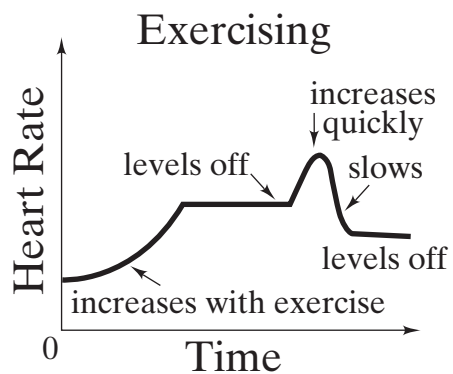
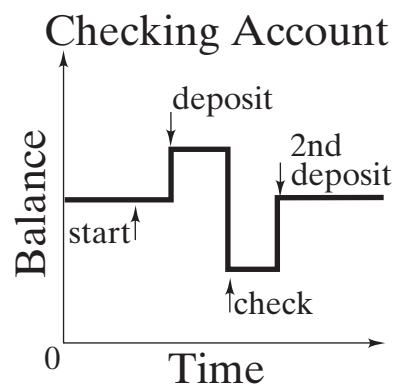


1–4. Labels may vary. Samples are given.

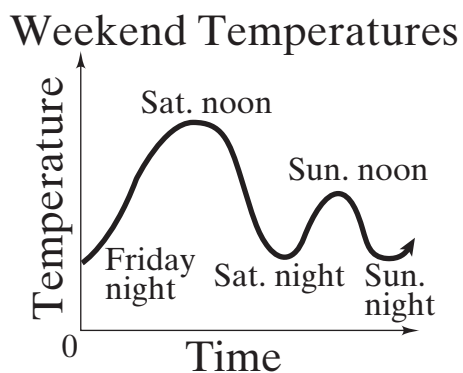
1.



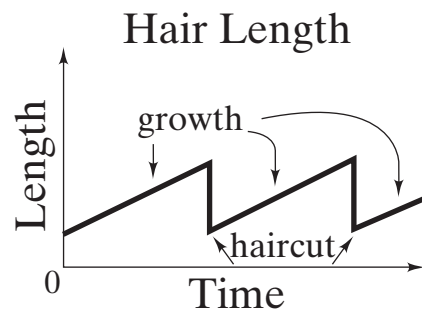
2.



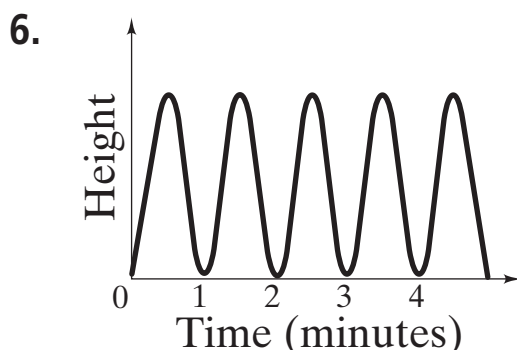
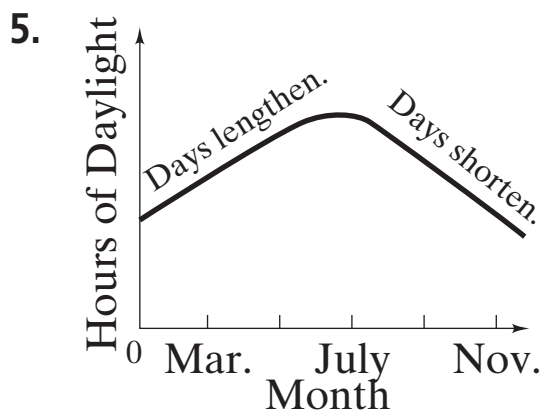
3.



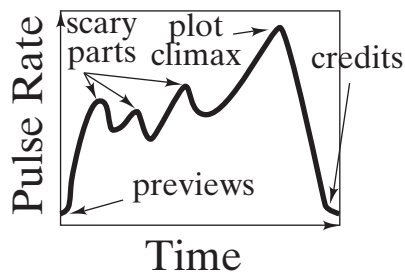
4.



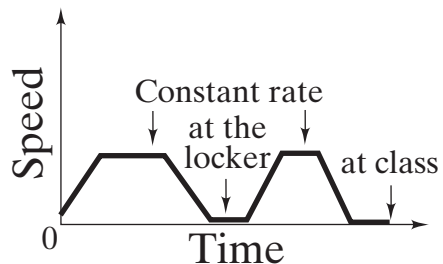
5–8. Graphs may vary. Samples are given.



7. Pulse Rate During a Scary Movie



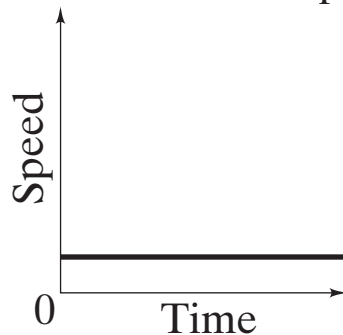
8. Between Classes



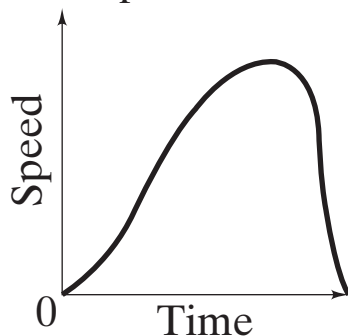
Answers for Lesson 5-1, pp. 254–256 Exercises (cont.)

9. C; the temperature increases steadily and then alternates cooling and warming as the oven turns off and on during a cooking cycle.
10. The pressure dropped from 7 A.M. to 3 P.M., stayed about the same until 9 P.M., and then generally rose until 7 A.M. the next day.

11. a. Bottom to Top



b. Top to Bottom

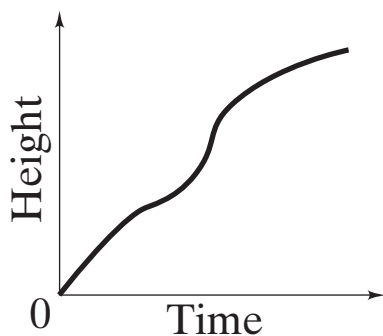


No; the graphs are different because you have a constant speed traveling up but not down.

12. a. blue; red

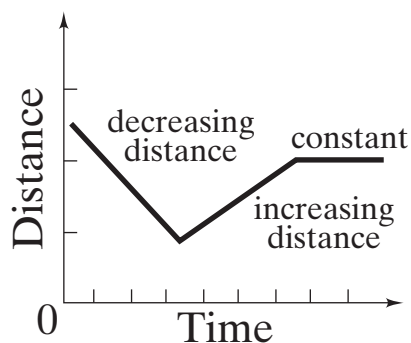
b. The baby weighs more at first and gains weight steadily for a number of years. The puppy's weight levels off at an earlier age.

13. Answers may vary. Sample:



14. It shows a person bicycling down and then up a hill because speed increases on the way down and decreases on the way up.

15. a.



b. section showing the distance decreasing

c. first 2 sections

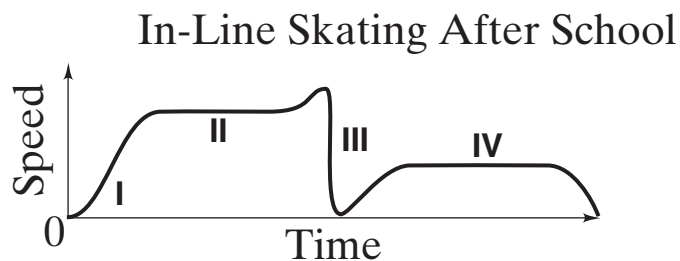
16. C

17. a. Check students' work.

b. A graph of temperatures at the equator would show little change for daily high temperatures.

Answers for Lesson 5-1, pp. 254–256 Exercises (cont.)

18. a. Answers may vary. Sample: The student started skating and got to cruising speed. After a while, the student sped up going downhill, lost control, and crashed. After getting up, the student decided not to go as fast.
- b. Answers may vary. Sample:



I—speeding up;
II—cruising; III—crash;
IV—slower speed

19. \$3
20. \$6
21. more than 2 h up to 4 h
22. Answers may vary. Sample: Yes, the line segments make the graph look like steps.

Answers for Lesson 5-2, pp. 259–261 Exercises

1. no 2. no 3. yes
 4. no 5. yes 6. no
 7. no 8. yes

9.

| x | $x + 7$ | $f(x)$ |
|-----|---------|--------|
| 1 | $1 + 7$ | 8 |
| 2 | $2 + 7$ | 9 |
| 3 | $3 + 7$ | 10 |
| 4 | $4 + 7$ | 11 |

10.

| x | $11x - 1$ | y |
|-----|-------------|-----|
| 1 | $11(1) - 1$ | 10 |
| 2 | $11(2) - 1$ | 21 |
| 3 | $11(3) - 1$ | 32 |
| 4 | $11(4) - 1$ | 43 |

11.

| x | x^2 | $f(x)$ |
|-----|-------|--------|
| 1 | 1^2 | 1 |
| 2 | 2^2 | 4 |
| 3 | 3^2 | 9 |
| 4 | 4^2 | 16 |

12.

| x | $-4x$ | $f(x)$ |
|-----|---------|--------|
| 1 | $-4(1)$ | -4 |
| 2 | $-4(2)$ | -8 |
| 3 | $-4(3)$ | -12 |
| 4 | $-4(4)$ | -16 |

13.

| x | $15 - x$ | $f(x)$ |
|-----|----------|--------|
| 1 | $15 - 1$ | 14 |
| 2 | $15 - 2$ | 13 |
| 3 | $15 - 3$ | 12 |
| 4 | $15 - 4$ | 11 |

14.

| x | $3x + 2$ | y |
|-----|------------|-----|
| 1 | $3(1) + 2$ | 5 |
| 2 | $3(2) + 2$ | 8 |
| 3 | $3(3) + 2$ | 11 |
| 4 | $3(4) + 2$ | 14 |

15.

| x | $\frac{1}{4}x$ | y |
|-----|------------------|---------------|
| 1 | $\frac{1}{4}(1)$ | $\frac{1}{4}$ |
| 2 | $\frac{1}{4}(2)$ | $\frac{1}{2}$ |
| 3 | $\frac{1}{4}(3)$ | $\frac{3}{4}$ |
| 4 | $\frac{1}{4}(4)$ | 1 |

16.

| x | $-x + 2$ | $f(x)$ |
|-----|----------|--------|
| 1 | $-1 + 2$ | 1 |
| 2 | $-2 + 2$ | 0 |
| 3 | $-3 + 2$ | -1 |
| 4 | $-4 + 2$ | -2 |

17. $\{0.5, 53\}$

18. $\{-8, -2, 18\}$

19. $\{-27, -7, -2, 8, 48\}$

20. $\{-4\frac{1}{2}, -\frac{3}{4}, 0\}$

21. no

22. no

Answers for Lesson 5-2, pp. 259–261 Exercises (cont.)

41. a. Answers may vary. Sample: The cost appears to be far too little.
b. Answers may vary. Sample: The student failed to convert hours to minutes.
c. \$10.80
d. whole numbers; positive numbers

42. a.

| g | $180 - 25g$ | d |
|-----|---------------|-----|
| 2 | $180 - 25(2)$ | 130 |
| 4 | $180 - 25(4)$ | 80 |
| 6 | $180 - 25(6)$ | 30 |
| 8 | $180 - 25(8)$ | -20 |

- b. about 7 gallons
c. Domain: More than 0 gallons up to 15 gallons; Since the car would be stuck if there was no gas in it.
Range: 0 to 180 miles; Since you are 180 miles away and start heading home, 180 is the upper limit. Your distance will be 0 when you arrive at home.

43. 23

44. 18

45. 6

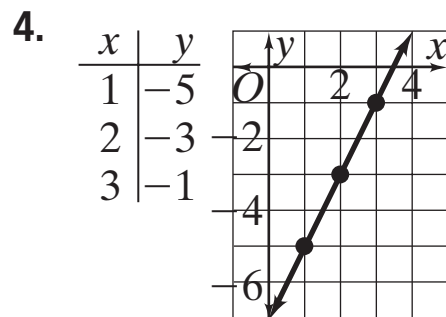
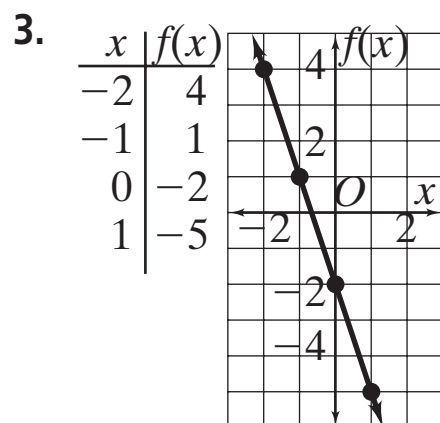
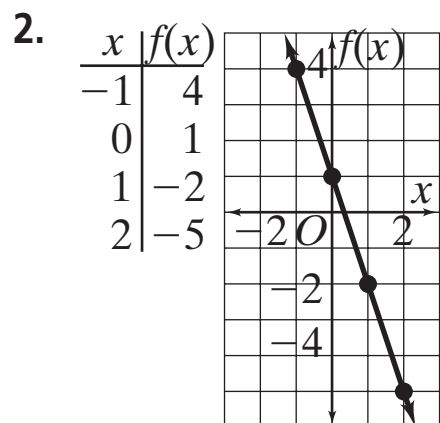
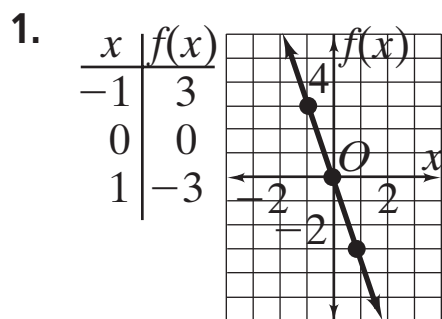
46. 20

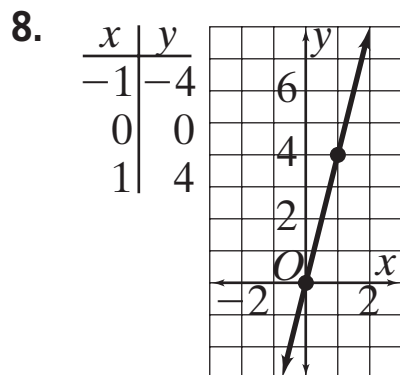
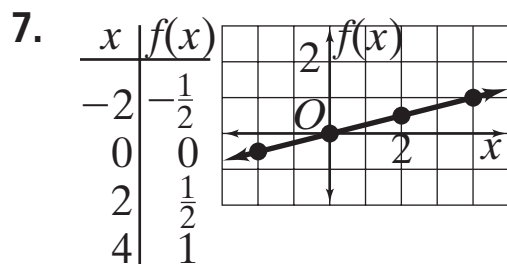
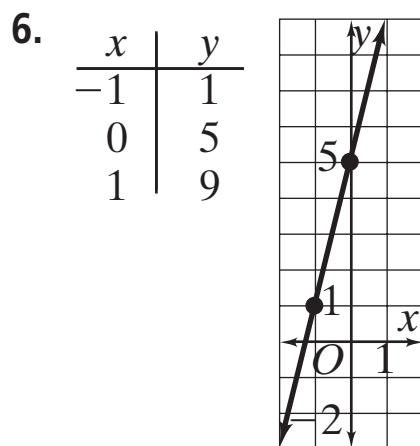
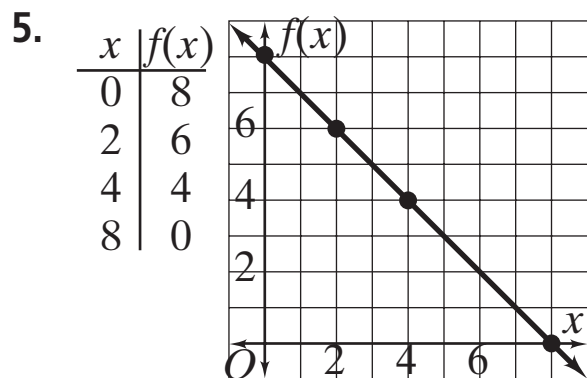
47. Yes, it passes the vertical line test; no, it doesn't pass the vertical line test.

48. a. 0, -1, -2, -6

b. all integers

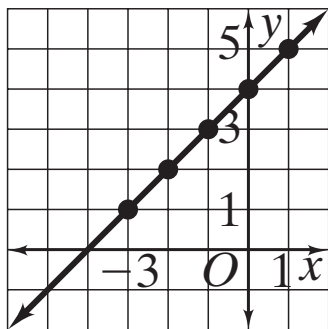
1–9. Tables may vary. Samples are given.





9.

| x | y |
|-----|-----|
| -3 | 1 |
| -2 | 2 |
| -1 | 3 |
| 0 | 4 |
| 1 | 5 |



10. a. $M = 3.5h$

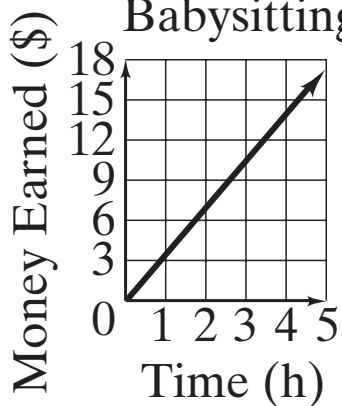
b-d. Answers may vary. Samples are given.

b.

| h | M |
|---------------|---------|
| 0 | \$0.00 |
| $\frac{1}{2}$ | \$1.75 |
| 1 | \$3.50 |
| 2 | \$7.00 |
| 3 | \$10.50 |

c.

Money Earned
Babysitting

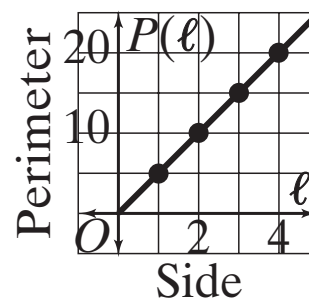


d. about 8.5 h

11. a.

| ℓ | $P(\ell)$ |
|--------|-----------|
| 1 | 5 |
| 2 | 10 |
| 3 | 15 |
| 4 | 20 |

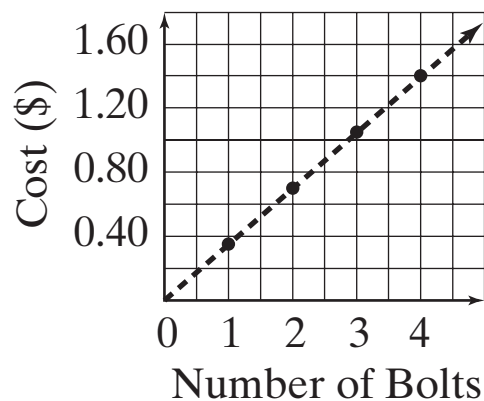
b.



Answers for Lesson 5-3, pp. 266–267 Exercises (cont.)

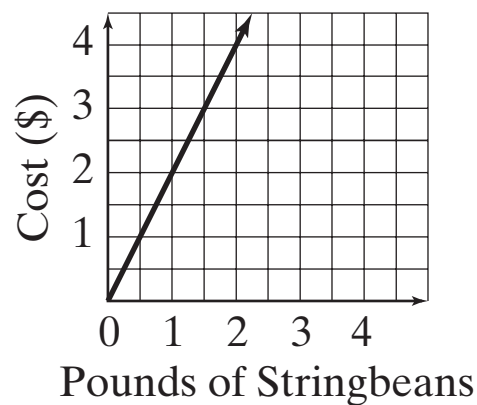
12. discrete;

| p | $0.35p$ | $C(p)$ |
|-----|-----------|--------|
| 1 | $0.35(1)$ | 0.35 |
| 2 | $0.35(2)$ | 0.70 |
| 3 | $0.35(3)$ | 1.05 |
| 4 | $0.35(4)$ | 1.40 |



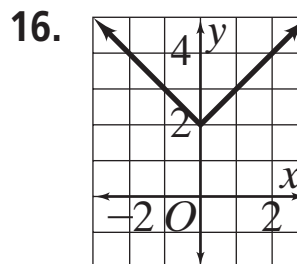
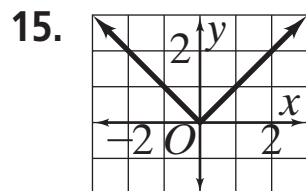
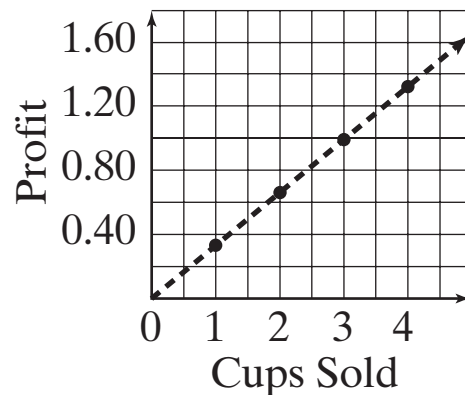
13. continuous;

| n | $2n$ | $A(n)$ |
|-----|--------|--------|
| 1 | $2(1)$ | 2 |
| 2 | $2(2)$ | 4 |
| 3 | $2(3)$ | 6 |
| 4 | $2(4)$ | 8 |

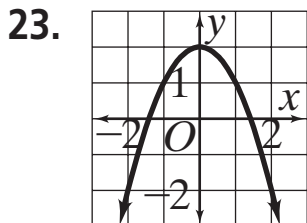
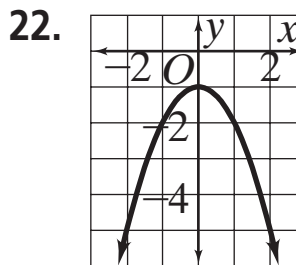
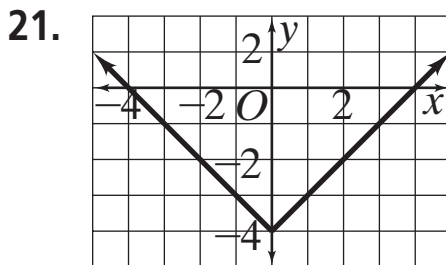
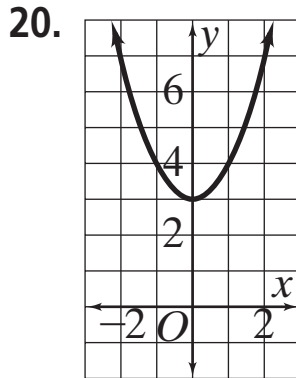
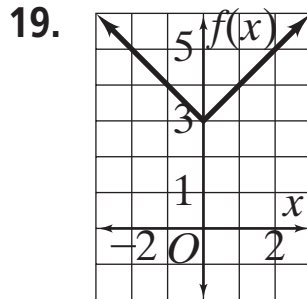
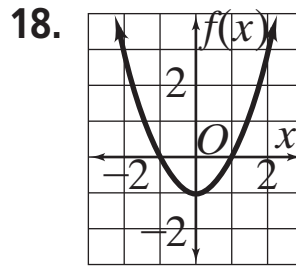
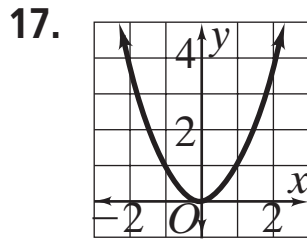


14. discrete;

| c | $0.75c - 0.42cn$ | $P(c)$ |
|-----|------------------|--------|
| 1 | $0.75 - 0.42(1)$ | 0.33 |
| 2 | $0.75 - 0.42(2)$ | 0.66 |
| 3 | $0.75 - 0.42(3)$ | 0.99 |
| 4 | $0.75 - 0.42(4)$ | 1.32 |

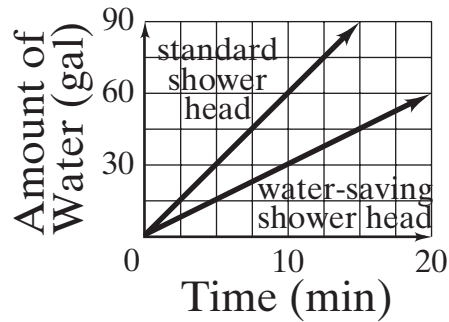


Answers for Lesson 5-3, pp. 266–267 Exercises (cont.)



24. a. 55.2 gal

b. Water Use in Shower



c. Check students' work.

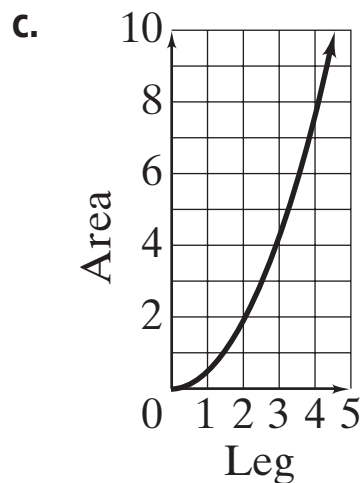
d. Check students' work.

25. Check students' work.

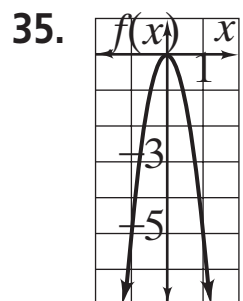
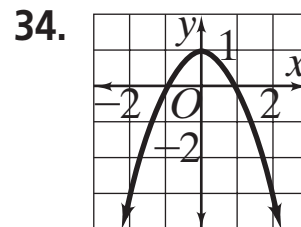
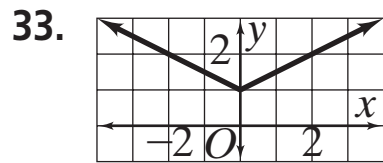
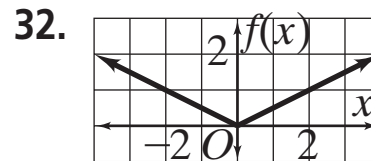
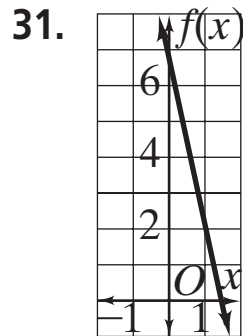
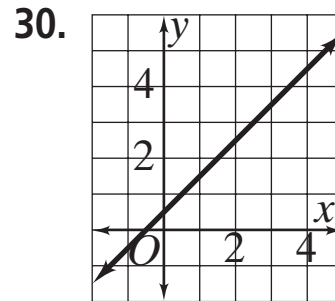
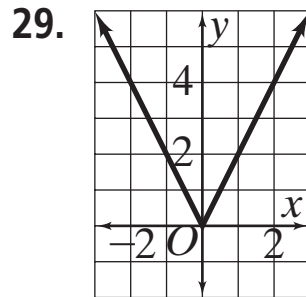
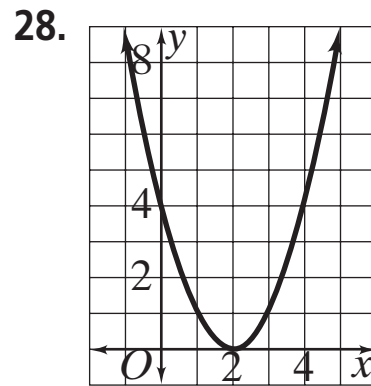
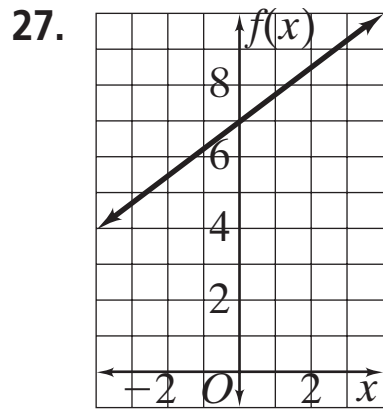
26. a.

| ℓ | $A(\ell)$ |
|--------|-----------|
| 1 | 0.5 |
| 2 | 2 |
| 3 | 4.5 |
| 4 | 8 |

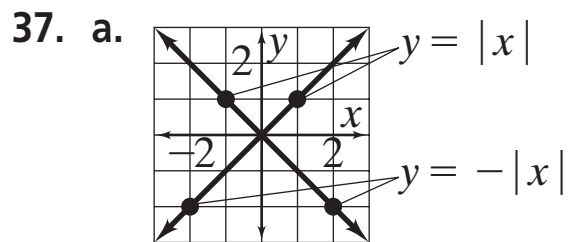
b. continuous; length is a continuous measure



Answers for Lesson 5-3, pp. 266–267 Exercises (cont.)



36. D



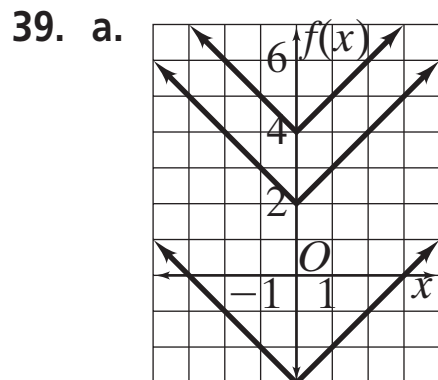
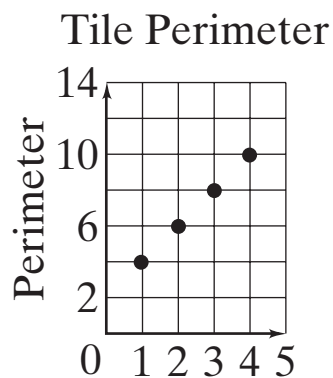
b. x -axis

c. $y = -|x| - 1$

38. a.

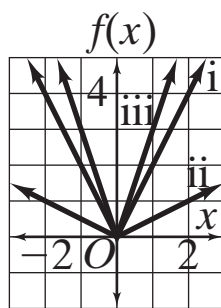
| Tiles | Perimeter |
|-------|-----------|
| 1 | 4 |
| 2 | 6 |
| 3 | 8 |
| 4 | 10 |

b. $P(t) = 2t + 2,$



b. It changes the y -intercept.

40. a.



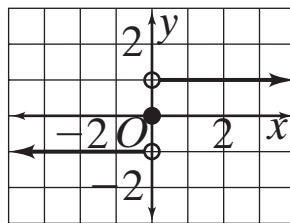
b. It makes the graph wider or narrower.

41. a. 1, 1, -1, -1

b. $\{-1, 0, 1\}$

c. Tables may vary. Sample:

| x | y |
|-----|-----|
| -4 | -1 |
| -2 | -1 |
| 0 | 0 |
| 2 | 1 |
| 4 | 1 |



d. No; $s(3 + 5) = s(8) = 1$ and $s(3) + s(5) = 1 + 1 = 2$;
 $1 \neq 2$.

Answers for Lesson 5-4, pp. 272–274 Exercises (cont.)

25. Answers may vary. Sample: $f(x) = 60x$; $f(3) = 180$, 180 mi in 3 h, the distance you can travel at a constant speed of 60 mi/h

26. C

27.

| | |
|-----|-----|
| x | y |
| -1 | 3 |
| 0 | 2 |
| 1 | 1 |
| 2 | 0 |
| 3 | -1 |

$y = -x + 2$

28.

| | |
|-----|----------------|
| x | y |
| -2 | -2 |
| -1 | $-\frac{1}{2}$ |
| 0 | 1 |

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

29.

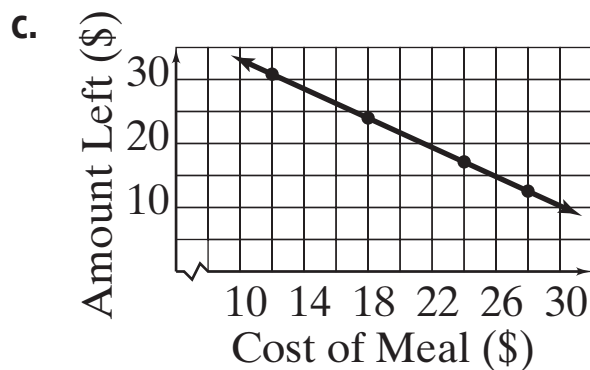
| | |
|-----|-----|
| x | y |
| -4 | -3 |
| -2 | 0 |
| 0 | 3 |

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

30. a.

| c | Process | $A(c)$ |
|------|------------------------|---------|
| \$12 | $45 - [12 + 0.15(12)]$ | \$31.20 |
| \$18 | $45 - [18 + 0.15(18)]$ | \$24.30 |
| \$24 | $45 - [24 + 0.15(24)]$ | \$17.40 |
| \$28 | $45 - [28 + 0.15(28)]$ | \$12.80 |

b. $A(c) = 45 - (c + 0.15c)$

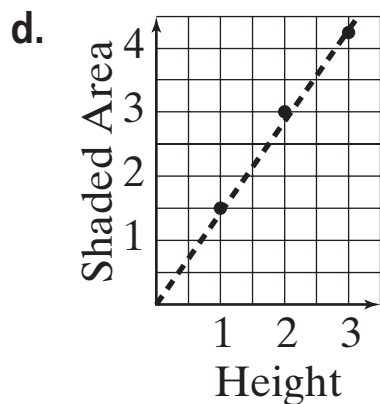


31. a.

| h | Process | $A(h)$ |
|-----|-------------------------------|------------------------------|
| 1 | $1 \cdot 3 \cdot \frac{1}{2}$ | $\frac{3}{2} = 1\frac{1}{2}$ |
| 2 | $2 \cdot 3 \cdot \frac{1}{2}$ | 3 |
| 3 | $3 \cdot 3 \cdot \frac{1}{2}$ | $\frac{9}{2} = 4\frac{1}{2}$ |

b. $A(h) = \frac{3}{2}h$

c. discrete; The figures represent tiles, which usually counted in whole units.



32. $f(x) = x^3$ 33. $f(x) = -x^3$ 34. $f(x) = -x^3 - 1$

35. a. $c(m) = 44 + 0.38m$

b. \$70.60, \$89.60

c. 38 mi

d. \$202

36. a. $B(v) = 6.93v$

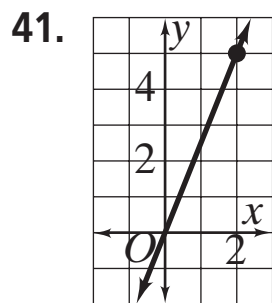
b. $B(w) = \frac{7}{10}w$

Answers for Lesson 5-5, pp. 280–282 Exercises

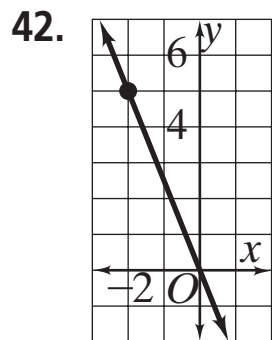
- | | | |
|-------------------------|-------------------------|-------------------------|
| 1. no | 2. no | 3. yes; -2 |
| 4. no | 5. yes; $\frac{5}{6}$ | 6. yes; $\frac{7}{3}$ |
| 7. yes; $-\frac{1}{10}$ | 8. yes; 0.5 | 9. yes; $-\frac{3}{2}$ |
| 10. $y = 5x$ | 11. $y = \frac{1}{5}x$ | 12. $y = -\frac{5}{4}x$ |
| 13. $y = \frac{9}{5}x$ | 14. $y = -\frac{3}{2}x$ | 15. $y = -\frac{1}{6}x$ |
| 16. $y = -\frac{4}{3}x$ | 17. $y = -\frac{4}{3}x$ | 18. $y = -\frac{4}{3}x$ |
| 19. $y = 2x$ | 20. $y = -\frac{2}{3}x$ | 21. $y = \frac{1}{5}x$ |

22–23. Choices of variables may vary.

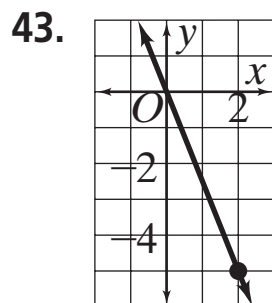
- | | | |
|---|---------------------------|--------------------------|
| 22. $P(\ell) = 8\ell$ | 23. $E(h) = 7.10h$ | |
| 24. yes; $y = 1.8x$ | 25. no | 26. yes; $y = -1.5x$ |
| 27. a. $\frac{20}{50}$ or 0.4 b. $f = 0.4w, 52$ lb | | |
| 28. $d = 0.3t, 9$ mi | 29. $y = \frac{1}{6}x$ | 30. $y = -20x$ |
| 31. $y = -\frac{36}{25}x$ | 32. $y = 6x$ | 33. $y = 9x$ |
| 34. $y = -\frac{1}{32}x$ | 35. $y = -\frac{15}{52}x$ | 36. $y = \frac{27}{64}x$ |
| 37. a. The ratio $\frac{y}{x}$ is the same for each pair of values. b. A line through the origin that is neither vertical nor horizontal is the graph of a direct variation. | | |
| 38. True; a line that is neither horizontal nor vertical can pass through $(0, 0)$ and $(-2, 4)$. | | |
| 39. False; the line through $(0, 3)$ and $(0, 0)$ is vertical, so it is not a function and is therefore not a direct variation. | | |
| 40. True; for the equation $y = kx$, if one side is multiplied by 3, then the other side must be multiplied by 3. | | |



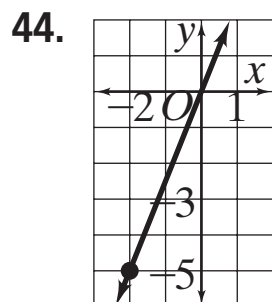
$$y = \frac{5}{2}x$$



$$y = -\frac{5}{2}x$$



$$y = -\frac{5}{2}x$$



$$y = \frac{5}{2}x$$

Answers for Lesson 5-5, pp. 280–282 Exercises (cont.)

45. a. $\frac{1}{32}$
b. $b = \frac{1}{32}w$
c. Check students' work.
46. a. 48 volts
b. 0.75 ohms
47. Check students' graphs.
a. The graphs get steeper for increasing, positive values of the constant of variation.
b. It would appear less steep than $y = x$.
48. 12 49. -8 50. 8
51. -6 52. 5 53. 2
54. a. $c = 1.83\text{g}$; yes
b. $c = \frac{1.83}{24}m$ or $c = 0.07625m$

Answers for Lesson 5-6, pp. 288–290 Exercises

1. $xy = 18$
2. $xy = 2$
3. $xy = 56$
4. $xy = 1.5$
5. $xy = 24$
6. $xy = 7.7$
7. $xy = 2$
8. $xy = 0.5$
9. $xy = 0.06$
10. 8
11. 15
12. 6
13. 7
14. 3
15. 130
16. 12
17. 96
18. 3125
19. 2
20. $\frac{1}{6}$
21. 20
22. 3 h
23. $13.\bar{3}$ mi/h
24. direct variation; $y = 0.5x$
25. inverse variation; $xy = 60$
26. inverse variation; $xy = 72$
27. Direct variation; the ratio $\frac{\text{cost}}{\text{pound}}$ is constant at \$1.79.
28. Inverse variation; the total number of slices is constant at 8.
29. Inverse variation; the product of the length and width remains constant with an area of 24 square units.
30. 32; $xy = 32$
31. 1.1; $rt = 1.1$
32. 2.5; $xy = 2.5$
33. 1; $ab = 1$
34. 15.6; $pq = 15.6$
35. 375; $xy = 375$
36. Direct variation; the ratio of the perimeter to the side length is constant at 3.
37. Inverse variation; the product of the rate and the time is always 150.
38. Direct variation; the ratio of the circumference to the radius is constant at 2π .
39. 121 ft
40. 2.4 days

Answers for Lesson 5-6, pp. 288–290 Exercises (cont.)

41. direct variation; $y = 0.4x$; 8
42. direct variation; $y = 70x$; 0.9
43. inverse variation; $xy = 48$; 0.5
44. a. greater
b. greater
c. less
45. a. 16 h; 10 h; 8 h; 4 h
b. hr worked, rate of pay
c. $rt = 80$
46. Check students' work.
47. A
48. $p: y = 0.5x$; $q: xy = 8$
49. a. y is doubled.
b. y is halved.
50. $4; s\left(\frac{1}{2}d\right)^2 = \frac{1}{4}sd^2 = k$, so $s = 4\frac{k}{d^2}$.
51. a. $x^4y = k$
b. $\frac{x^4y}{z} = k$

Answers for Lesson 5-7, pp. 294–296 Exercises

1. “Add 2 to the previous term”; 12, 14.
2. “Multiply the previous term by $1\frac{1}{2}$ ”; $20\frac{1}{4}$, $30\frac{3}{8}$.
3. “Add 2 to the first term, 3 to the second term and continue, adding 1 more each time”; 18, 24.
4. “Add 0.04 to the previous term”; 3.16, 3.20.
5. “Multiply the previous term by 1.1”; 4.3923, 4.83153.
6. “Add -2 to the previous term”; -5 , -7 .
7. “Add 1.1 to the previous term”; 5.5, 6.6.
8. “Multiply the previous term by 10”; 10, 100.
9. “Multiply the previous term by 4”; 512, 2048.
10. “Square the reciprocals of consecutive integers”; $\frac{1}{25}$, $\frac{1}{36}$.
11. “Add -14 to the previous term”; -47 , -61 .
12. “Multiply the previous term by 5”; 937.5, 4687.5.
13. 3
14. -4
15. -11
16. 13
17. $-\frac{1}{6}$
18. 0.8
19. -2
20. 12
21. 5
22. 5, 14, 26
23. -3 , 15, 39
24. -3 , 9, 25
25. 17, 44, 80
26. 3.5, 12.5, 24.5
27. 2, 23, 51
28. 3, -15 , -39
29. -7.1 , -22.1 , -42.1
30. 58, 37, 9
31. 17, 5, -11
32. -8 , -17 , -29
33. -0.8 , -3.8 , -7.8
34. -4 , -10

Answers for Lesson 5-7, pp. 294–296 Exercises (cont.)

35. $3\frac{1}{4}, 3\frac{1}{2}$

36. 26, 37

37. $\frac{4}{27}, \frac{4}{81}$

38. 35, 48

39. 31, 40

40. 2.5, 1.25

41. $8, 8\frac{1}{4}$

42. $\frac{4}{27}, -\frac{4}{81}$

43. a. Answers may vary. Sample: Inductive reasoning is making conclusions based on patterns, while deductive reasoning is making conclusions based on given facts.

b. Answers may vary. Check students' work.

44. 5 min

45. Answers may vary. Sample: $A(n) = 2 - 4n$

46. 7 lb 4 oz, 7 lb 9 oz, 7 lb 14 oz, 8 lb 3 oz, 8 lb 8 oz; the baby's weight at the end of the 4th week

47. \$4500, \$4350, \$4200, \$4050, \$3900; the balance after 4 payments

48. a. $\underbrace{1 \quad 2}_{1 \quad 2}; 4; 7$

b. $\frac{2}{1} = 2; \frac{4}{2} = 2; 8$

c. When there are more than three terms you can test the pattern to make sure it is reasonable.

49. No; there is no common difference.

50. Yes; the common difference is -4 .

51. No; there is no common difference.

52. No; there is no common difference.

53. Yes; the common difference is -15 .

54. Yes; the common difference is -0.8 .

55. a. 1, 5, 10, 10, 5, 1

Answers for Lesson 5-7, pp. 294–296 Exercises (cont.)

b. 1, 2, 4, 8, 16; 32

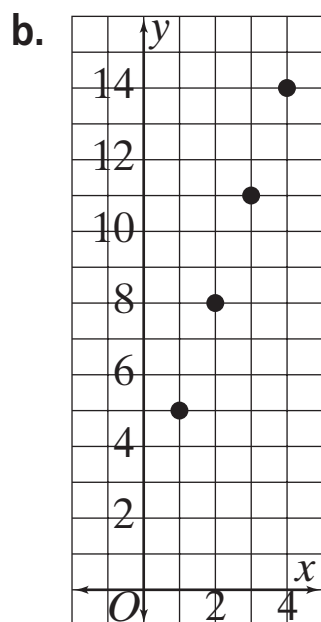
56. $11\frac{1}{3}$, 12, $13\frac{1}{3}$

57. 4.5, -4.5, -22.5

58. -2, -5.2, -11.6

59. 1 , $2\frac{3}{5}$, $5\frac{4}{5}$

60. a. 11, 14



c. The points lie on a line.

61. a. Yes; for each input there is only one output value.

b. For every increase of 7 in the key position, the frequency doubles.

62. a. 21

b. 89

c. Answers may vary. Sample: 3, 3, 6, 9, 15, 24, 39

63. value of new term = value of previous term + 6

64. value of new term = value of previous term \cdot 1.5

65. value of new term = value of previous term - 2.5

Answers for Lesson 5-7, pp. 294–296 Exercises (cont.)

66. value of new term = value of previous term + 4
 67. value of new term = value of previous term \div 7
 68. value of new term = value of previous term \cdot (-2.5)
 69. x ; $4x + 4$

70. $3a + 2b$; $10a + 7b + c$

71. a. 10
 b. -6
 c. $A(n) = 10 + (n - 1)(-6)$

72. a.



- b. Blue; the colors rotate red, blue, and purple. Every third figure is purple. Since 21 is divisible by 3, the 21st figure is purple. The figure just before a purple figure is blue.
 c. 12 sides; the figures show this pattern for number of sides.

| Figure | Number of Sides |
|--------|------------------|
| 1–3 | \rightarrow 3 |
| 4–6 | \rightarrow 4 |
| 7–9 | \rightarrow 5 |
| 10–12 | \rightarrow 6 |
| 13–15 | \rightarrow 7 |
| 16–18 | \rightarrow 8 |
| 19–21 | \rightarrow 9 |
| 22–24 | \rightarrow 10 |
| 25–27 | \rightarrow 11 |
| 28 | \rightarrow 12 |

73. a. -5
 b. 6
 c. $A(n) = -5 + (n - 1)(6)$