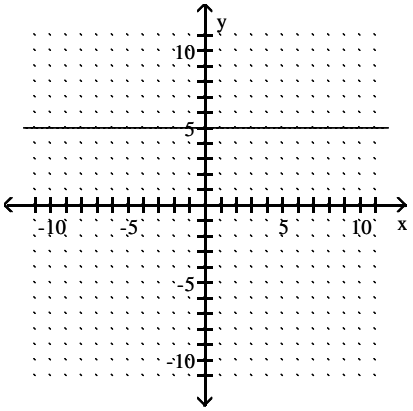
160) $19x = 95$ 160) _____



A)



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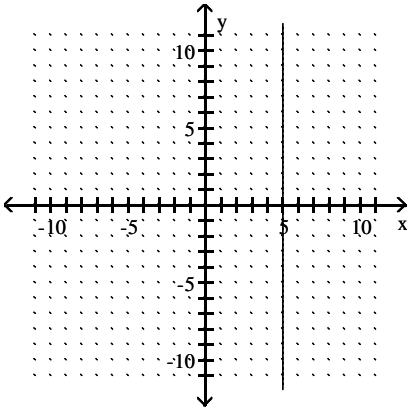

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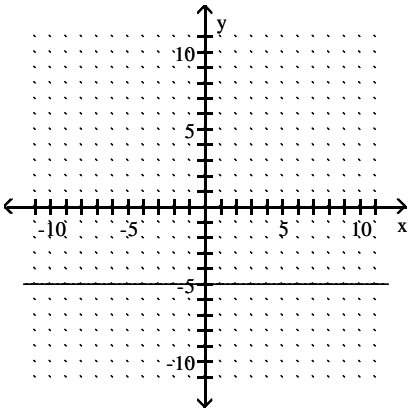
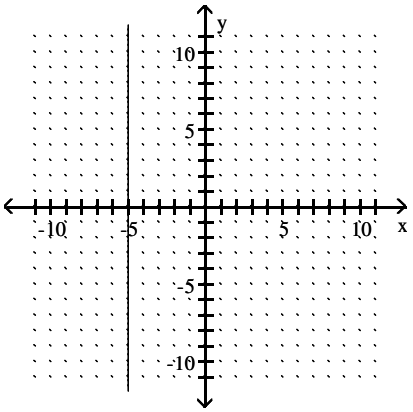


D)



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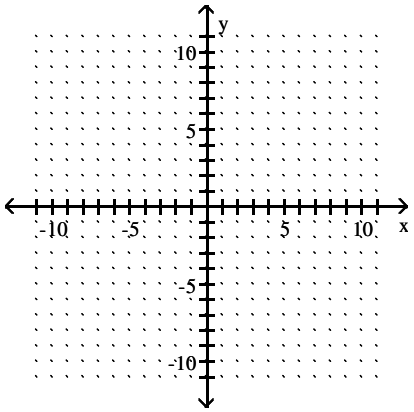
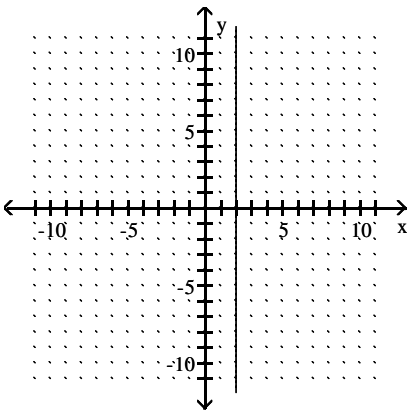
161) $2 \cdot f(x) + 3x = 2 + 3x$ 161) _____



A)



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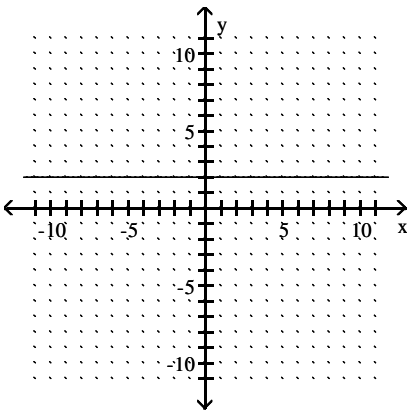
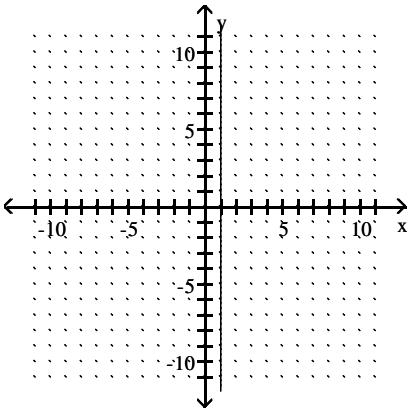
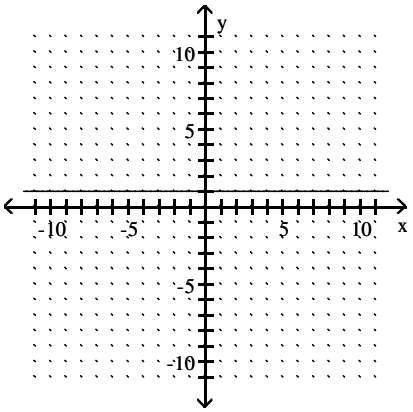


C)



D)



If possible, determine the slope.

162) $x = -6$ 162) _____

A) Not defined B) $-\frac{1}{6}$ C) 0 D) -6

163) $y = -\frac{1}{5}$ 163) _____

A) Not defined B) -5 C) 0 D) $-\frac{1}{5}$

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164) $7 \cdot f(x) - 1 = 0$ 164) _____

A) 0 B) 7 C) $\frac{1}{7}$ D) Not defined

165) $4 - 3x = 8 + 2x$ 165) _____

A) 0 B) Not defined C) $\frac{4}{5}$ D) $-\frac{4}{5}$

Tell whether the lines are "parallel", "perpendicular", or "neither."

166) $3x - 8y = 8$ 166) _____
$32x + 12y = 8$

A) Neither B) Perpendicular C) Parallel

167) $3x - 4y = -20$ 167) _____
$8x + 6y = -20$

A) Neither B) Parallel C) Perpendicular

168) $9x + 3y = 12$ 168) _____
$6x + 2y = 11$

A) Perpendicular B) Neither C) Parallel

169) $9x + 3y = 12$ 169) _____
$12x + 4y = 18$

A) Parallel B) Neither C) Perpendicular

170) $3x - 3y = 4$ 170) _____
$2x + 4y = 4$

A) Neither B) Perpendicular C) Parallel

171) $y + 1 = -4x$ 171) _____
$6y = 12x - 16$

A) Perpendicular B) Neither C) Parallel

172) $3x = 20$ 172) _____
$9y = 20$

A) Neither B) Perpendicular C) Parallel

Find a linear function whose graph has the given slope and y–intercept.

173) Slope $-\frac{8}{9}$, y–intercept $\left(0, \frac{67}{9}\right)$ 173) _____

A) $f(x) = -\frac{8}{9}x - \frac{67}{9}$ B) $f(x) = \frac{8}{9}x - \frac{67}{9}$

C) $f(x) = -\frac{8}{9}x + \frac{67}{9}$ D) $f(x) = \frac{8}{9}x + \frac{67}{9}$

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174) Slope $-\frac{2}{3}$, y–intercept (0, 6) 174) _____

A) $f(x) = \frac{2}{3}x - 6$ B) $f(x) = -\frac{2}{3}x - 6$ C) $f(x) = -\frac{2}{3}x + 6$ D) $f(x) = \frac{2}{3}x + 6$

175) Slope $\frac{2}{5}$, y–intercept (0, 2) 175) _____

A) $f(x) = \frac{2}{5}x - 2$ B) $f(x) = \frac{2}{5}x + 2$ C) $f(x) = -\frac{2}{5}x - 2$ D) $f(x) = -\frac{2}{5}x + 2$

176) Slope $\frac{1}{2}$, y–intercept (0, 1) 176) _____

A) $f(x) = \frac{1}{2}x + 1$ B) $f(x) = \frac{1}{2}x - 1$ C) $f(x) = -\frac{1}{2}x + 1$ D) $f(x) = -\frac{1}{2}x - 1$

177) Slope $-\frac{2}{3}$, y–intercept $\frac{23}{3}$ 177) _____

A) $f(x) = -\frac{2}{3}x + \frac{23}{3}$ B) $f(x) = \frac{2}{3}x + \frac{23}{3}$

C) $f(x) = -\frac{2}{3}x - \frac{23}{3}$ D) $f(x) = \frac{2}{3}x - \frac{23}{3}$

178) Slope $-\frac{3}{4}$, y–intercept 2 178) _____

A) $f(x) = -\frac{3}{4}x + 2$ B) $f(x) = \frac{3}{4}x - 2$ C) $f(x) = \frac{3}{4}x + 2$ D) $f(x) = -\frac{3}{4}x - 2$

179) Slope $-\frac{8}{9}$, y–intercept 3 179) _____

A) $f(x) = -\frac{8}{9}x - 3$ B) $f(x) = \frac{8}{9}x + 3$ C) $f(x) = -\frac{8}{9}x + 3$ D) $f(x) = \frac{8}{9}x - 3$

180) Slope $-\frac{5}{9}$, y–intercept 2 180) _____

A) $f(x) = -\frac{5}{9}x + 2$ B) $f(x) = \frac{5}{9}x - 2$ C) $f(x) = \frac{5}{9}x + 2$ D) $f(x) = -\frac{5}{9}x - 2$

181) Slope 9, y–intercept (0, –10) 181) _____

A) $f(x) = -10x - 9$ B) $f(x) = 9x + 10$ C) $f(x) = 9x - 10$ D) $f(x) = 9x + 9$

182) Slope –9, y–intercept $\left(0, -\frac{3}{4}\right)$ 182) _____

A) $f(x) = -\frac{3}{4}x + 9$ B) $f(x) = -9x - \frac{3}{4}$ C) $f(x) = -\frac{3}{4}x - 9$ D) $f(x) = -9x + \frac{3}{4}$

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Find an equation of the line having the specified slope and containing the indicated point. Write your answer in slope–intercept form.

183) m = –3; (8, –3) 183) _____

A) y = –3x + 19 B) y = –3x + 22 C) y = 3x + 20 D) y = –3x + 21

184) m = –9; (–7, 6) 184) _____

A) y = 9x – 59 B) y = –9x – 58 C) y = –9x – 65 D) y = –9x – 57

185) m = 5; (0, 3) 185) _____

A) y = –5x + 1 B) y = 5x + 8 C) y = 5x + 10 D) y = 5x + 3

186) m = 9; (0, –4) 186) _____

A) y = 9x + 6 B) y = 9x + 4 C) y = 9x – 4 D) y = –9x – 2

187) m = 6; (–9, 0) 187) _____

A) y = 6x – 57 B) y = 6x + 54 C) y = –6x + 50 D) y = 6x – 55

188) m = 1.2; (4, –2) 188) _____

A) y = 1.2x + 6.8 B) y = 1.2x + 2.8 C) y = 1.2x – 6.8 D) y = 1.2x – 2.8

189) m = $-\frac{3}{5}$; (5, –2) 189) _____

A) $y = -\frac{3}{5}x + 1$ B) $y = -\frac{3}{5}x + \frac{13}{5}$ C) $y = \frac{3}{5}x - 1$ D) $y = -\frac{3}{5}x + 5$

190) m = –3; (0, 6.1) 190) _____

A) y = –3x – 6.1 B) y = 6.1x + 3 C) y = –3x + 6.1 D) y = 6.1x – 3

Find an equation of the line containing the given pair of points

191) (5, –1) and (2, 8) 191) _____

A) y = 14x + 3 B) y = 3x + 14 C) y = –3x + 14 D) y = 14x – 3

192) (4, –17) and (8, –37) 192) _____

A) y = 5x – 37 B) $y = -\frac{1}{5}x - \frac{81}{5}$ C) y = –5x + 3 D) $y = \frac{1}{5}x - \frac{89}{5}$

193) (7, –7) and (–4, 4) 193) _____

A) $y = -\frac{4}{7}x$ B) y = –x C) y = x D) y = –x – 7

194) (0, 0) and (2, –5) 194) _____

A) $y = -\frac{2}{5}x$ B) $y = -\frac{5}{2}x$ C) $y = -\frac{5}{2}x - 5$ D) $y = \frac{5}{2}x$

195) (3, 0) and (0, –5) 195) _____

A) $y = -\frac{5}{3}x - 5$ B) $y = -\frac{3}{5}x + 3$ C) $y = \frac{5}{3}x - 5$ D) $y = \frac{3}{5}x - 5$

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196) (0, 8) and (–2, –7) 196) _____

A) $y = \frac{15}{2}x + 8$ B) $y = -4x + 8$ C) $y = 4x + 8$ D) $y = -\frac{15}{2}x + 8$

197) (–4, 0) and (4, 9) 197) _____

A) $y = -\frac{1}{2}x + \frac{9}{2}$ B) $y = -\frac{9}{8}x + \frac{9}{2}$ C) $y = \frac{1}{2}x + \frac{9}{2}$ D) $y = \frac{9}{8}x + \frac{9}{2}$

198) $\left(1, \frac{9}{20}\right)$ and $\left(4, \frac{6}{5}\right)$ 198) _____

A) $y = 4x - \frac{4}{5}$ B) $y = \frac{1}{4}x + \frac{1}{5}$ C) $y = 4x - \frac{71}{20}$ D) $y = \frac{1}{4}x + \frac{71}{80}$

199) $\left(\frac{1}{5}, \frac{3}{5}\right)$ and $\left(-\frac{1}{10}, \frac{1}{10}\right)$ 199) _____

A) $y = \frac{5}{3}x$ B) $y = \frac{5}{3}x + \frac{4}{15}$ C) $y = -\frac{5}{3}x$ D) $y = \frac{5}{3}x - \frac{2}{15}$

Write an equation of the line described.

200) Through (3, 13), parallel to $3x + 5y = 29$ 200) _____

A) $y = -\frac{3}{5}x + \frac{74}{5}$ B) $y = \frac{29}{5}x + \frac{29}{5}$ C) $y = -\frac{5}{3}x + \frac{13}{3}$ D) $y = \frac{3}{5}x - \frac{74}{5}$

201) Through (3, –3), parallel to $3x - 5y = 14$ 201) _____

A) $y = -\frac{14}{5}x - \frac{14}{5}$ B) $y = \frac{3}{5}x - \frac{24}{5}$ C) $y = \frac{5}{3}x - 1$ D) $y = -\frac{3}{5}x + \frac{24}{5}$

202) Through (–7, 1), perpendicular to $-5x - 4y = 39$ 202) _____

A) $y = \frac{5}{4}x + \frac{5}{4}$ B) $y = \frac{4}{5}x + \frac{33}{5}$ C) $y = -\frac{4}{5}x + \frac{33}{5}$ D) $y = \frac{7}{4}x + \frac{39}{4}$

203) Through (6, 2), perpendicular to $7x - 6y = 48$ 203) _____

A) $y = \frac{6}{7}x + \frac{48}{7}$ B) $y = \frac{6}{7}x - \frac{50}{7}$ C) $y = -\frac{7}{6}x - \frac{25}{3}$ D) $y = -\frac{6}{7}x + \frac{50}{7}$

204) Through (8, –4), perpendicular to $x = -9$ 204) _____

A) $y = 8$ B) $y = 4$ C) $y = 8x - 4$ D) $y = -4$

Solve the problem.

205) A gas station sells 4820 gallons of regular unleaded gasoline on a day when they charge $1.35 per gallon, whereas they sell 3861 gallons on a day that they charge $1.40 per gallon. Find a linear function that expresses gallons sold as a function of price. 205) _____

A) G(p) = –19,180p + 30,691.2 B) G(p) = –19,180p + 30,696.8

C) G(p) = –19,180p + 30,729 D) G(p) = –19,180p + 30,713

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206) A gas station sells 4820 gallons of regular unleaded gasoline in a day when they charge $1.35 per gallon, whereas they sell 3967 gallons on a day that they charge $1.40 per gallon. Find a linear function that expresses gallons sold as a function of price. Use this function to predict the number of gallons sold at a price of $1.23 per gallon. 206) _____

A) 6867.2 gallons B) 6863.9 gallons C) 6871.3 gallons D) 6876.2 gallons

207) Persons taking a 30–hour review course to prepare for a standardized exam average a score of 620 on that exam. Persons taking a 70–hour review course average a score of 783. Find a linear function S(t), which fits this data, and which expresses score as a function of time. 207) _____

A) S(t) = 4.075t + 497.75 B) S(t) = –4.075t + 497.75

C) S(t) = 3.6675t – 501.75 D) S(t) = 3.6675t + 501.75

208) Persons taking a 30–hour review course to prepare for a standardized exam average a score of 620 on that exam. Persons taking a 70–hour review course average a score of 809. Find a linear function, S(t), which fits this data, and which expresses score as a function of time. Use this function to predict an average score for persons taking a 60–hour review course. Round your answer to the tenths place. 208) _____

A) 761.8 B) 766.0 C) 775.8 D) 754.5

209) In 1995 the United States recovered 21% of its municipal solid wastes through recycling, up from 17% in 1990. Let P represent the percentage recycled and t the number of years since 1990. Find a linear function P(t) that fits this data. 209) _____

A) P(t) = 0.4t – 17 B) P(t) = –0.8t + 7 C) P(t) = 0.8t + 17 D) P(t) = 0.8t + 24

210) In 1995 the United States recovered 27% of its municipal wastes through recycling, up from 17% in 1990. Let P represent the percentage recycled and t the number of years since 1990. Find a linear function P(t) that fits this data. Use this function to predict the percentage recycled in 2001. 210) _____

A) 35.4% B) 40.7% C) 37.1% D) 39%

211) The total sales made by a salesperson was $25,000 after 3 months and $68,000 after 23 months. Predict the total sales after 35 months. 211) _____

A) $93,800 B) $93,842 C) $93,900 D) $93,770

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

212) Without making a drawing, explain why the graph of the equation y = x – 5 passes through three quadrants. 212) _____

213) Explain in your own words why equations of the form y = b have graphs that are horizontal lines. 213) _____

214) Why is the slope of a horizontal line zero? 214) _____

215) Why is the slope of a vertical line undefined? 215) _____

216) Explain why the order in which coordinates are subtracted to find slope does not matter as long as x–coordinates are subtracted in the same order as y–coordinates. 216) _____

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217) If one line has a slope of –3 and another line has a slope of –6, which line is steeper? Why? 217) _____

218) Can an equation of a vertical line be written in slope–intercept form? 218) _____

219) Can the point–slope equation be used to write an equation of a vertical line? Why or why not? 219) _____

220) Describe a situation in which point–slope form would be more useful. 220) _____

221) The total number of reported cases of AIDS in the United States has risen from 372 in 1981 to 100,000 in 1989 and 200,000 in 1992. Does a linear equation fit this data? Why or why not? 221) _____

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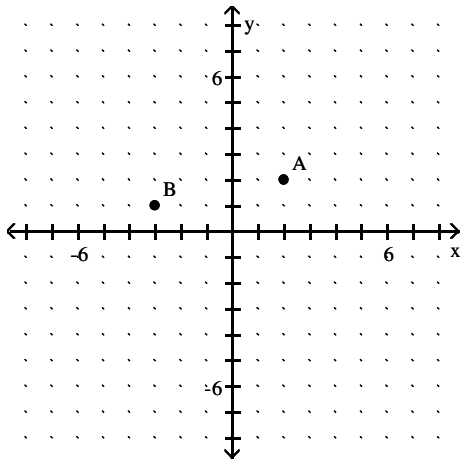
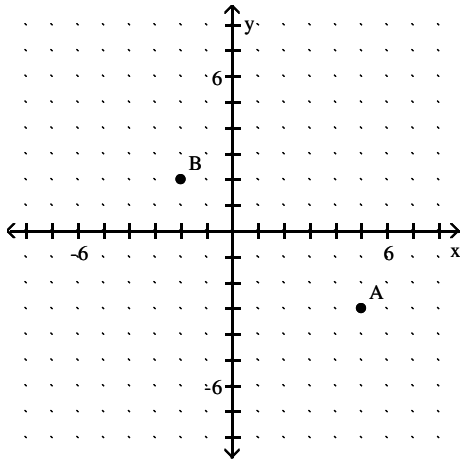
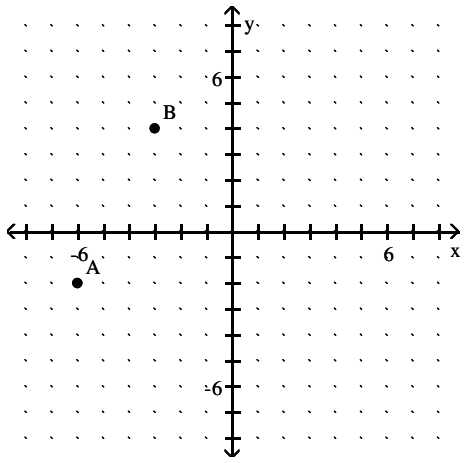
1)



2)



3)



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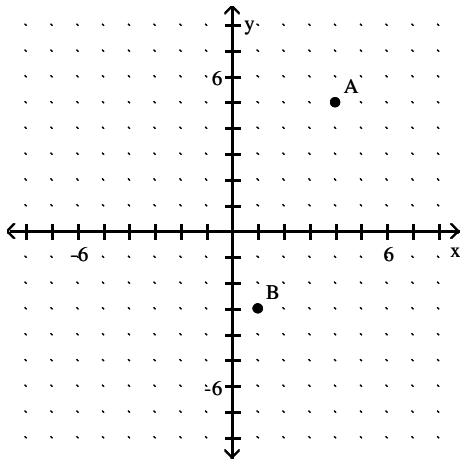
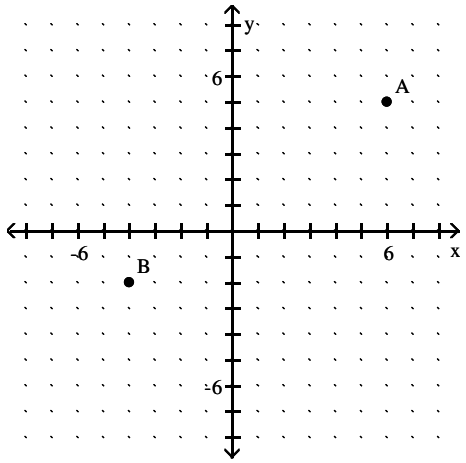
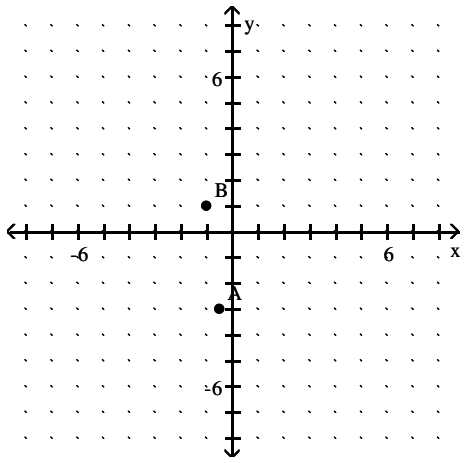
4)



5)



6)



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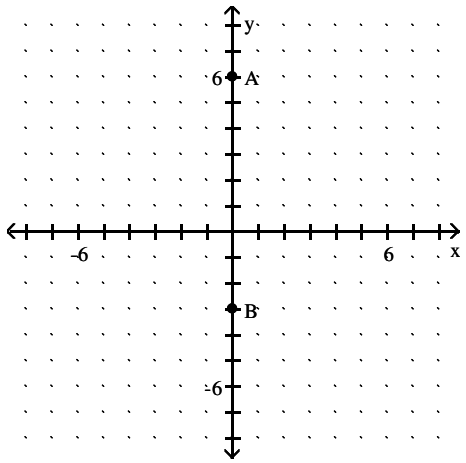
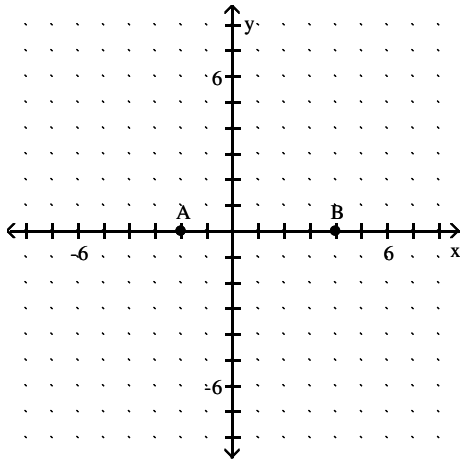
7)



8)



9) A
10) B
11) A
12) B
13) A
14) B
15) A
16) A
17) Show that (7, 6) is a solution:
y = x – 1
6 =? 7 – 1
6 =? 6 TRUE
Show that (–2, –3) is a solution:
y = x – 1
–3 =? –2 – 1
–3 =? –3 TRUE
Coordinates of the additional solution may vary but should satisfy y = x – 1.

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18) Show that (2, 3) is a solution:

$y = x + 1$

$3 =? 2 + 1$

$3 =? 3$ TRUE

Show that (–3, –2) is a solution:

$y = x + 1$

$-2 =? -3 + 1$

$-2 =? -2$ TRUE

Coordinates of the additional solution may vary but should satisfy $y = x + 1$.

19) Show that (2, 4) is a solution:

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

$4 =? \frac{1}{2}(2) + 3$

$4 =? 1 + 3$

$4 =? 4$ TRUE

Show that (–4, 1) is a solution:

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

$1 =? \frac{1}{2}(-4) + 3$

$1 =? -2 + 3$

$1 =? 1$ TRUE

Coordinates of the additional solution may vary but should satisfy $y = \frac{1}{2}x + 3$.

20) Show that (4, 0) is a solution:

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

$0 =? \frac{1}{2}(4) - 2$

$0 =? 2 - 2$

$0 =? 0$ TRUE

Show that (–2, –3) is a solution:

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

$-3 =? \frac{1}{2}(-2) - 2$

$-3 =? -1 - 2$

$-3 =? -3$ TRUE

Coordinates of the additional solution may vary but should satisfy $y = \frac{1}{2}x - 2$.

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21) Show that (3, 1) is a solution:
$2x + y = 7$
$2(3) + 1 =? 7$
$6 + 1 =? 7$
$7 =? 7$ TRUE
Show that (4, –1) is a solution:
$2x + y = 7$
$2(4) + (-1) =? 7$
$8 + (-1) =? 7$
$7 =? 7$ TRUE
Coordinates of the additional solution may vary but should satisfy $2x + y = 7$.

22) Show that (2, 3) is a solution:
$x + 2y = 8$
$2 + 2(3) =? 8$
$2 + 6 =? 8$
$8 =? 8$ TRUE
Show that (–2, 5) is a solution:
$x + 2y = 8$
$-2 + 2(5) =? 8$
$-2 + 10 =? 8$
$8 =? 8$ TRUE
Coordinates of the additional solution may vary but should satisfy $x + 2y = 8$.

23) Show that (0, –2) is a solution:
$6x - 2y = 4$
$6(0) - 2(-2) =? 4$
$0 - (-4) =? 4$
$4 =? 4$ TRUE
Show that (3, 7) is a solution:
$6x - 2y = 4$
$6(3) - 2(7) =? 4$
$18 - 14 =? 4$
$4 =? 4$ TRUE
Coordinates of the additional solution may vary but should satisfy $6x - 2y = 4$.

24) Show that (–2, –5) is a solution:
$3x - 3y = 9$
$3(-2) - 3(-5) =? 9$
$-6 + 15 =? 9$
$9 =? 9$ TRUE
Show that (7, 4) is a solution:
$3x - 3y = 9$
$3(7) - 3(4) =? 9$
$21 - (12) =? 9$
$9 =? 9$ TRUE
Coordinates of the additional solution may vary but should satisfy $3x - 3y = 9$.

25) C
26) C
27) A
28) D
29) A
30) D

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31) C
32) A
33) A
34) C
35) A
36) B
37) D
38) B
39) C
40) A
41) D
42) A
43) D
44) A
45) B
46) A
47) B
48) B
49) A
50) B
51) A
52) B
53) B
54) B
55) C
56) B
57) C
58) D
59) A
60) A
61) D
62) B
63) B
64) D
65) C
66) A
67) B
68) B
69) B
70) D
71) C
72) C
73) C
74) C
75) C
76) A
77) D
78) C
79) B
80) A

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81) B
82) B
83) B
84) B
85) B
86) A
87) D
88) C
89) C
90) D
91) B
92) D
93) D
94) A
95) B
96) B
97) A
98) B
99) B
100) B
101) C
102) C
103) A
104) A
105) B
106) C
107) D
108) B
109) B
110) A
111) A
112) D
113) A
114) D
115) C
116) B
117) C
118) C
119) D
120) C
121) A
122) B
123) A
124) B
125) A
126) C
127) D
128) C
129) A
130) A

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131) D
132) B
133) A
134) A
135) C
136) A
137) C
138) C
139) C
140) A
141) A
142) D
143) A
144) D
145) D
146) B
147) A
148) D
149) A
150) C
151) C
152) A
153) B
154) C
155) D
156) B
157) B
158) A
159) B
160) B
161) D
162) A
163) C
164) A
165) B
166) B
167) C
168) C
169) A
170) A
171) B
172) B
173) C
174) C
175) B
176) A
177) A
178) A
179) C
180) A

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181) C
182) B
183) D
184) D
185) D
186) C
187) B
188) C
189) A
190) C
191) C
192) C
193) B
194) B
195) C
196) A
197) D
198) B
199) B
200) A
201) B
202) B
203) D
204) D
205) D
206) A
207) A
208) A
209) C
210) D
211) A
212) When $x < 0$, then $y < 0$ and the graph contains points in quadrant III. When $0 < x < 5$, then $y < 0$ and the graph contains points in quadrant IV. When $x > 5$, then $y > 0$ and then graph contains points in quadrant I.
213) The second coordinate of any point on the graph is b, regardless of the first coordinate, so the graph is a line parallel to the x–axis and $|b|$ units above or below it. Thus, the graph is a horizontal line.
214) For any two points on the line (x_1, b) and (x_2, b), $x_1 \neq x_2$, $m = \dfrac{b - b}{x_1 - x_2} = \dfrac{0}{x_1 - x_2} = 0$.
215) For any two points on the line (a, y_1) and (a, y_2), $y_1 \neq y_2$, $m = \dfrac{y_1 - y_2}{a - a} = \dfrac{y_1 - y_2}{0}$.
216) $m = \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{-1 \cdot (y_2 - y_1)}{-1 \cdot (x_2 - x_1)} = \dfrac{y_1 - y_2}{x_1 - x_2}$.
217) The line with a slope of –6 is steeper, because the larger the absolute value of the slope, the steeper the line.
218) No, the slope of a vertical line is undefined.
219) No; the slope of a vertical line is undefined.
220) Point–slope form would be more useful if you wanted to find an equation of a line with a specified slope passing through a specified point that is not the y–intercept.
221) No; the rate of increase is not constant. The slope of the segment from (0, 372) to (8, 100,000) is 12,453.5 while the slope of the segment from (8, 100,000) to (11, 200,000) is $33{,}333.\overline{3}$.

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