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

Name the quadrant, if any, in which the point is located.

    1) (–2, –14)

1) _____

    2) (10, –14)

2) _____

Determine if the ordered pair is a solution of the equation. Remember to use alphabetical order for substitution.
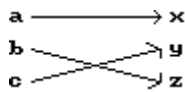
    3) (3, 5); $5x + y = 20$

3) _____

    4) (5, 3); $2x - 5y = 25$

4) _____
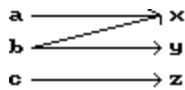
Is the following correspondence a function?
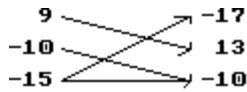
    5)

5) _____

    6)

6) _____

    7)

7) _____

For the given correspondence, write the domain and the range. Then determine whether the correspondence is a function.

    8) {(–8, –5), (–5, –10), (0, 8), (8, 3)}

8) _____

    9) {(7, 2), (–6, 4), (4, –5), (7, –9)}
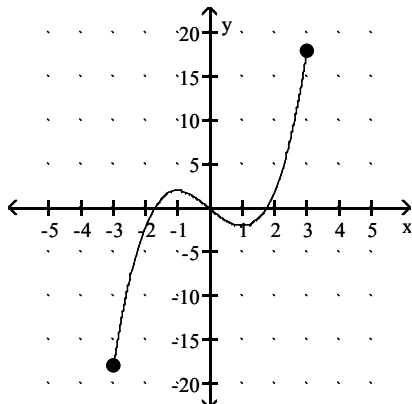
9) _____

    10) {(–10, 1), (–2, –7), (0, –2), (9, 1)}

10) _____

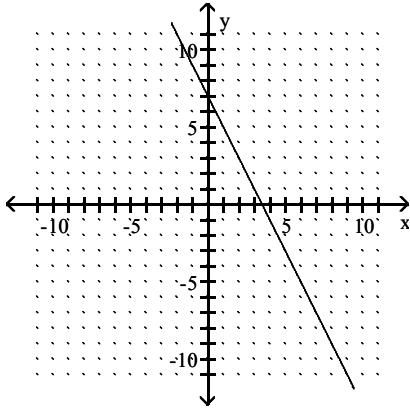**For the function represented in the graph, determine the domain or range, as requested.**
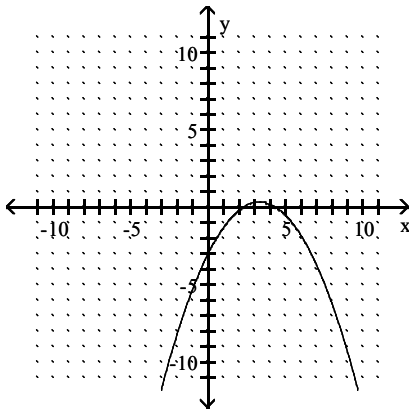
    11) Find the domain.

11) _____

Determine whether the graph is the graph of a function.

12)

13)

Find the function value.

14) Find $f(8)$ when $f(x) = -|x - 3|$.

14) _____

15) Find $f(-1)$ when $f(x) = x^2 + 5x - 4$.

15) _____

16) Find $f(-1)$ when $f(x) = \dfrac{x - 8}{3x + 6}$.

16) _____

17) Find $f(a - 3)$ when $f(x) = x^2 + 2$.

17) _____

Solve the problem.

18) The function A described by $A(s) = s^2 \dfrac{\sqrt{3}}{4}$ gives the area of an equilateral triangle with side s. Find the area when a side measures 8 cm. Express your answer in radical form.

18) _____

Graph.

19) $f(x) = \dfrac{1}{4}x - 1$

19) _____

20) $f(x) = -\dfrac{1}{2}x - 6$

20) _____

Determine the slope and the y-intercept.

21) $y = 8x + 6$

21) _____

22) $y = -5x - 2$

22) _____

23) $y = -\dfrac{6}{5}x - 4.5$

23) _____

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

24) $(1, 9)$ and $(3, 6)$

24) _____

25) $(-5, 4)$ and $(9, 8)$

25) _____

26) $(-8, -5)$ and $(3, -5)$

26) _____

27) $(5, -9)$ and $(5, -2)$

27) _____

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

28) Slope $-\dfrac{4}{3}$, y-intercept $(0, 9)$

28) _____

29) Slope $\dfrac{3}{2}$, y-intercept $(0, -4)$

29) _____

30) Slope $\dfrac{1}{2}$, y-intercept $(0, 2)$

30) _____

31) Slope $-\dfrac{2}{3}$, y-intercept $(0, 2)$

31) _____

32) Slope $\dfrac{1}{2}$, y-intercept $(0, 1)$

32) _____

33) Slope $-\dfrac{2}{5}$, y-intercept $(0, 2)$

33) _____

Solve the problem.

34) The cost of manufacturing a molded part is related to the quantity produced during a production run. When 100 parts are produced, the cost is $300. When 400 parts are produced, the cost is $2100. What is the average cost per part?

34) _____

35) In 1980, the population of a city was 5.3 million. By 1992 the population had grown to 6.7 million. Find the rate at which the population of the city was growing.

35) _____

This model is of the form f(x) = mx + b. Determine what m and b signify.

36) The cost, in dollars, of retaining the services of a computer repairman in Anchorville is given by $C(x) = 70x + 32$, where x is the number of hours worked.

36) _____

37) The population, in millions, of a city t years after 1990 is given by $P(t) = 2.7 + 0.10t$.

37) _____

Find the slope of the line.

38) $4x + 5y = 27$
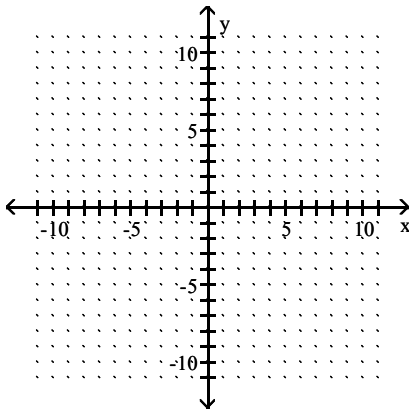
38) _____

39) $4x - 5y = 28$

39) _____

40) $3y - 4 = 5x$

40) _____

Find the y– and x–intercepts for the equation. Then graph the equation.
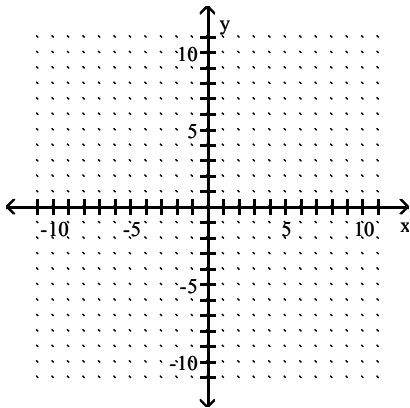
41) $6y - 3x = -9$

41) _____

42) $-2x - 8y = 8$

42) _____

Determine whether the equation is linear.

43) $10x + 9y = -1$

43) _____

44) $-62f(x) = -6x^2$

44) _____

Find the equation of the line that has the given slope and passes through the given point.

45) $m = -3$, $(6, 8)$

45) _____

4

46) m = –3, (5, 3)   46) _____

47) m = –4, (–6, 7)   47) _____

Find an equation of the line that fits the description.
48) Passes through (1, 7) and has undefined slope   48) _____

49) Passes through (5, 2) and has zero slope   49) _____

Find the equation of the line that has the given slope and passes through the given point.
50) m = 3, (–7, 7)   50) _____

Write an equation of the line passing through the given points.
51) (8, 82) and (7, 73)   51) _____

52) (–9, –68) and (10, 65)   52) _____

53) (9, –24) and (–1, –4)   53) _____

Write an equation of the line.
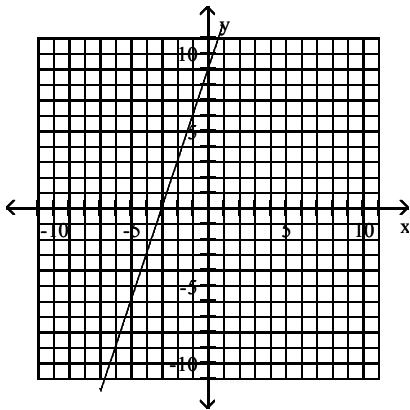54)   54) _____
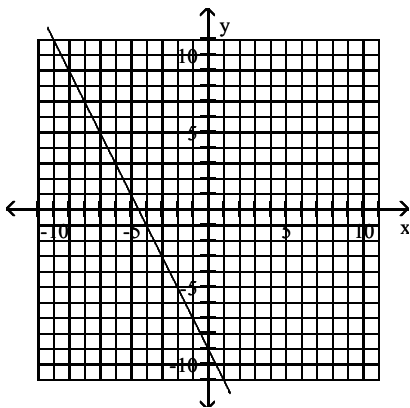

55)   55) _____

Solve the problem.
56) A line has a slope of 4. What is the slope of a line parallel to it?   56) _____

5

57) A line has a slope of $\frac{7}{10}$. What is the slope of a line perpendicular to it?

57) _____

58) The equation of a line is $y = -\frac{1}{2}x$. What is the slope of a line parallel to it?

58) _____

59) The equation of a line is $y = \frac{1}{3}x$. What is the slope of a line perpendicular to it?

59) _____

Find an equation for the described linear function.

60) Through (0, 4) and parallel to $y = -7x - 7$

60) _____

61) Through (0, -9) and parallel to $-4x + y = 7$

61) _____

62) Through (0, -5) and perpendicular to $y = 6x + 4$

62) _____

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

63) $m = -9$, (3, -7)

63) _____

64) $m = \frac{3}{4}$, (-6, -2)

64) _____

65) $m = -2$, (6, 0)

65) _____

Find an equation of the line containing the given pair of points. Write your final answer as a linear function in slope–intercept form.

66) (-5, -4) and (-4, -2)

66) _____

67) (6, 0) and (2, 5)

67) _____

68) (-8, 2) and (-5, 4)

68) _____

69) (1, 5) and (10, 5)

69) _____

Solve the problem.

70) A gas station sells 4820 gallons of regular unleaded gasoline on a day when they charge $1.35 per gallon, whereas they sell 3919 gallons on a day that they charge $1.40 per gallon. Find a linear function that expresses gallons sold as a function of price.

70) _____

71) In 1995 the United States recovered 20% 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.
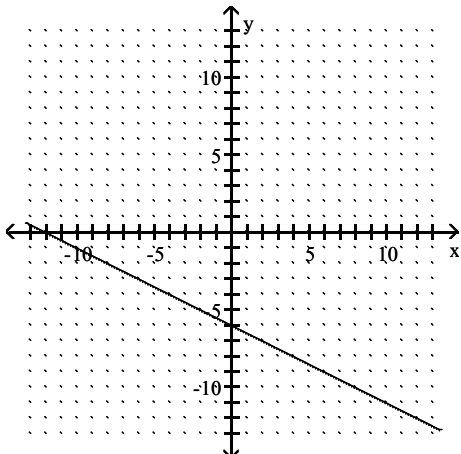
71) _____

1) Quadrant III
2) Quadrant IV
3) Yes
4) No
5) Yes
6) No
7) No
8) domain: {–8, –5, 0, 8}, range: {–10, –5, 3, 8}; Yes, it is a function.
9) domain: {–6, 4, 7}, range: {–9, –5, 2, 4}; No, it is a not a function.
10) domain: {–10, –2, 0, 9}, range: {–7, –2, 1}; Yes, it is a function.
11) $\{x \mid -3 \le x \le 3 \}$
12) Yes
13) Yes
14) –5
15) –8
16) – 3
17) $a^2 - 6a + 11$
18) $16\sqrt{3}$ cm^2
19)
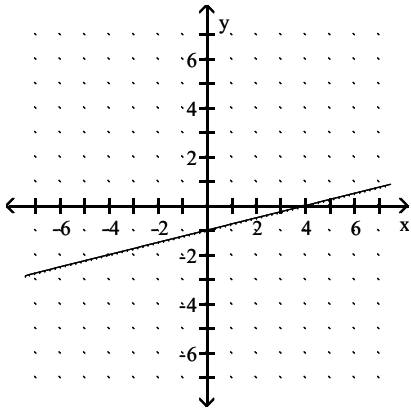
20)

21) Slope = 8, y–intercept = (0, 6)
22) Slope = –5, y–intercept = (0, –2)

23) Slope $= -\dfrac{6}{5}$; y–intercept = (0, –4.5)

24) $-\dfrac{3}{2}$

25) $\dfrac{2}{7}$

26) 0
27) Undefined

28) $f(x) = -\dfrac{4}{3}x + 9$

29) $f(x) = \dfrac{3}{2}x - 4$

30) $f(x) = \dfrac{1}{2}x + 2$

31) $f(x) = -\dfrac{2}{3}x + 2$

32) $f(x) = \dfrac{1}{2}x + 1$

33) $f(x) = -\dfrac{2}{5}x + 2$

34) $6.00 per part

35) $\dfrac{7}{60}$ million per year

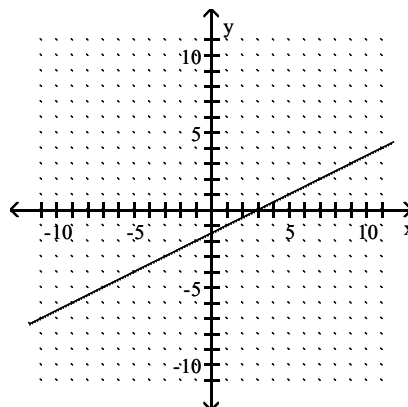36) 70 signifies the hourly rate, and 32 signifies the overhead charge.
37) 2.7 million is the population of the city in 1990 and 0.10 million is the increase per year in the population .
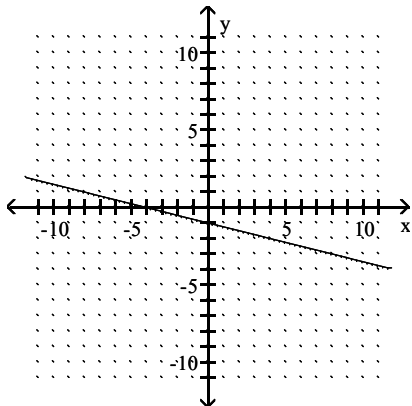
38) $-\dfrac{4}{5}$

39) $\dfrac{4}{5}$

40) $\dfrac{5}{3}$

41) $(0, -\dfrac{3}{2})$; (3, 0)

7

42) (0, –1); (–4, 0)

43) Linear
44) Not Linear
45) y = –3x + 26
46) y = –3x + 18
47) y = –4x – 17
48) x = 1
49) y = 2
50) y = 3x + 28
51) y = 9x + 10
52) y = 7x – 5
53) y = –2x – 6
54) y = 3x + 9
55) y = –2x – 9
56) 4

57) $-\dfrac{10}{7}$

58) $-\dfrac{1}{2}$

59) – 3
60) y = –7x + 4
61) y = 4x – 9

62) $y = -\dfrac{1}{6}x - 5$

63) y + 7 = –9(x – 3)

64) $y + 2 = \dfrac{3}{4}(x + 6)$

65) y = –2(x – 6)
66) f(x) = 2x + 6

67) $f(x) = -\dfrac{5}{4}x + \dfrac{15}{2}$

68) $f(x) = \dfrac{2}{3}x + \dfrac{22}{3}$

69) f(x) = 5
70) G(p) = –18,020p + 29,147
71) P(t) = 0.6t + 17