Answers

Practice Exercises: **1.** (f) **2.** (a) **3.** (d) **4.** (e) **5.** No **6.** Yes **7.** No **8.** 2 **9.** 13 **10.** 10.9 **11.** $-\frac{1}{12}$ **12.** 8 **13.** -17 **14.** 0.9 **15.** $-\frac{3}{2}$ **16.** 6 **17.** $-\frac{1}{2}$ **18.** 7.6 **19.** All real numbers **20.** No solution **21.** -6

Section 1.2

Your Turn: Evaluating and Solving Formulas: **1.** 227.5 miles **2.** $y = 2A - x$ **3.** $n = \frac{B-3m}{4}$ **4.** $b = \frac{2a}{ac+1}$

Practice Exercises: **1.** False **2.** True **3.** True **4.** False **5.** 10.75 meters per cycle **6.** $t = \frac{d}{60}$ **7.** $x = 26 - y$ **8.** $a = Tb$ **9.** $x = \frac{3y}{2}$ **10.** $x = \frac{y-b}{m}$ **11.** $q = 3A - p - r$ **12.** $w = \frac{P-2l}{2}$ **13.** $r^2 = \frac{S}{4\pi}$ **14.** $r = \frac{d}{t}$ **15.** $y = \frac{x}{a^2+z}$ **16.** 62 inches **17.** 12 ft

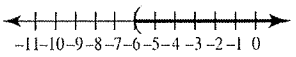
Section 1.3

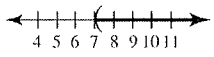
Your Turn: Five Steps for Problem Solving: **1.** 20,500 thousand metric tons **2.** $-13, -12, -11$ **Basic Motion Problems:** **1.** $\frac{2}{3}$ hr, or 40 min

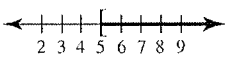
Practice Exercises: **1.** Familiarize **2.** Translate **3.** Solve **4.** Check **5.** State **6.** \$68.68 **7.** 6, 8 **8.** 215 units **9.** 42, 43 **10.** 12°, 60°, 108° **11.** 110 sec

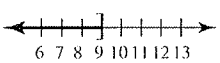
Section 1.4

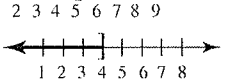
Your Turn: Inequalities: **1.** No **2.** No **3.** Yes **Inequalities and Interval Notation:** **1.** $(-4, 3]$ **2.** $(-\infty, -7)$ **3.** $(6, 11]$ **4.** $(8, \infty)$ **Solving Inequalities:**

1. $\{x \mid x > -6\}$, or $(-6, \infty)$; 

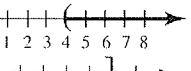
2. $\{x \mid x > 7\}$, or $(7, \infty)$; 

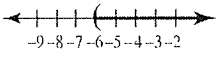
3. $\{x \mid x \geq 5\}$, or $[5, \infty)$; 

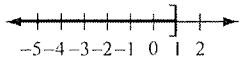
4. $\{x \mid x \leq 9\}$, or $(-\infty, 9]$; 

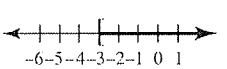
5. $\{x \mid x \leq 4\}$, or $(-\infty, 4]$; 

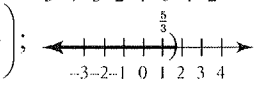
Applications and Problem Solving: **1.** More than \$1046.02 in sales; $\{S \mid S > 1046.02\}$ **2.** More than 25 guests; $\{g \mid g > 25\}$

Practice Exercises: **1.** (d) **2.** (a) **3.** (e) **4.** (f) **5.** (c) **6.** (b) **7.** No **8.** Yes **9.** No **10.** $[-2, \infty)$ **11.** $[-3, 5]$ **12.** $(-\infty, 6)$ **13.** $(0, 5]$ **14.** $\{x \mid x > 4\}$, or $(4, \infty)$; 

15. $\{x \mid x > -6\}$, or $(-6, \infty)$; 

16. $\{x \mid x \leq 1\}$, or $(-\infty, 1]$; 

17. $\{x \mid x \geq -3\}$, or $[-3, \infty)$; 

18. $\left\{x \middle| x < \frac{5}{3}\right\}$, or $\left(-\infty, \frac{5}{3}\right)$; 

19. Times more than 170 hours; $\{t \mid t > 170\}$

20. Scores greater than or equal to 92; $\{S \mid S \geq 92\}$

21. Times less than 40 hours; $\{t \mid t < 40\}$

Section 1.4

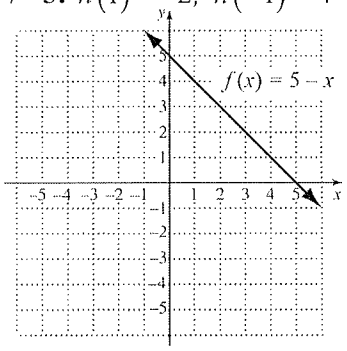
Sect 2.2

Section 2.2

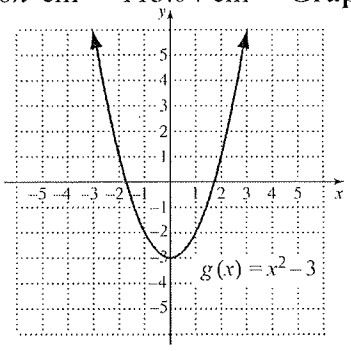
Your Turn: Identifying Functions: **1.** Not a function **2.** A function **3.** Not a function **4.** A function **Finding Function Values:** **1.** $g(0)=3,\ g(-1)=7,\ g(a+2)=-4a-5$

2. 7 **3.** $h(1)=-2,\ h(-1)=4$ **4.** $36\pi \text{ cm}^2 \approx 113.04 \text{ cm}^2$ **Graphs of Functions:**

1.



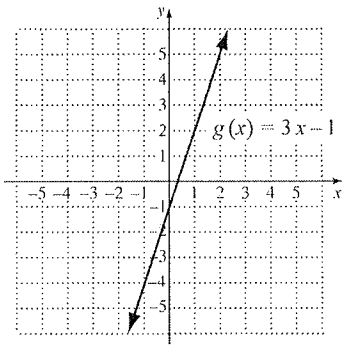
2.



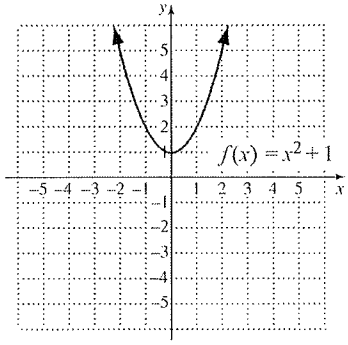
The Vertical-Line Test: **1.** Yes **Applications of Functions and Their Graphs:**
1. Approximately 1000 for-profit hospitals

Practice Exercises:
1. function; domain; range **2.** vertical; function **3.** output **4.** A function
5. Not a function **6.** 14 **7.** 14 **8.** $4a-11$ **9.** 5 **10.** 150 cm^2

11.



12.



13. A function **14.** Not a function **15.** Approximately 248 hospitals

Sect. 2.3

Section 2.3

Your Turn: Finding Domain and Range: **1.** Domain: $\{-4,-2,2,4\}$; range: $\{-2,0,1,3\}$

2. Domain: $\{x|-5\le x\le 4\}$; range: $\{y|-5\le y\le 1\}$ **3. a)** 1; **b)** $\{x|x\ge -3\}$; **c)** 1; **d)** $\{y|y\ge 0\}$

4. $\{x|x \text{ is a real number } \textit{and } x\ne 4\}$ **5.** All real numbers

Practice Exercises: **1.** function **2.** relation **3.** domain **4.** range **5. a)** 3; **b)** $\{-3,0,2,4\}$; **c)** -3; **d)** $\{-3,-2,1,3\}$ **6. a)** 1; **b)** all real numbers; **c)** 2, 4 **d)** $\{y|y\le 2\}$

7. a) 4; **b)** $\{x|-4\le x\le 5\}$; **c)** 0; **d)** $\{y|-2\le y\le 4\}$ **8.** All real numbers

Sect. 2.3 cont.

9. $\{x|x \text{ is a real number } \textit{and } x \neq 5\}$ **10.** $\left\{x\middle|x \text{ is a real number } \textit{and } x \neq -\frac{3}{2}\right\}$

11. All real numbers **12.** All real numbers

Sect 2.4

Section 2.4

Your Turn: The Sum, Difference, Product, or Quotient of Two Functions:

1. $3x^2 - x + 4$ **2.** -8 **3.** $2t^2 + 7t - 4$ **4.** $-\frac{7}{2}$ **Determining Domain:**

1. $\{x|x \text{ is a real number } \textit{and } x \neq 0\}$ **2.** $\{x|x \text{ is a real number } \textit{and } x \neq 2 \textit{ and } x \neq 7\}$

Practice Exercises: **1.** (c) **2.** (d) **3.** (a) **4.** (b) **5.** 6 **6.** 2 **7.** $-x^3 + 3x^2 - x + 3$ **8.** $\frac{3}{5}$

9. 18 **10.** $9 - 6x + x^2$ **11.** $\frac{a^2+1}{3-a}$, $a \neq 3$ **12.** -14 **13.** $\{x|x \text{ is a real number}\}$

14. $\{x|x \text{ is a real number}\}$ **15.** $\{x|x \text{ is a real number } \textit{and } x \neq 0\}$

16. $\{x|x \text{ is a real number } \textit{and } x \neq 1\}$ **17.** $\{x|x \text{ is a real number } \textit{and } x \neq -2\}$

18. $\{x|x \text{ is a real number } \textit{and } x \neq 3\}$ **19.** $\{x|x \text{ is a real number } \textit{and } x \neq -4 \textit{ and } x \neq 8\}$

20. $\{x|x \text{ is a real number } \textit{and } x \neq 1 \textit{ and } x \neq 3\}$

Sect 2.5

Section 2.5

Your Turn: The Constant *b*: The *y*-Intercept: **1.** $(0, 13)$ **2.** $(0, -9.5)$ **3.** $(0, 3)$

The Constant *m*: Slope: **1.** $\frac{2}{5}$ **2.** 9 **3.** $-\frac{1}{2}$ **Applications:** **1.** 15 min/page

2. 1.5 cups/pie

Practice Exercises: **1.** *y*-intercept **2.** slope **3.** down **4.** slope-intercept form

5. $\left(0, -\frac{1}{2}\right)$ **6.** $(0, -1)$ **7.** 3 **8.** 1 **9.** -5 **10.** Slope: $\frac{3}{8}$; *y*-intercept: $(0, -6)$

11. Slope: $\frac{3}{2}$; *y*-intercept: $(0, 3)$ **12.** Slope: 1; *y*-intercept: $(0, -9)$

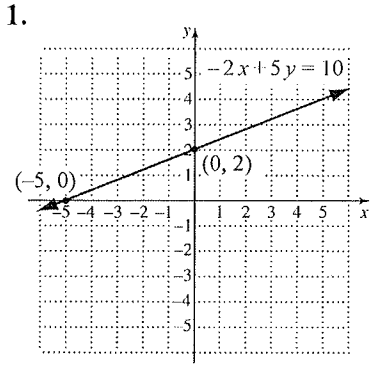
13. Slope: $-\frac{1}{3}$; *y*-intercept: $\left(0, \frac{2}{3}\right)$ **14.** $1\frac{1}{6}$ miles per minute **15.** $\frac{1}{20}$ mile per minute

Sect. 2.6

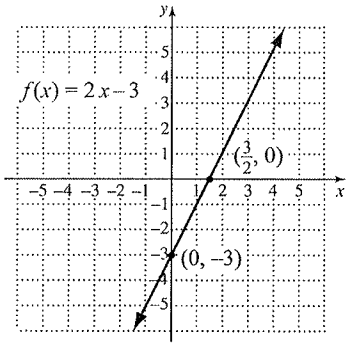
Section 2.6

Your Turn: Graphing Using Intercepts:

1.

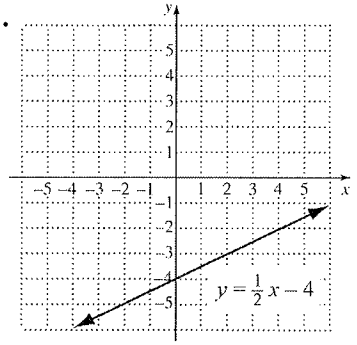


2.

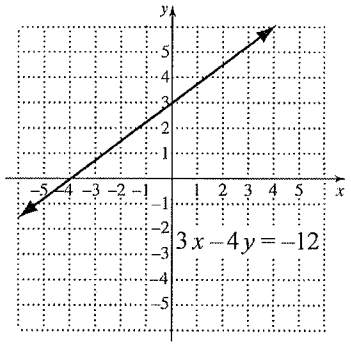


Graphing Using the Slope and the y-Intercept:

1.

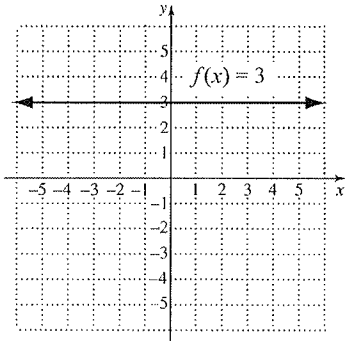


2.



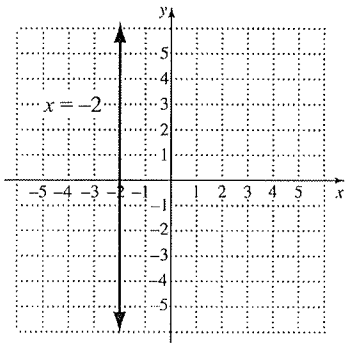
Horizontal Lines and Vertical Lines:

1.



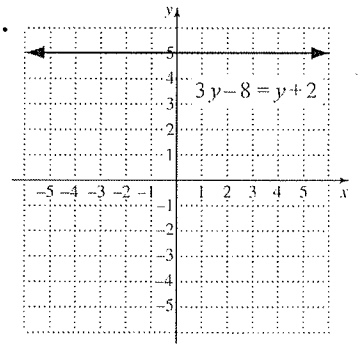
Slope is 0.

2.



Slope is not defined.

3.



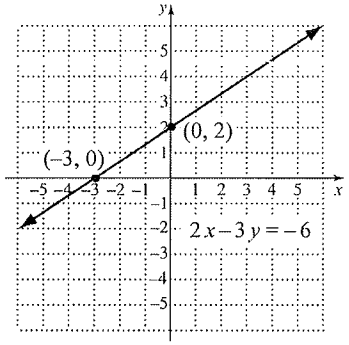
Slope is 0.

Sect. 2.6 cont.

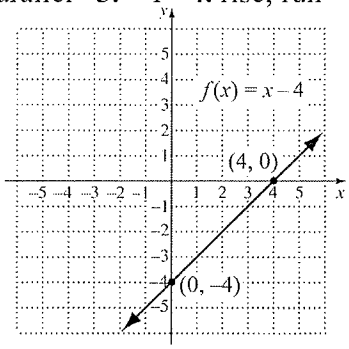
Parallel Lines and Perpendicular Lines: **1.** Not parallel **2.** Perpendicular

Practice Exercises: **1.** vertical **2.** parallel **3.** -1 **4.** rise; run

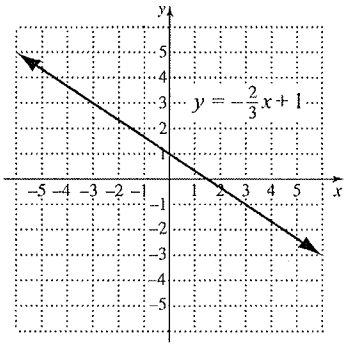
5.



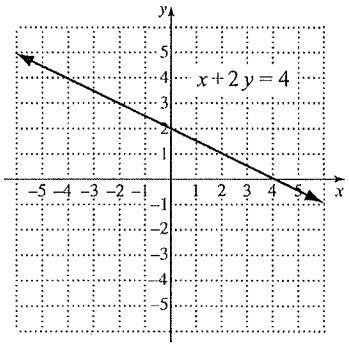
6.



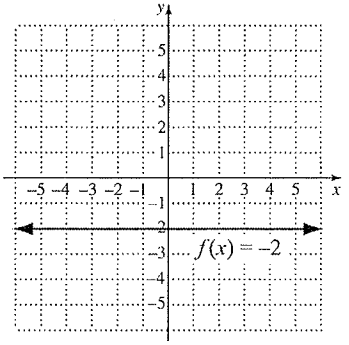
7.



8.

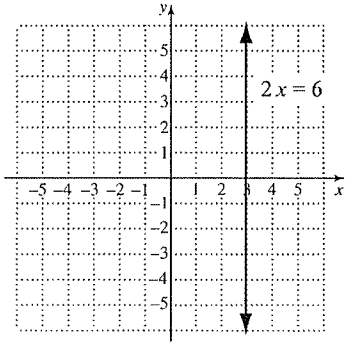


9.



Slope is 0.

10.



Slope is not defined.

11. Parallel **12.** Not parallel **13.** Perpendicular **14.** Perpendicular

Sect 2.7

Section 2.7

Your Turn: Finding an Equation of a Line When the Slope and the *y*-Intercept Are Given: **1.** $y=-7x+5$ **2.** $f(x)=4x-10$ **Finding an Equation of a Line When the Slope and a Point Are Given:** **1.** $y=\frac{2}{3}x-\frac{35}{3}$ **2.** $y=-x+7$ **Finding an Equation of a Line When Two Points Are Given:** **1.** $y=-\frac{1}{2}x+\frac{1}{2}$ **2.** $y=-x+5$ **Finding an Equation of a Line Parallel or Perpendicular to a Given Line Through a Point Not on the Line:** **1.** $y=-\frac{2}{5}x+\frac{33}{5}$ **2.** $y=-2x-9$

Sect. 2.7 cont.

Applications of Linear Functions: **1.** $e(t) = -\frac{1}{2}t + \frac{49}{2}$; \$17,500

2. $h(p) = -15p + 250$; 25 headbands

Practice Exercises: **1.** (d) **2.** (b) **3.** (a) **4.** (c) **5.** $y = -4x + 8$ **6.** $f(x) = \frac{1}{2}x - 1$

7. $y = 6x - 18$ **8.** $y = -\frac{1}{2}x - 7$ **9.** $y = \frac{1}{3}x + \frac{13}{3}$ **10.** $y = 2x - 5$ **11.** $y = x - 2$

12. $y = \frac{4}{5}x - 9$ **13. a)** $C(t) = 22.95t + 150$; **b)** \$517.20 **14. a)** $N(x) = 34x + 150$;

b) 524 students