Chapter 1,2,3 review

Sections labeled at the start of the related problems

1.3 **Classify the following as either a pair of equivalent equations or a pair of equivalent expressions.**

1) $7x - 42, 7(x - 6)$

2) $2x + 8 = 14, 2(x + 4) = 14$

Solve the equation.

3) $\frac{1}{5}f - 3 = 1$

4) $8x - 5 + 4x = 6x - 6 - 3x$

Solve.

5) $3x - (8 - x) = 4[5 - (7 + 2x - 2)]$

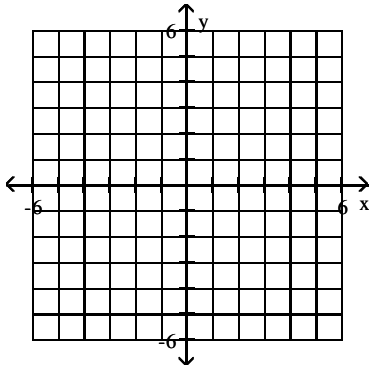
Decide whether the equation is conditional, an identity, or a contradiction. Give the solution set.

6) $2(x - 7) + (3x) = 5(x - 8) - 3$

7) $2(2g - 7) - 4g + 14 = 0$

2.1 **Plot the points with the given coordinates.**

8) A(6, –1), B(–5, 4)



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

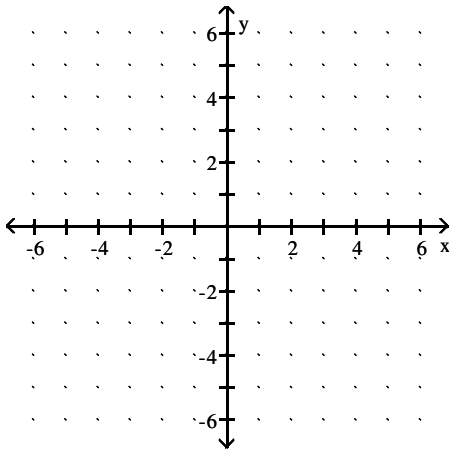
9) (19, –7)

Determine if the ordered pair is a solution of the equation. Remember to use alphabetical order for substitution.

10) (–3, 1); $2x + 7y = 1$

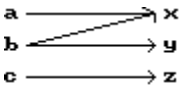
Graph.

11) $y = 3 - x^2$



2.2 **Is the following correspondence a function?**

12)

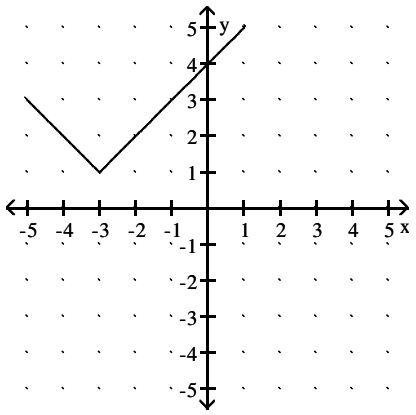


For the given correspondence, write the domain and the range. Then determine whether the correspondence is a function.

13) {(–8, 1), (–2, –9), (4, –3), (7, 1)}

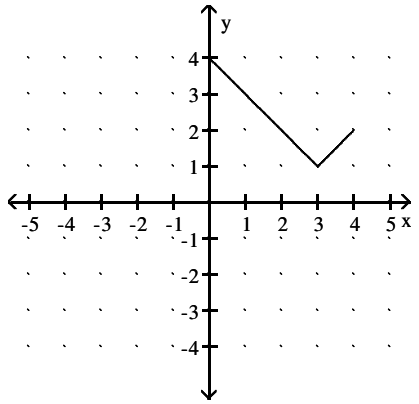
The graph of a function f is provided. Determine the requested function value.

14) f(2)

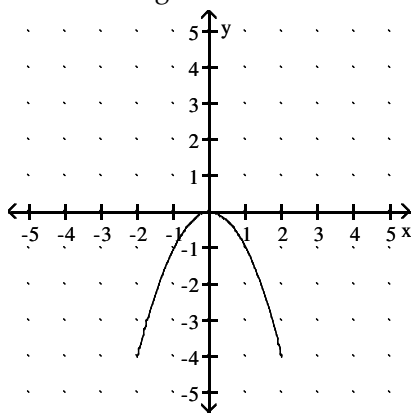


For the function represented in the graph, determine the domain or range, as requested.

15) Find the domain.

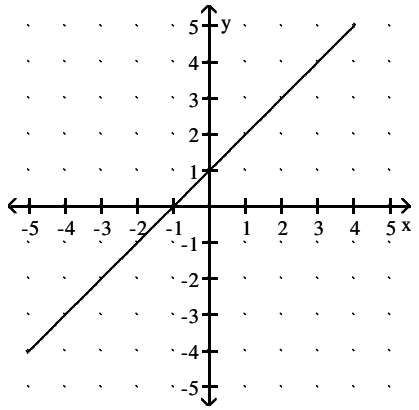


16) Find the range.



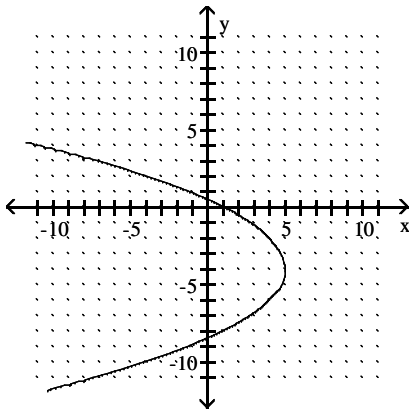
A function of x is depicted in the graph. Find any input values that produce the indicated output.

17) f(x) = 4



Determine whether the graph is the graph of a function.

18)



Find the function value.

19) Find f(3) when $f(x) = \frac{x - 6}{5x + 2}$.

20) Find f(x – 2) when $f(x) = \frac{2x - 5}{3x + 4}$.

Find the domain of f(x).

21) $f(x) = \frac{8}{x + 4}$

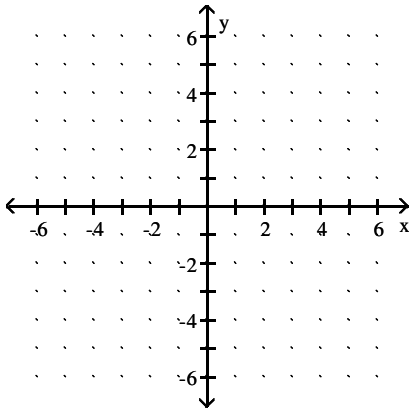
22) $f(x) = \frac{7}{-2 - x}$

Solve the problem.

23) The function A described by $A(r) = 4\pi r^2$ gives the surface area of a sphere with radius r. Find the area when the radius is 4 in.

2.3 **Graph.**

24) $f(x) = \frac{1}{6}x - 2$



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

25) (9, −5) and (2, 5)

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

26) Slope $-\frac{5}{3}$, y–intercept (0, 7)

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

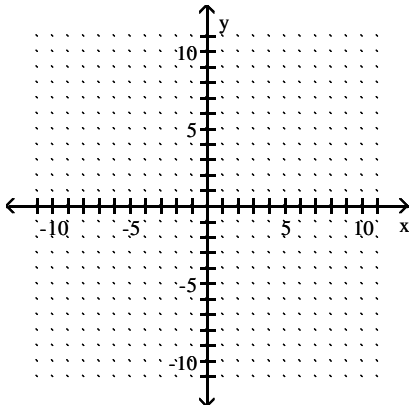
27) The cost, in dollars, of cellular phone service with Econo–phone is given by $C(x) = 0.31x + 35.90$, where x is the number of minutes used in one month.

2.4 **Find the slope of the line.**

28) $3x - 5y = 26$

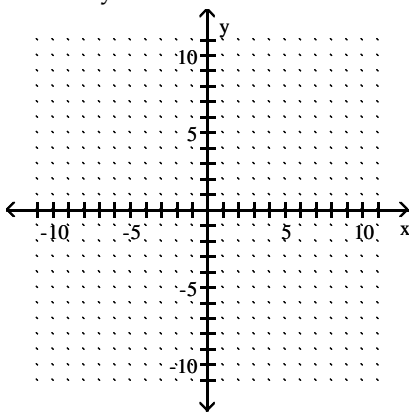
Graph.

29) $y + 3 = 0$



Find the y– and x–intercepts for the equation. Then graph the equation.

30) $-5x - 15y = 30$



Determine whether the equation is linear.

31) $10x - 8y = 20$

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

32) $m = \frac{-1}{2}$, (−8, −5)

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

33) (8, −5) and (1, −3)

Solve the problem.

34) 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 780. Find a linear function S(t), which fits this data, and which expresses score as a function of time.

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

35) $9x + 3y = 12$
$12x + 4y = 17$

Find an equation for the described linear function.

36) Through $\left(0, \frac{6}{7}\right)$ and parallel to $6x - 4y = 9$

37) Through $\left(0, \frac{5}{8}\right)$ and perpendicular to $3x - 5y = 1$

3.2 Solve using the substitution method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this.

38) $4y + x = -3$
$x = 5y + 4$

Solve using the elimination method. If the system has an infinite number of solutions, use set–builder notation to write the solution set. If the system has no solution, state this.

39) $x + 6y = 5$
$-3x + 5y = 31$

3.3 Solve the problem.

40) The sum of two numbers is 68. The second number is three times as large as the first number. What are the numbers?

Solve the problem.

41) The perimeter of a rectangle is 32 cm. The length is 12 cm longer than the width. Find the dimensions.

42) The speed of a current is 6 mph. If a boat travels 56 miles downstream in the same time that it takes to travel 28 miles upstream, what is the speed of the boat in still water?

43) Don runs a charity fruit sale, selling boxes of oranges for $11 and boxes of grapefruit for $10. If he sold a total of 762 boxes and took in $8125 in all, then how many boxes of oranges did he sell?

44) A contractor mixes concrete from bags of pre–mix for small jobs. How many bags with 4% cement should he mix with 3 bags of 8% cement to produce a mix containing 5% cement?

45) Walt made an extra $9000 last year from a part–time job. He invested part of the money at 10% and the rest at 9%. He made a total of $860 in interest. How much was invested at 9%?

3.4 **Solve the system.**

46) $2x + 5y + z = -18$
$3x - 4y - z = 24$
$4x + y + 2z = 0$

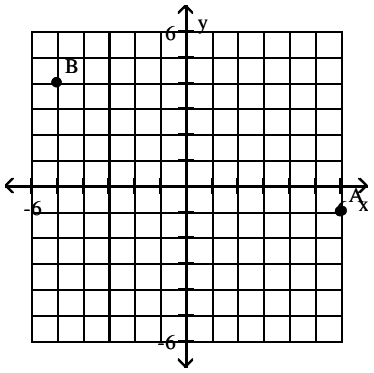
47) $x - y + 5z = 13$
$2x + z = 3$
$x + 3y + z = 9$

Solve the system. If the system's equations are dependent or if there is no solution, state this.

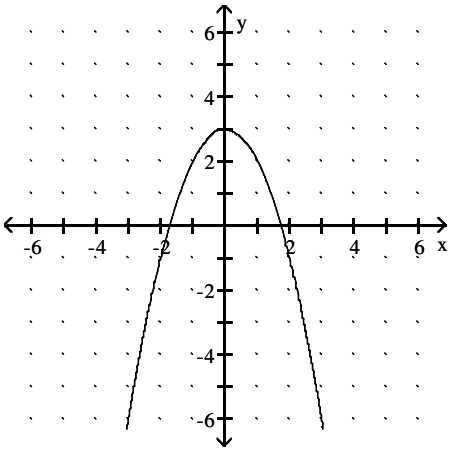
48) $x - y + 5z = 17$
$-2x + 2y - 10z = 3$
$x + 5y + z = 13$

49) $x + y + z = 9$
$2x - 3y + 4z = 7$
$x - 4y + 3z = -2$

1) Equivalent expressions
2) Equivalent equations
3) 20
4) $-\frac{1}{9}$
5) $\frac{2}{3}$
6) Contradiction; ∅
7) Identity; {all real numbers}
8)



9) Quadrant IV
10) Yes
11)



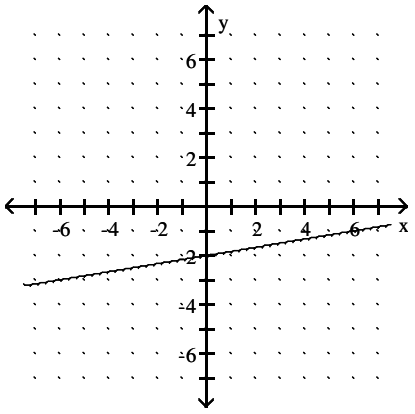
12) No
13) domain: {−8, −2, 4, 7}, range: {−9, −3, 1}; Yes, it is a function.
14) 6
15) {x| 0 ≤ x ≤ 4}
16) {y| −4 ≤ y ≤ 0}
17) 3
18) No
19) $-\frac{3}{17}$
20) $\frac{2x-9}{3x-2}$

21) {x| x is a real number and $x \neq -4$}

22) {x| x is a real number and $x \neq -2$}

23) 201.06 $in.^2$

24)



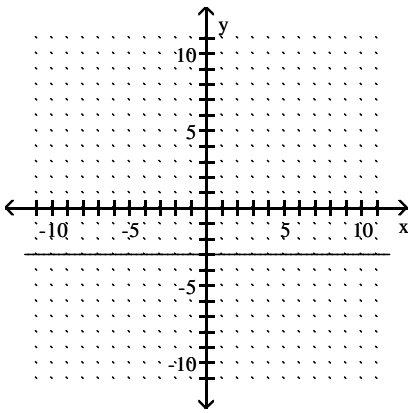
25) $-\frac{10}{7}$

26) $f(x) = -\frac{5}{3}x + 7$

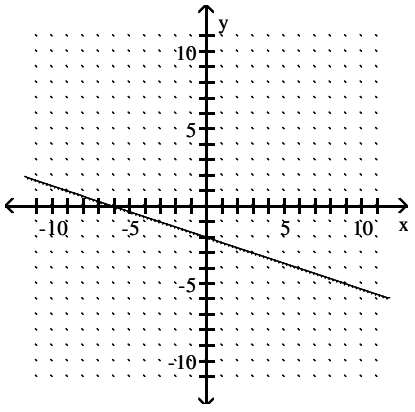
27) 0.31 signifies the cost per minute, and 35.90 signifies the monthly service charge.

28) $\frac{3}{5}$

29)



30) (0, −2); (−6, 0)



31) Linear

32) $y + 5 = \frac{-1}{2}(x + 8)$

33) $f(x) = -\frac{2}{7}x - \frac{19}{7}$

34) $S(t) = 4t + 500$

35) Parallel

36) $y = \frac{3}{2}x + \frac{6}{7}$

37) $y = -\frac{5}{3}x + \frac{5}{8}$

38) $\left(\frac{1}{9}, -\frac{7}{9}\right)$

39) (−7, 2)

40) 17, 51

41) Width: 2 cm; length: 14 cm

42) 18 mph

43) 505 boxes

44) 9 bags

45) $4000

46) (2, −4, −2)

47) (0, 2, 3)

48) No solution

49) The equations are dependent.