

Selected Answers

Pre-Course Practice

DECIMALS (p. xx) 1. 21.1 3. 67.95 5. 15.105 7. 66.3
9. 76.304 11. 729.008 13. 3.7 15. 0.35

FACTORS AND MULTIPLES (p. xx) 1. 1, 2, 3, 4, 6, 12
3. 1, 2, 3, 6, 9, 18, 27, 54 5. $2 \cdot 3^3$ 7. $5 \cdot 7$ 9. 1, 2, 4
11. 1, 2, 7, 14 13. 4 15. 3 17. 6 19. 2 21. 36
23. 42 25. 48 27. 900 29. 24 31. 60 33. 28 35. 54

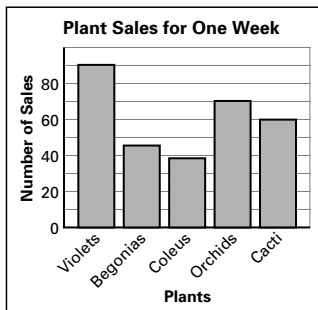
FRACTIONS (p. xxi) 1. $\frac{1}{8}$ 3. $\frac{5}{9}$ 5. $\frac{1}{2}$ 7. $1\frac{1}{5}$ 9. $\frac{5}{9}$
11. $\frac{19}{24}$ 13. $\frac{3}{10}$ 15. $\frac{9}{10}$ 17. $\frac{1}{2}$ 19. 6 21. $1\frac{1}{2}$ 23. $13\frac{31}{40}$
25. $1\frac{1}{3}$ 27. $1\frac{1}{4}$

FRACTIONS, DECIMALS, AND PERCENTS (p. xxi) 1. 0.08,
 $\frac{2}{25}$ 3. 0.38, $\frac{19}{50}$ 5. 1.35, $1\frac{7}{20}$ 7. 0.064, $\frac{8}{125}$ 9. 44%,
 $\frac{11}{25}$ 11. 13%, $\frac{13}{100}$ 13. 160%, $1\frac{3}{5}$ 15. 660%, $6\frac{3}{5}$
17. 0.6, 60% 19. 0.68, 68% 21. 5.2, 520% 23. 3.063,
306.3%

COMPARING AND ORDERING NUMBERS (p. xxii)
1. $13,458 < 14,455$ 3. $-8344 > -8434$ 5. $0.58 > 0.578$
7. $\frac{15}{16} > \frac{9}{10}$ 9. $\frac{9}{24} = \frac{3}{8}$ 11. $-2\frac{11}{16} > -3\frac{2}{9}$ 13. 1075,
1507, 1705, 1775 15. $-0.205, -0.035, -0.019, -0.013$
17. $\frac{2}{7}, \frac{5}{11}, \frac{1}{2}, \frac{5}{8}$ 19. $-\frac{4}{2}, -\frac{3}{2}, -\frac{4}{3}, -\frac{2}{3}$ 21. $\frac{7}{5}, 1\frac{3}{5}, \frac{5}{3}, 1\frac{4}{5}$

PERIMETER, AREA, AND VOLUME (p. xxii) 1. 10 m
3. 22.6 km 5. 95 ft 7. 3.92 in.^2 9. $39,304 \text{ ft}^3$
11. 78.65 mm^3

DATA DISPLAYS (p. xxiii) 1. *Sample answer:* 0 to 60 by
tens: 0, 10, 20, 30, 40, 50, 60 3. *Sample answer:* 0 to
25 by fives: 0, 5, 10, 15, 20, 25
5. *Sample answer:* bar graph



MEASURES OF CENTRAL TENDENCY (p. xxiii) 1. 4.9; 5; 7
3. 52.1; 53; no mode

Chapter 1

STUDY GUIDE (p. 2) 1. B 2. A 3. B 4. A

1.1 GUIDED PRACTICE (p. 6) 7. p minus 4, subtraction
9. 8 times x , multiplication 11. 1 13. $\frac{1}{11}$ 15. 54

1.1 PRACTICE AND APPLICATIONS (pp. 6–8) 21. 20
23. 2 25. 20 27. 9 29. 70 31. 6 33. 260 mi
35. 40 ft 37. 340 mi 39. 240 ft 41. 64 m 43. 10 m^2
45. 6 yd^2 49. 4 h 53. 9.48 55. 15 57. $\frac{1}{6}$ 59. 23.9
61. 11.1508 63. 53.55 65. 13.405

1.2 GUIDED PRACTICE (p. 12) 5. B 7. A 9. 9 11. 36

1.2 PRACTICE AND APPLICATIONS (pp. 12–14) 13. 2^3
15. 9^5 17. 3^4 19. 5^2 ; 25 21. 16 23. 64 25. 1 27. 0
29. 729 31. 32 33. 125 35. 371,293 37. 35,831,808
39. 531,441 41. 29 43. 9 45. 20 47. 6 49. 15,625
51. 100,000 53. 8 m^3 55. 2^3 , 8 cubic units 57. 4^3 ,
64 cubic units 65. 18 67. 45 69. 9 71. 28 73. 3
75. 9 77. 5 79. $\frac{3}{10}$ 81. $\frac{6}{7}$ 83. 9 85. 3 87. 7
89, 91, and 93. Estimates may vary. 89. about 0.3; 0.27
91. about 5; 4.764 93. about 6; 6.325

1.3 GUIDED PRACTICE (p. 18) 3. 60 5. 12 7. 17
9. 23 11. 4 13. 246 15. 3

1.3 PRACTICE AND APPLICATIONS (pp. 18–21) 17. 34
19. 1 21. 82 23. 300 25. 42 27. 11 29. 16 31. 48
33. 14 35. 46 37. 3 39. $\frac{1}{2}$ 41. 128 47. $35(\$230 +$
 $\$300 + \$40 + \$15 + \$100 + \$200) - \2000 49. $\frac{3}{4}x^2$
51. $2(\$7) + \$5 + 2(\$4)$ 59. 8 61. 162 63. 11 65. z^6
67. 81 69. 900 71. composite; 1, 3, 9 73. composite;
1, 2, 19, 38 75. composite; 1, 2, 5, 10, 25, 50 77. prime

QUIZ 1 (p. 21) 1. 18 2. 14 3. 32 4. 9 5. 5 6. 16
7. 6 8. 54 9. 216 10. 200 mi 11. 2000 mi 12. 20 mi
13. 6^3 14. 4^5 15. $(5y)^3$ 16. 3^3 17. $(2x)^4$ 18. 8^2
19. 64 ft^3 20. 2 21. $\frac{1}{3}$ 22. $\frac{1}{2}$

1.4 GUIDED PRACTICE (p. 27) 9. not a solution
11. solution 13. not a solution 15. solution 17. not a
solution 19. solution 21. not a solution 23. solution
25. solution

1.4 PRACTICE AND APPLICATIONS (pp. 27–29) 27. not a
solution 29. solution 31. solution 33. solution 35. 5
37. 8 39. 9 41. 21 43. 2 45. 5 47. 6 51. solution
53. not a solution 55. solution 57. 34 boxes or more
59. 7, 2, 1 65. 16 67. 2 69. 7^2 71. 9^6 73. $(8d)^3$
75. 12 77. 3 79. 9 81. 9 83. 5.6 85. 0.457
87. 758.95 89. 0.3 91. 4.10

1.5 GUIDED PRACTICE (p. 33) 3. B 5. A

7. $x + 10 = 24$ 9. $\frac{20}{n} \leq 2$

1.5 PRACTICE AND APPLICATIONS (pp. 33–35)

11. $10 - x$ 13. $x + 9$ 15. $\frac{x}{50}$ 17. $x + 18$ 19. $x - 7$
 25. $x + 10 \geq 44$ 27. $35 < 21 - x$ 29. $7x = 56$
 31. $\frac{35}{x} = 7$ 33. $28 - x = 18; 10$ 35. $\frac{49}{x} = 7; 7$
 37. $110 = 55t; 2$ h 43. solution 45. not a solution
 47. 0.28 49. 0.4 51. 0.45 53. 0.174

QUIZ 2 (p. 35) 1. solution 2. not a solution 3. solution

4. solution 5. not a solution 6. solution 7. solution
 8. not a solution 9. solution 10. $8x = 32; 4$ units
 11. $\frac{x}{9} < 17$ 12. $10x = 50$ 13. $y + 10 \geq 57$
 14. $y - 6 = 15$

1.6 PRACTICE AND APPLICATIONS (pp. 39–41) 5. 20 min

7. walking speed = 4 (mi/h), time to walk home = t ,
 distance to home = 1 (mi) 9. $t = \frac{1}{4}$ h or 15 min
 11. original length + number of days \cdot growth rate =
 total length 17. number of weeks worked = 8,
 amount saved each week = m (\$), price of stereo with
 CD = 480 (\$) 19. \$60 25. 1000 27. 14 29. 12
 31. solution 33. $0.25l + 0.50(100) = 100; 200$ 35. $1\frac{3}{4}$
 37. $2\frac{1}{6}$ 39. $2\frac{1}{3}$ 41. $2\frac{1}{7}$ 43. $4\frac{1}{2}$ 45. $6\frac{2}{3}$

1.7 GUIDED PRACTICE (p. 45) 3. false 5. false

1.7 PRACTICE AND APPLICATIONS (pp. 45–47) 7. Player 4;

- Player 1 9. 1990; 2000 11. about 150 ft 13. The
 braking distance at that speed is about 300 ft. You need
 to have time to react to any emergency and still allow
 time for your car to travel that distance while stopping.
 15. the 6 years from 1991 to 1996 17. 1998

19. *Sample answer:*

I chose a line graph
 because line graphs are
 useful in showing
 changes over time.

23. 42 in., 98 in.²

25. 56 ft, 84 ft²

27. solution

29. not a solution

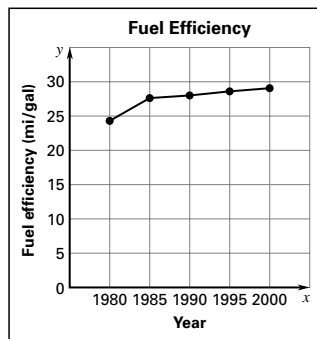
31. solution

33. not a solution

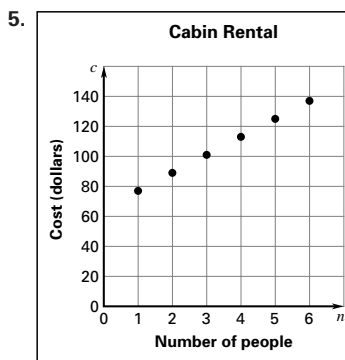
35. $<$ 37. $>$

39. $=$ 41. $>$

43. $=$



1.8 GUIDED PRACTICE (p. 51)



1.8 PRACTICE AND APPLICATIONS (pp. 51–54)

7.

Input x	0	1	2	3	4	5
Output y	5	11	17	23	29	35

9.

Input x	0	1	2	3	4	5
Output y	21	28	35	42	49	56

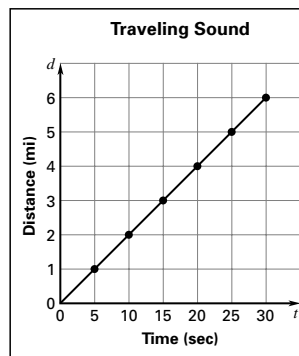
11.

Input x	0	1	2	3	4	5
Output y	75	70	65	60	55	50

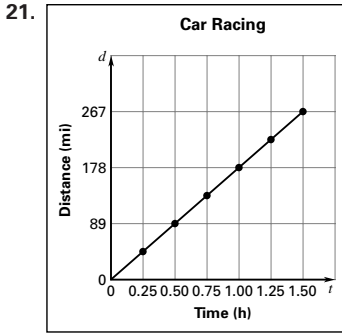


15.

Input t	0	5	10	15	20	25	30
Output d	0	1	2	3	4	5	6



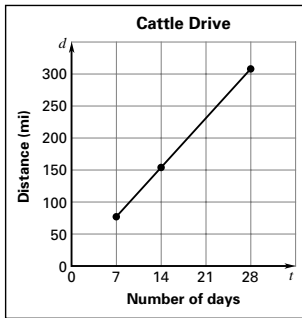
17. no 19. no



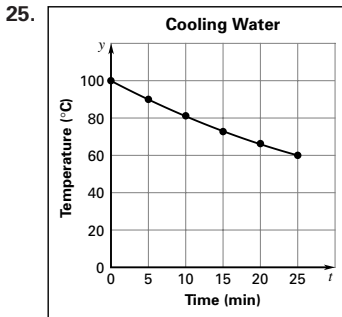
23. a. $d = 11t$

b.

Input t	7	14	28
Output d	77	154	308



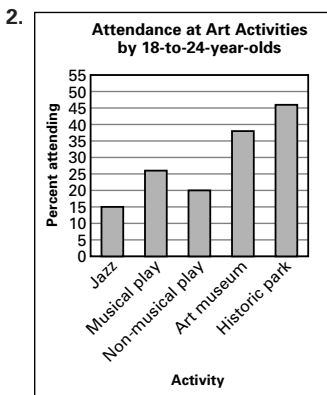
c. 100 days



31. 64 33. 15 35. 45 37. $\frac{72}{x} > 7$ 39. $\frac{1}{2}$ 41. $4\frac{1}{3}$

43. $\frac{3}{\infty}$ 45. 3

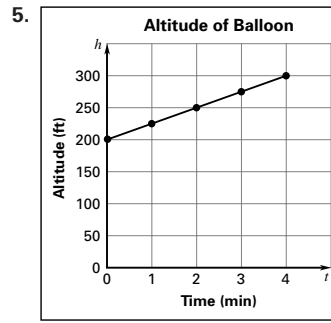
QUIZ 3 (p. 54) 1. 6 bottles



3. *Sample answer:* Attending historic parks was most popular; attending a jazz concert is about a third as popular as attending a historic park. Since the percents total more than 100%, some 18-to-24-year-olds attend more than one kind of arts activity.

4. *Sample table:*

Input t	0	1	2	3	4
Output h	200	225	250	275	300



6. $h \geq 200$ and $h \leq 300$

CHAPTER SUMMARY AND REVIEW (pp. 55–58) 1. 20 3. 6

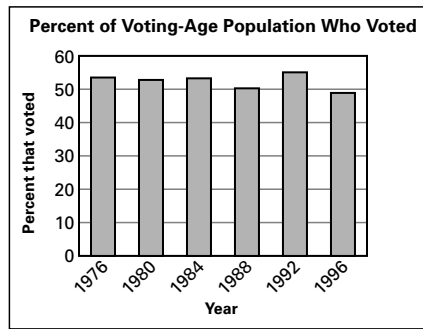
5. 10 7. 6 miles 9. 525 miles 11. 26 m 13. 6^3

15. 16 17. 33 19. 54 21. 3 23. $\frac{17}{4}$ 25. solution

27. solution 29. 3 31. 16 33. 10 35. $x + 30$

37. $x - 9$

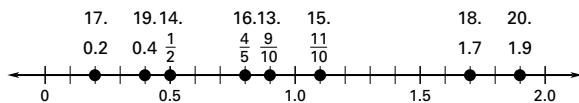
39. $48.9 + 55.1 < 53.5 + 53.3$; $104 < 106.8$; yes



MAINTAINING SKILLS (p. 61) 1. 2.7 3. 12.1 5. 5.806

7. 4.244 9. 155.8 11. 0.99

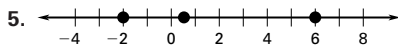
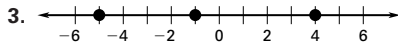
13–20.



Chapter 2

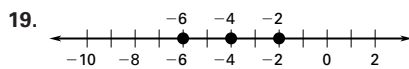
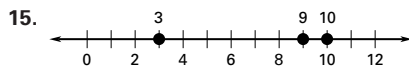
STUDY GUIDE (p. 64) 1. B 2. A 3. D 4. C

2.1 GUIDED PRACTICE (p. 68)



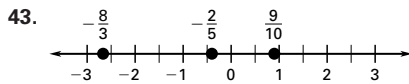
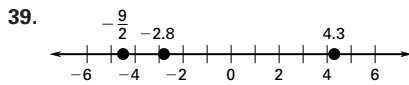
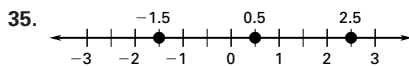
7. $>$ 9. $>$ 11. $-8, -3, -2, 1, 2$ 13. $-9, -7, -\frac{1}{5}, \frac{5}{4}, 2$

2.1 PRACTICE AND APPLICATIONS (pp. 68–70)

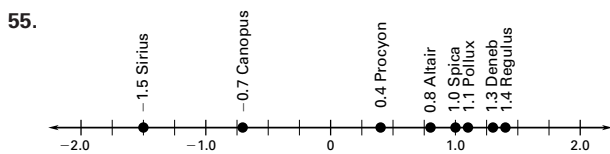


23. $-2 < 3, 3 > -2$ 25. $-6 < -1, -1 > -6$

27. $-4 < 0, 0 > -4$ 29. $10 < 11, 11 > 10$



45. $-3.0, -0.3, -0.2, 0, 0.2, 2.0$ 47. $-5.2, -5.1, -\frac{10}{4}, 3.4, 4.1, \frac{9}{2}$ 49. $-\frac{7}{2}, -2.6, -\frac{1}{2}, 0, \frac{1}{2}, 4.8$ 51. $>$ 53. -8



57. Pollux, Altair, Spica, Regulus, Deneb 59. Regulus

63. 4 ft^2 65. 81 cm^2 67. 4 69. 5 71. 3 73. $65.9^\circ, 67.5^\circ, 69.1^\circ, 69.9^\circ, 72.3^\circ$ 75. $64.3 \leq T \leq 72.3$

77. $5 \cdot 7$ 79. 2^6 81. prime 83. $2^4 \cdot 3^2$

2.2 GUIDED PRACTICE (p. 74) 3. -1 5. 2.4 7. 12

9. -5.1 11. 8, -8 13. 5.5, -5.5 15. False. *Sample counterexample:* if $a = -2$, then $-a = -(-2) = 2$, which is greater than -2 .

2.2 PRACTICE AND APPLICATIONS (p. 74–76) 17. -8

19. 10 21. 3.8 23. $\frac{1}{9}$ 25. 7 27. -3 29. 0.8 31. $\frac{2}{3}$

33. 4, -4 35. no solution 37. 3.7, -3.7 39. $\frac{11}{2}, -\frac{11}{2}$

41. Mercury: 1080; Mars: 288 43. negative

45. positive 47. -6 ft/sec 49. 400 ft/min 51. False. *Sample counterexample:* The opposite of $-a$ is a .

If $-a = 5$, then $a = -5$, which is negative. 53. true

61. 3 63. 75 65. 3 67. $x + 8 = 17$ 69. $9y < 6$

71. $-6 < -2, -2 > -6$ 73. $-3 < 0.4, 0.4 > -3$

75. $-10 < -\frac{1}{10}, -\frac{1}{10} > -10$ 77. $\frac{5}{9}$ 79. $\frac{2}{3}$ 81. $\frac{1}{2}$

2.3 GUIDED PRACTICE (p. 81) 5. $-5 + 9 = 4$ 7. -10

9. 7 11. -10 13. 7

2.3 PRACTICE AND APPLICATIONS (pp. 81–83) 19. -6

21. -11 23. -4 25. 6 27. 7 29. -11 31. 3

33. -31 35. -35 37. commutative property

39. property of opposites 41. 10 43. 0 45. 5 47. 4

49. $-2\frac{4}{7}$ 51. -81.14 53. 356.773 55. two strokes

under par 59. 4^2 61. x^3 63. 33 65. 4 67. 24

69. solution 71. not a solution 73. not a solution

75. 9300 77. 100 79. 2900

QUIZ 1 (p. 83) 1. $-2 < 7, 7 > -2$ 2. $-3 < -2,$

$-2 > -3$ 3. $-6 < 1, 1 > -6$ 4. $-10, -8, -3, 2, 9$

5. $-7, -5.2, 3.3, 5, 7.1$ 6. $-1, -\frac{2}{5}, 0, \frac{1}{10}, 2$ 7. 5

8. 13 9. -0.56 10. no solution 11. 2.7, -2.7

12. $-\frac{3}{5}, \frac{3}{5}$ 13. -13 14. -6 15. 4 16. -7 17. -2

18. 0 19. yes

2.4 GUIDED PRACTICE (p. 89) 3. -7 5. 7 7. -1

9. $3\frac{1}{2}$ 11. 12, $-5x$ 13. $-12y, 6$

2.4 PRACTICE AND APPLICATIONS (pp. 89–91)

15. 9 17. -11 19. 39 21. 36 23. 9.2 25. -1.2

27. 3 29. $-4\frac{1}{2}$ 31. -1 33. 31 35. -43

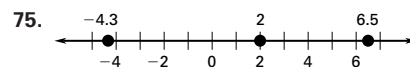
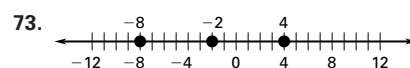
37. 10.2 39. 1 41. $1\frac{1}{10}$ 43. 14, 13, 12, 11

45. $-6.5, -7.5, -8.5, -9.5$ 47. $-2\frac{1}{2}, -1\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}$

49. $-x, -7$ 51. 9, $-28x$ 53. $a, -5$ 55. up 275 ft

57. $-7301 - 662 - 1883 + 77 - 1311 + 8021; -3059$

65. 35 67. 41 69. 64 71. true



79. 0.04 81. 0.0338 83. 19.176

2.5 GUIDED PRACTICE (p. 96) 7. -35 9. -1 11. $5t^4$

13. 40

2.5 PRACTICE AND APPLICATIONS (pp. 96–98) 15. yes

17. -28 19. -12.6 21. $-\frac{4}{3}$ 23. -216 25. -49

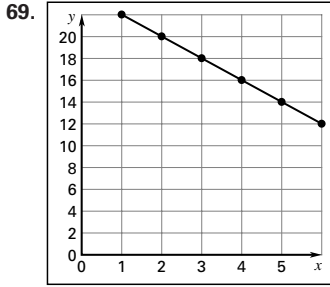
27. -54 29. 97.2 31. $-\frac{3}{2}$ 33. $-7x$ 35. $-5a^3$

37. $-10r^2$ 39. $-2x^2$ 41. -48 43. -147 45. 41

47. true 49. False. *Sample counterexample:* $3 > 2$,

but $3 \cdot 0 = 2 \cdot 0$ 51. -20 ft 53. $d \approx -300t$

55. about 150 ft 63. 2 65. 4 67. 12



71. 2 73. -9 75. 7.2 77. 10.43 79. 12, -z
81. $4w$, -11 83. $-7x$, $4x$ 85. 20 87. 150 89. 10,920

2.6 GUIDED PRACTICE (p. 103) 5. $12(x + 5)$; $12x + 60$
7. D 9. B 11. $4(1) + 4(0.15)$; $4 + 0.6$; 4.6

2.6 PRACTICE AND APPLICATIONS (pp. 103–106)

13. $3(4 + x) = 12 + 3x$ 15. $(x + 5)(11) = 11x + 55$
17. $3x + 12$ 19. $7 + 7t$ 21. $12 + 6u$ 23. $4y + 2$
25. $12 + 18a$ 27. $1.3x + 2.6$ 29. $5y - 10$ 31. $63 - 9a$
33. $28 - 4m$ 35. $10 - 30t$ 37. $18x - 18$
39. $-9.3u - 2.4$ 41. $-3r - 24$ 43. $-1 - s$
45. $-y - 9$ 47. $-24a - 18$ 49. $-6y + 5$
51. $-13.8 + 42w$ 53. forgot to distribute $9(3) - 9(5)$;
 -18 55. 24.44 57. 27.60 59. 5.80 61. -12.30
63. -22.10 65. -54.95 67. \$19.96 69. \$10.45
71. $200(x + 225)$; $200x + 45,000$ 73. 60,000 yd^3
79. $\frac{12}{5}$ 81. 3 83. 5 85. identity property of addition
87. associative property of addition 89. 12 91. 3
93. $-1\frac{1}{3}$ 95. $\frac{1}{4}$ 97. $\frac{1}{2}$ 99. $\frac{41}{50}$ 101. $\frac{24}{25}$

- QUIZ 2 (p. 106)** 1. -15, -13, -11, -9 2. 30, 28, 26, 24
3. $-3\frac{1}{4}$, $-1\frac{1}{4}$, $\frac{3}{4}$, $2\frac{3}{4}$ 4. $2x$, -9 5. 8, -x 6. $-10x$, 4
7. -0.25, 0.12, -0.12, -0.13 8. -63 9. 30
10. -2800 11. 10.8 12. -3 13. 270 14. $11x + 22$
15. $60 - 5y$ 16. $-12a + 16$ 17. \$49.90

- 2.7 GUIDED PRACTICE (p. 110)** 3. $6r$ 5. -8
7. $4a^2 + 3a - 5$ 9. $18f + 4$ 11. $-11m - 20$
13. $9x - 27$

- 2.7 PRACTICE AND APPLICATIONS (pp. 110–112)** 15. $3a$, $5a$
17. m , $6m$ 19. $-6w$, $-3w$ 21. $-7m$ 23. $2c - 5$
25. $6r - 7$ 27. already simplified 29. $6p^2 + 4p - 2$
31. $-27 - 4y$ 33. $-11 - 6r$ 35. $10m + 19$
37. $2c + 48$ 39. 7 is not a like term with $3x$ and $-2x$;
 $x + 7 = 16$ 41. $x + (x - 7) + x + (x - 7)$; $4x - 14$
43. $2(x + 2) + (x + 4) + 2(x + 2) + (x + 4)$; $6x + 16$
47. 15,675 tons 49. $T = -45c + 480$ 51. $1.06x + 21.2$
59. about 35% 61. 9 63. -6 65. -14.1 67. -180
69. -3 71. 29.88 73. $\frac{2}{10}$, $\frac{4}{10}$, $\frac{5}{10}$, $\frac{6}{10}$, $\frac{9}{10}$
75. $\frac{1}{4}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{3}{4}$, $\frac{7}{8}$ 77. $\frac{2}{6}$, $\frac{4}{6}$, $\frac{3}{4}$, $\frac{2}{2}$, $\frac{5}{2}$
79. $\frac{3}{8}$, $\frac{8}{8}$, $1\frac{2}{8}$, $\frac{12}{8}$, $2\frac{1}{8}$ 81. $\frac{11}{15}$, $\frac{4}{5}$, $\frac{5}{6}$, $2\frac{2}{3}$, $2\frac{7}{10}$

- 2.8 GUIDED PRACTICE (p. 116)** 3. $\frac{1}{32}$ 5. $-\frac{5}{1}$ or -5
7. -4 9. -2 11. 2 13. all real numbers except $x = 4$
15. all real numbers except $x = 0$

2.8 PRACTICE AND APPLICATIONS (pp. 116–118)

17. multiply by reciprocal; -27 19. -3 21. -1
23. -5 25. 2 27. -12 29. $-\frac{5}{6}$ 31. 12 33. -48
35. $-\frac{1}{9}$ 37. $-\frac{3}{2}$ 39. $-\frac{1}{3}$ 41. 4 43. $6x - 3$
45. already simplified 47. $11 + 2t$ 49. all real numbers
except $x = -2$ 51. all real numbers 53. -10.5 m/sec
57. 24 59. 5 61. 10 63. $2x \geq 7$ 65. -21 67. -19.9
69. $4\frac{1}{4}$ or $\frac{17}{4}$ 71. $<$ 73. $<$ 75. $>$ 77. $<$

- QUIZ 3 (p. 118)** 1. $3x$, $-7x$ 2. $6a$ and $9a$, -5 and 10
3. $-5p$, $-p$ 4. $-26t$ 5. $7 + 2d$ 6. $g^2 - 8g$ 7. $3a - 4$
8. $3p - 9$ 9. $5 - 3w$ 10. -5 11. 16 12. -32
13. $\frac{98}{9}$ 14. -54 15. $\frac{1}{8}$ 16. $5 - 2x$ 17. already
simplified 18. $3x - 2$ 19. all real numbers except
 $x = -2$ 20. all real numbers 21. all real numbers
except $x = 0$

CH. 2 EXTENSION (pp. 119–120)

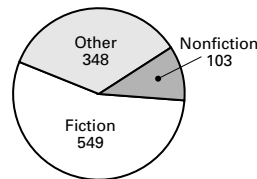
- EXERCISES (p. 120)** 1. inductive reasoning 3. inductive
reasoning 5. 64, 128, 256

CHAPTER SUMMARY AND REVIEW (pp. 121–124) 1. -6,

- 4, -3, 1, 2, 5 3. -2, -1, $-\frac{1}{2}$, $\frac{2}{3}$, 1, 4, 6 5. 5
7. -45 9. -9.1 11. $3\frac{1}{2}$ 13. -12 15. 5 17. -8
19. 19 21. -11.2 23. $-3\frac{1}{4}$ 25. 600 27. 4.2
29. -14 31. $-3f$ 33. $-12t^2$ 35. $-81b^2$ 37. $9y + 54$
39. $6 - 2w$ 41. $-3t - 33$ 43. $-6x + 60$ 45. $9a$
47. $3 + f$ 49. $4t + 2$ 51. -4 53. 10 55. $-\frac{2}{3}$ 57. -9

MAINTAINING SKILLS (p. 127) 1. 25 3. 100

5.



Chapter 3

STUDY GUIDE (p. 130) 1. D 2. D 3. C 4. B 5. C

- 3.1 GUIDED PRACTICE (p. 135)** 7. -1 9. -17 11. 4
13. 3 15. -3 17. addition

3.1 PRACTICE AND APPLICATIONS (pp. 135–137)

19. subtract 28 21. add 3 23. subtract -12 25. 9
27. -5 29. 10 31. 8 33. -4 35. 24 37. -15
39. -24 41. $\frac{3}{5}$ 43. 0 45. 5 47. 6 49. 3 51. 1

53. 20 cm 55. B; 8 57. 6463 seats 59. 10,534 acres;
 $4218 + 3800 + 2764 - 248 = x$ 61. Simplify with
 subtraction rule; subtract 2 from both sides. 65. $5x = 160$
 67. $36 - k = 15$ 69. $4x + 8$ 71. $-5y - 20$
 73. $-2x + 12$ 75. $\frac{4}{7}$ 77. $\frac{3}{32}$ 79. $\frac{4}{7}$ 81. 1

3.2 GUIDED PRACTICE (p. 141) 7. -1 9. 32 11. 28
 13. -6 15. 60 mi/h

3.2 PRACTICE AND APPLICATIONS (pp. 141–143)

17. divide by 5 19. divide by -4 21. multiply by 7

23. -8 25. -6 27. 11 29. $\frac{9}{10}$ 31. -10 33. 30

35. 84 37. $\frac{4}{3}$ 39. 0 41. 12 43. 18 45. -45

47. multiply by $-\frac{4}{3}$; -8 49. $\frac{3}{8} \cdot p = 3.30$; \$8.80

51. 13 57. $27 - 8x$ 59. $-2x + 6$ 61. $12y + 15$ 63. 8
 65. -19 67. 2 69. A; 18 71. 10 73. 5 75. 9 77. 3

3.3 GUIDED PRACTICE (p. 147) 7. 2 9. -1 11. 2
 13. 25 15. -9 17. 19

3.3 PRACTICE AND APPLICATIONS (pp. 147–149) 19. 2

21. 14 23. 2 25. 3 27. 5 29. -3 31. 3 33. 9

35. 14 37. 11 39. 6 41. 5 and $3x$ are not like terms,
 so $3x$ cannot be subtracted from 5; $-\frac{5}{3}$ 43. Subtract 3

from each side; multiply each side by 2; divide each side
 by 5. 45. 14 months 55. a^6 57. 4^3 59. t^3 61. 10
 63. 47 65. 14 67. $<$ 69. $<$ 71. $<$ 73. $<$

QUIZ 1 (p. 149) 1. 21 2. -17 3. -7 4. -1 5. 282
 6. 5 7. B 8. $6x = 72$; \$12 9. 9 10. 2 11. 2 12. 1
 13. -25 14. 14 15. 9 min

3.4 GUIDED PRACTICE (p. 154) 9. one solution, -1
 11. one solution, 7 13. identity 15. B

3.4 PRACTICE AND APPLICATIONS (pp. 154–156)

17. subtract x from each side 19. add $8x$ to each side

21. 3 23. 3 25. 2 27. $\frac{3}{7}$ 29. -8 31. 4 33. -2

35. $3x - 12x = -9x$; $x = -5$ 37. one solution, 2

39. one solution, -1 41. one solution, -5 43. no
 solution 45. one solution 47. 121 hours 49. 25 sec; the
 gazelle would probably be safe since the cheetah begins to
 tire after 20 seconds. 57. 144 miles 59. 8 61. 216
 63. 144 65. 10 67. yes 69. -4 71. 12 73. -23
 75. 0 77. 90 79. 2000 81. 9 83. 8 85. 3910

3.5 GUIDED PRACTICE (p. 160) 11. -5 13. -2 15. -6
 17. 2

3.5 PRACTICE AND APPLICATIONS (pp. 160–162) 19. 19

21. 14 23. 3 25. 21 27. -1 29. -4 31. -1 33. $\frac{1}{2}$

35. 1 37. $3x - 12 + 2x = 6 - x$, $6x - 12 = 6$,

$6x = 18$, $x = 3$ 39. $-4(3 - n) = -12 + 4n$,

$8(4n - 3) = 32n - 24$; $n = \frac{3}{7}$ 43. C, $x = 25$; you will

need to use the gum more than 25 times to justify the

cost of the yearly fee. 51. 400,000 km; 700,000 km;
 1,100,000 km; 1,900,000 km 55. 36 57. -77
 59. $3w^2 - w$ 61. $s + 11t$ 63. $-6m - m^2$ 65. 11.5
 67. 6.42 69. 22.49

3.6 GUIDED PRACTICE (p. 166) 7. 23.4 9. -13.9
 11. 56.1 13. 8.8 15. 6.82 17. 4.22 19. \$12

3.6 PRACTICE AND APPLICATIONS (pp. 166–169) 21. 5.78

23. 7.57 25. 4.33 27. 0.77 29. 2.22 31. 0.94

33. 0.42 35. -2.63 37. $M = 150 + 0.38x$ 39. 1.0

41. 1.9 43. $162 + 30 = 71n$, where n is the number of
 buses needed 45. Round up to 3 buses; you need enough
 buses to seat all the students and adults. 51. \$697.45

53.

Input t	2	3	4	5	6
Output A	18	23	28	33	38

55. 3 57. $-\frac{4}{5}$ 59. -5.6 61. 16 63. 14 65. $13\frac{6}{7}$

67. $25\frac{9}{16}$ 69. 11

QUIZ 2 (p. 169) 1. no solution 2. one solution 3. identity

4. no solution 5. -3 6. -7 7. 10 8. 1 9. 5 10. 4

11. -1 12. 19 13. 8 14. 13 15. You need to use the
 bike for at least 10 hours to justify the cost of the helmet.

16. -1.14 17. -0.68 18. 1.63 19. 0.36 20. -5.03

21. -2.23 22. 7

3.6 TECHNOLOGY (p. 170) 1. 12.3 3. 5.3

3.7 GUIDED PRACTICE (p. 174) 3. $r = s + t$ 5. $y = \frac{x}{3}$

7. $y = 2x - 4$ 9. $w = \frac{A}{l}$

3.7 PRACTICE AND APPLICATIONS (pp. 174–176)

11. $C = \frac{5}{9}(F - 32)$ 13. $w = \frac{A}{l}$; $w = 4$

15. $l = \frac{A}{w}$; $l = 16$ 17. 18 cm^2 19. 16.67 cm^3

21. 6 min 23. 30 ft 27. solution 29. not a solution

31. not a solution 33. not a solution 35. solution

37. 28% 39. $\frac{3}{7}$ 41. $\frac{2}{9}$ 43. $\frac{1}{2}$ 45. $\frac{7}{8}$

3.8 GUIDED PRACTICE (p. 180) 5. $\frac{4}{5}$ 7. $\frac{2}{3}$

9. 0.05 mi/min 11. 231 miles

3.8 PRACTICE AND APPLICATIONS (pp. 180–182) 13. $\frac{1}{4}$

15. $\frac{3}{5}$ 17. $\frac{11}{3}$ 19. $\frac{4}{5}$ 21. $\frac{5}{8}$ 23. 15 mi/day 25. \$.40/can

27. 8 oz/serving 29. miles 33. 24 months 35. 21.2 hours

37. 2 km 39. 21 mi/hr 41. 12 min 43. \$91

49. $4 > -3$; $-3 < 4$ 51. $-6 < 3$; $3 > -6$ 53. 1.43

55. 75 ft 57. 18 59. 21 61. 162 63. 490

3.9 GUIDED PRACTICE (p. 186) 7. 175% 9. 72

11. $a = 0.06(10)$

3.9 PRACTICE AND APPLICATIONS (pp. 186–188)

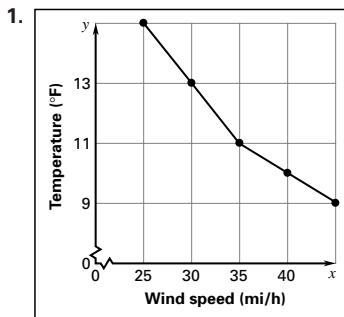
17. 20 19. 30.8 ft 21. 10 23. 84 ft 25. \$1000
 27. 200 29. 480% 31. 30% 33. 20%
 35. no; A: $30\%(60) = \$18$ discount, cost = \$42;
 B: $20\%(60) = \$12$, cost = \$48, $10\%(48) = 4.8$,
 final cost = $\$48 - \$4.80 = \$43.20$ 37. 21% 39. 27%
 41. $a = 3b$; *Sample answer:* $a = 30, b = 10, p = 300$
 45. $21x = 105; x = 5$ 47. 32 49. -16 51. 217, 270,
 2017, 2170, 2701 53. 5.09, 5.1, 5.19, 5.9, 5.91

- QUIZ 3 (p. 188)** 1. $t = \frac{d}{r}$ 2. $h = \frac{2A}{b}$ 3. $v = \frac{m}{d}$
 4. $\frac{7 \text{ days}}{1 \text{ week}}$ 5. $\frac{1 \text{ ft}}{12 \text{ in.}}$ 6. 300 students/school 7. 240 hours
 8. \$5.75 9. $5.75 = p(23); p = 0.25$, or 25%

CHAPTER SUMMARY AND REVIEW (pp. 189–192)

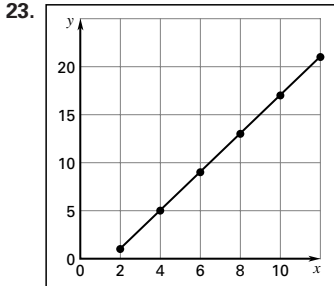
1. 11 3. -8 5. -9 7. -3 9. 1 11. 2 13. one
 solution; 2 15. one solution; 5 17. one solution, -2
 19. $12 + n = 6 + 2n; n = 6$; the plants will be the
 same height after 6 weeks. 21. 1.08 23. $l = \frac{V}{wh}$
 25. $b = P - a - c$ 27. 85 mi

MAINTAINING SKILLS (p. 195)



CUMULATIVE PRACTICE (pp. 196–197)

1. 8 3. 41 5. 216
 7. 5 9. 7 11. 57 13. not a solution 15. solution
 17. not a solution 19. $x^3 - 8$ 21. $-3x < 12$
 23.

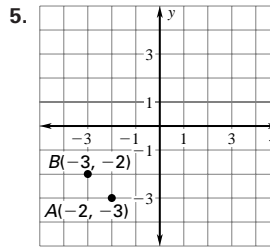


Chapter 4

STUDY GUIDE (p. 202)

1. B 2. B 3. D

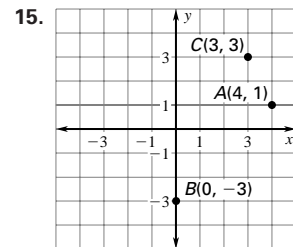
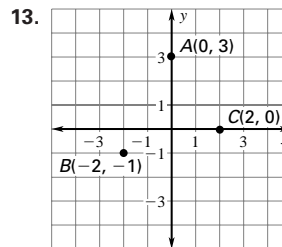
4.1 GUIDED PRACTICE (p. 206)



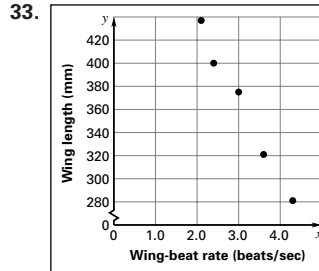
7. always 9. always

4.1 PRACTICE AND APPLICATIONS (pp. 206–208)

11. $A(2, 4), B(0, -1), C(-1, 0), D(-2, -1)$

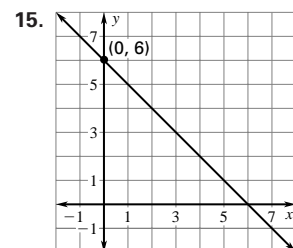


19. IV 21. I 23. III 25. III 27. pounds; inches
 31. Gas mileage decreases as weight increases.
 33.



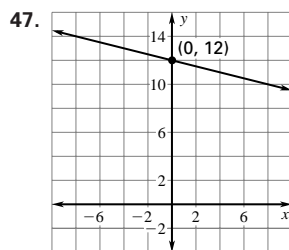
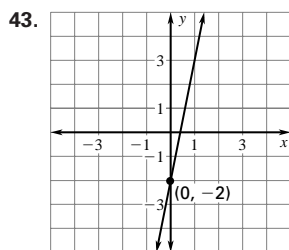
- 4.2 GUIDED PRACTICE (p. 213) 3. solution 5. solution
 7. $y = -x - 2$ 9. $y = -2x + 4$ 11. *Sample answer:*
 $(0, 7), (-1, 2), (1, 12)$

- 13.

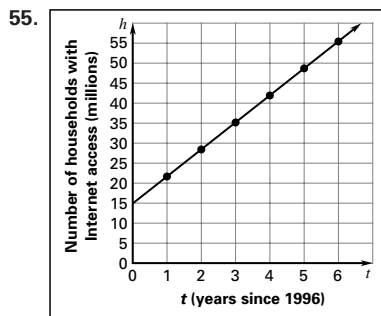


4.2 PRACTICE AND APPLICATIONS (pp. 213–215)

17. not solution 19. solution 21. not solution
 23. $y = -\frac{2}{3}x + 2$ 25. $y = -x + \frac{19}{5}$ 27. $y = -x - 5$
 29. $y = -\frac{3}{2}x - \frac{3}{2}$ *Sample answers given for 31–39*
 31. (0, -5), (1, -2), (-1, -8) 33. (0, -6), (1, -8), (-1, -4) 35. (0, 3), (3, 1), (-3, 5) 37. (0, 5), (2, 0), (4, -5) 39. (0, -4), $(1, -\frac{17}{3})$, (3, -9)

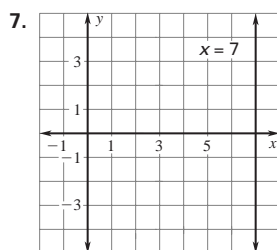
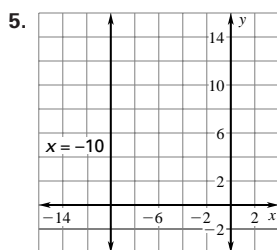


49. $7.1x + 10.1y = 800$ 51. about 48 minutes 53. The boiling temperature of water decreases as altitude increases.



61. -12 63. 6 65. $-14x + 6y$ 67. $-5t^3 - 9r$
 69. $-3k^3 + h$ 71. -15 73. 63 75. 63% 77. 2%
 79. 127% 81. 860%

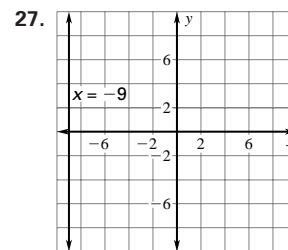
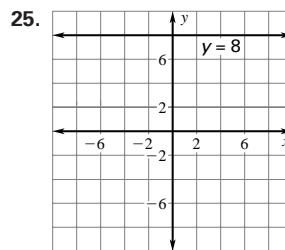
4.3 GUIDED PRACTICE (p. 219)



9. $x = 3$ 11. sometimes 13. always

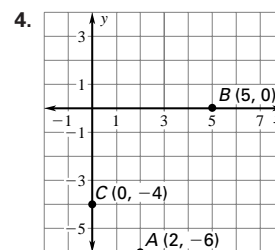
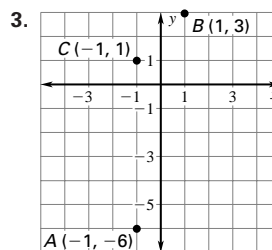
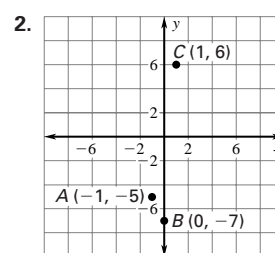
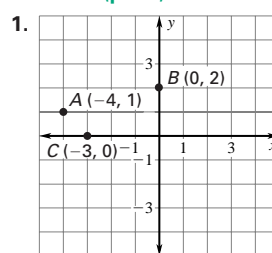
4.3 PRACTICE AND APPLICATIONS (pp. 219–221)

15. not solution 17. not solution *Sample answers given for 19–23:* 19. $(\frac{1}{2}, 0)$, $(\frac{1}{2}, 2)$, $(\frac{1}{2}, -2)$
 21. (0, -5), (3, -5), (-3, -5) 23. (0, 7), (-2, 7), (-3, 7)



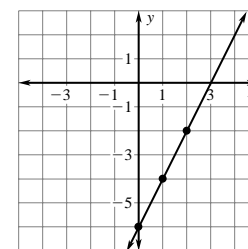
31. $x = -4$ 33. a. $H = 110$; domain: 0–5; range: 110
 b. $H = 160$; domain: 0–10; range: 160 37. 7 39. 8
 41. 10 43. 5 45. 15 47. $21; \frac{15}{21}, \frac{14}{21}$ 49. $21; \frac{15}{21}, \frac{4}{21}$
 51. $26; \frac{24}{26}, \frac{5}{26}$ 53. $60; \frac{9}{60}, \frac{28}{60}$

QUIZ 1 (p. 221)



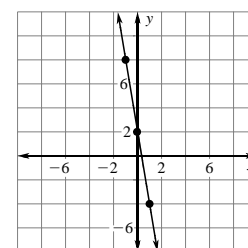
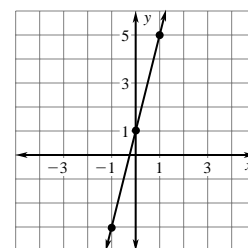
5. I 6. III 7. IV 8. II 9. $y = -2x$ 10. $y = \frac{5}{2}x - 10$
 11. $y = -\frac{1}{2}x - 4$

12. *Sample answer:* (0, -6), (1, -4), (2, -2)

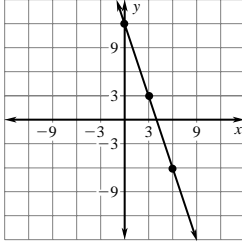


13. *Sample answer:* (0, 1), (1, 5), (-1, -3)

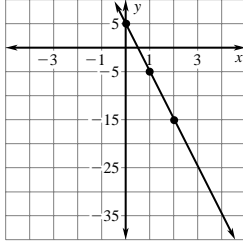
14. *Sample answer:* (0, 2), (1, -4), (-1, 8)



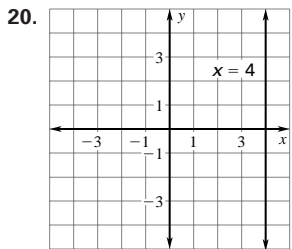
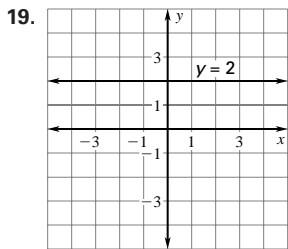
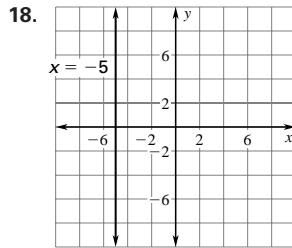
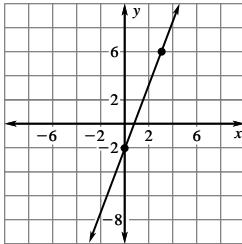
15. Sample answer:
(0, 12), (3, 3), (6, -6)



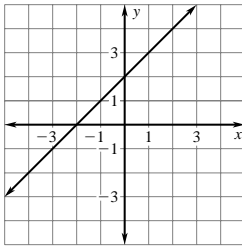
16. Sample answer:
(0, 5), (1, -5), (2, -15)



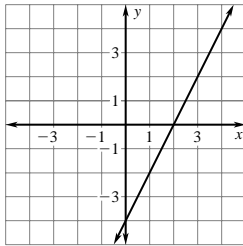
17. Sample answer:
(0, -2), (3, 6), (-3, -10)



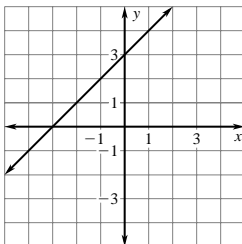
4.4 GUIDED PRACTICE (p. 225) 3. 6 5. -3 7. -2
9. x-intercept = -2, y-intercept = 2



11. x-intercept = 2, y-intercept = -4

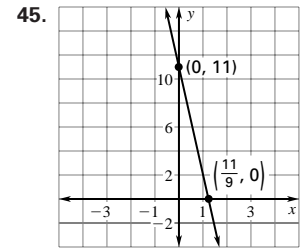
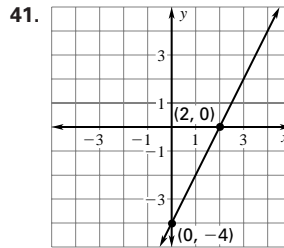
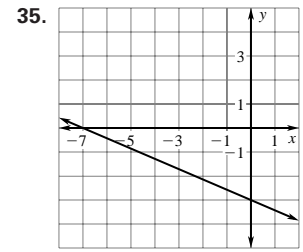
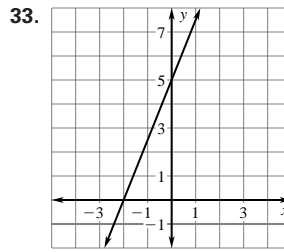


13. x-intercept = -3, y-intercept = 3



4.4 PRACTICE AND APPLICATIONS (pp. 225-227)

15. x-intercept = 2, y-intercept = 3
17. x-intercept = -4, y-intercept = -1 19. -2 21. 19
23. 6 25. -12 27. -2 29. 26 31. -4



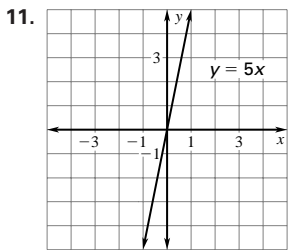
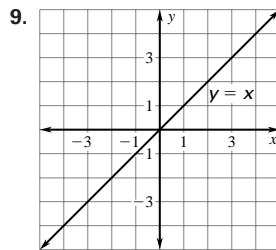
49. 7.5; if students get in free, the adult ticket price needs to be \$7.50. 53. about 189,000 57. -4 59. -5
61. $\frac{5}{3}$ 63. -17 65. 6 67. -2 69. -60 71. $\frac{1}{4}$
75. \$1.65 77. \$8.36 79. \$3.15 81. \$5.11

4.5 GUIDED PRACTICE (p. 233) 5. positive 7. negative
9. zero 11. undefined

4.5 PRACTICE AND APPLICATIONS (pp. 233-235)

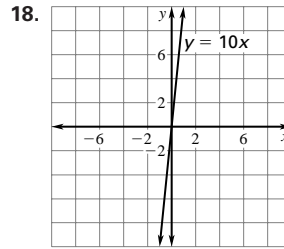
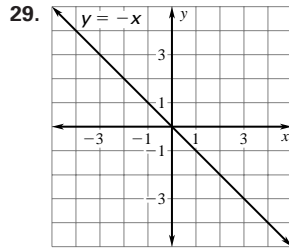
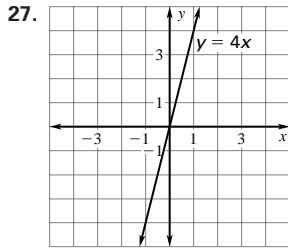
13. $-\frac{3}{2}$ 15. $\frac{1}{2}$ 17. $\frac{3}{4}$ 19. -1 21. 1 23. $\frac{1}{2}$ 25. $-\frac{1}{4}$
27. $-\frac{3}{2}$ 29. neither 31. zero 33. neither 35. $\frac{3}{2}$
39. $\frac{1}{5}$; it represents how the rise changes with respect to the run. 41. 6% 45. 5 47. 4 49. $y = 2x + 9$
51. $y = 4x + 5$ 53. $y = -\frac{5}{2}x - \frac{5}{2}$ 55. true 57. false
59. true

4.6 GUIDED PRACTICE (p. 239) 3. $\frac{1}{9}$ 5. $\frac{1}{7}$ 7. $y = 5x$



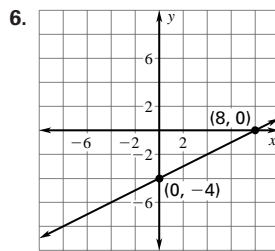
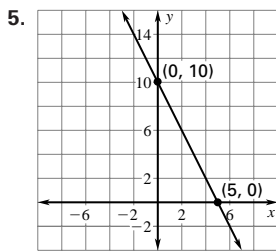
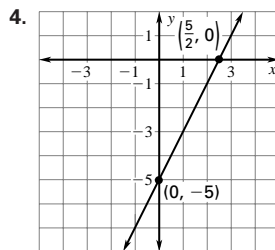
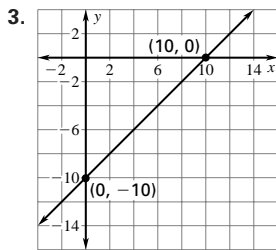
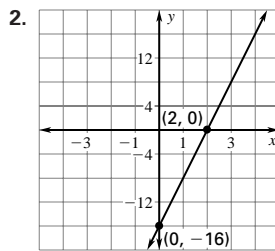
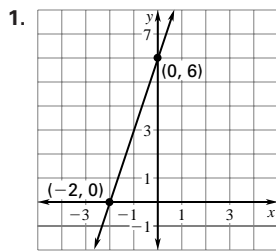
4.6 PRACTICE AND APPLICATIONS (pp. 239-241) 13. 12

15. 25 17. $y = 5x$ 19. $y = 6x$ 21. $y = -\frac{1}{3}x$
23. $y = -10x$ 25. yes, direct variation

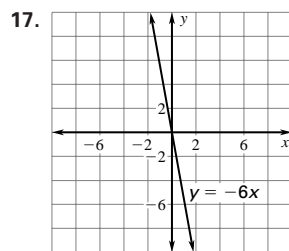
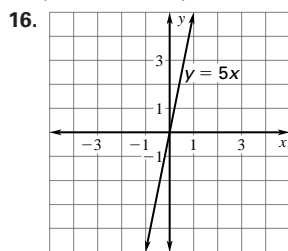


31. yes; line through origin 33. no; line does not pass through origin 35. 17 min 37. about 16 in. 41. 2
43. -5 45. -3 47. $y = -\frac{2}{5}x + \frac{12}{5}$ 49. solution
51. solution 53. solution 55. 66 57. 56 59. 3570

QUIZ 2 (p. 241)



7. $\frac{2}{5}$ 8. $\frac{2}{5}$ 9. $\frac{7}{9}$ 10. 2 11. 0 12. -1 13. $y = 3x$
14. $y = 8x$ 15. $y = 4x$

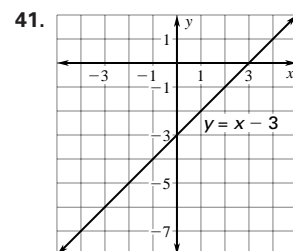
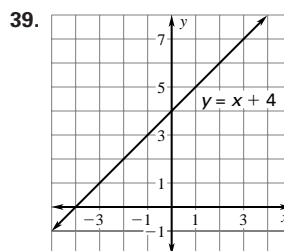
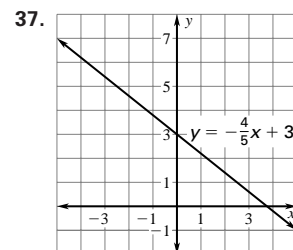
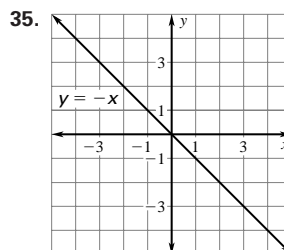
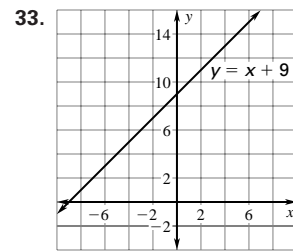
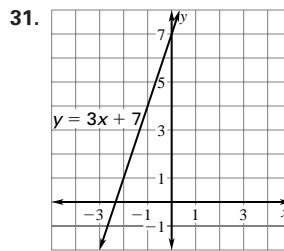
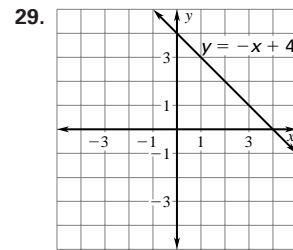
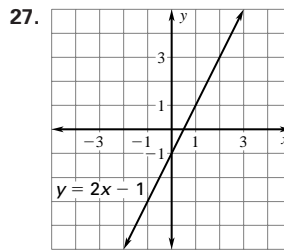


19. 10,500 bolts

4.7 GUIDED PRACTICE (p. 246) 3. $m = 2, b = 1$
5. $m = 5, b = -3$ 7. $m = -1, b = 15$ 9. B

4.7 PRACTICE AND APPLICATIONS (pp. 246-249)

11. $y = x + 9$ 13. $y = 2x - 10$ 15. $y = \frac{1}{2}x - 6$
17. $m = 6, b = 4$ 19. $m = 2, b = -9$ 21. $m = 9, b = 0$
23. $m = -3, b = 6$ 25. $m = 2, b = 4$



47. $m = -\frac{4}{3}, b = 4$ 49. parallel; same slope, $m = -3$

51. parallel; same slope, $m = 1$ 53. not parallel; different slopes 55. (1) $\frac{9}{70}$ (2) $\frac{1}{7}$ 63. line a and line b 71. 5 73. 12 75. 6 77. -5

79. Atomic weight $\approx 2 \times$ Atomic number 81. $\frac{13}{40}$

83. $1\frac{23}{36}$ 85. $1\frac{13}{56}$ 87. $1\frac{1}{21}$

4.8 GUIDED PRACTICE (p. 255) 3. -22 5. 8

7. function; domain: 10, 20, 30, 40, 50; range: 100, 200, 300, 400, 500 9. not a function 11. not a function

4.8 PRACTICE AND APPLICATIONS (pp. 255–258)

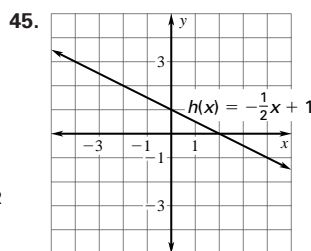
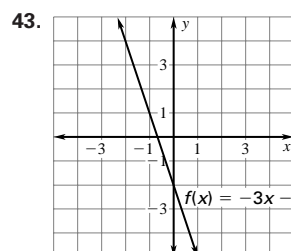
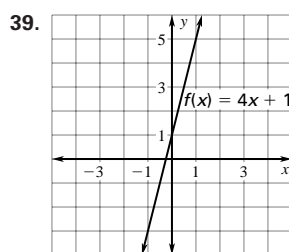
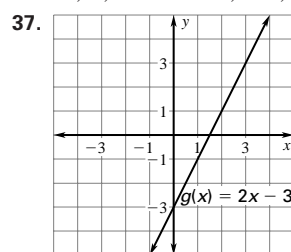
13. function; domain: 1, 2, 3, 4; range: 2, 3, 4, 5

15. not a function 17. function; domain: 0, 2, 3, 4;

range: 1, 2, 3, 4 19. function 21. function 23. function

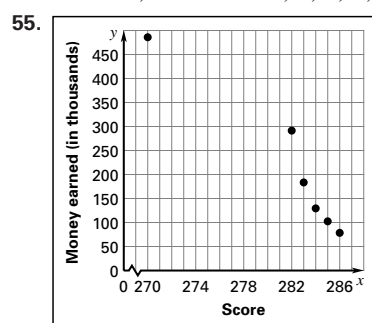
25. 6, 0, -6 27. 1, -5 , -11 29. 11, 1, -9

31. 23, 7, -9 33. 4, -6 , -16



47. -1 49. -3 51. not a function

53. function; domain: $-2, 0, 1, 2$; range: $-2, 0, 1, 2$



Yes. *Sample explanation:* For each input, there is exactly one output. (The score 285 occurs twice, but the prize money is the same each time.) Domain: 270, 282, 283, 284, 285, 286; range: 486,000, 291,600, 183,600, 129,600, 102,600, 78,570

57. 1500 miles 59. $f(t) \approx 5.88t$ 63. 6 65. $\frac{1}{3}$

67. no solution 69. -1 71. -4 73. 0 75. $-\frac{3}{5}$

77. $\frac{1}{2}$ 79. $\frac{2}{3}$

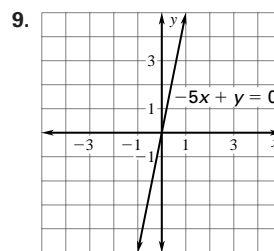
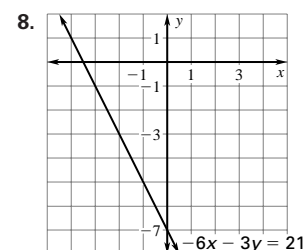
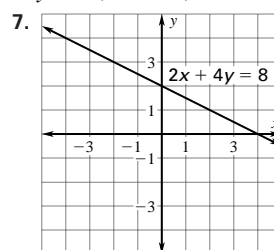
QUIZ 3 (p. 258) 1. $y = 3x + 4; m = 3, b = 4$

2. $y = -x + 2; m = -1, b = 2$ 3. $y = -2x + 6;$

$m = -2, b = 6$ 4. $y = -\frac{5}{8}x + 4; m = -\frac{5}{8}, b = 4$

5. $y = (\frac{4}{3})x - 8; m = \frac{4}{3}, b = -8$

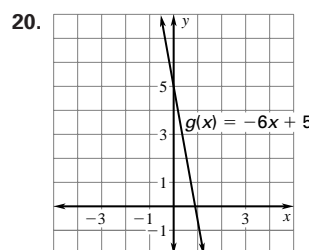
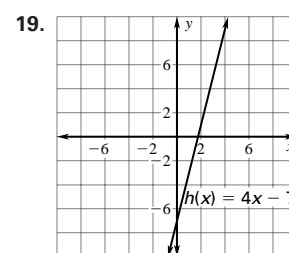
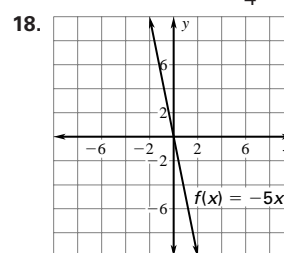
6. $y = 1; m = 0, b = 1$



10. not parallel 11. not parallel 12. $-24, 0, 32$

13. 6, $-9, -29$ 14. $-9, 3, 19$ 15. $-21, -12, 0$

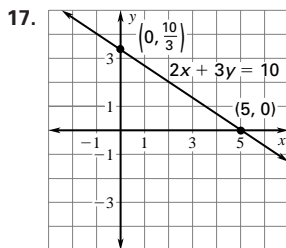
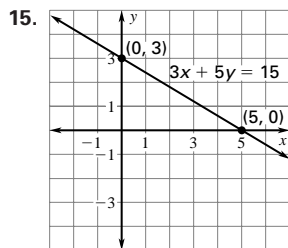
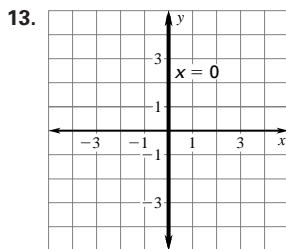
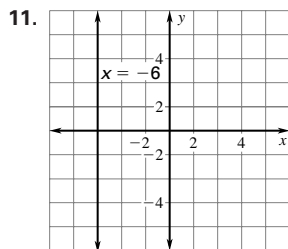
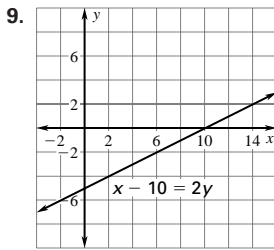
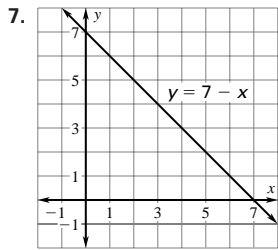
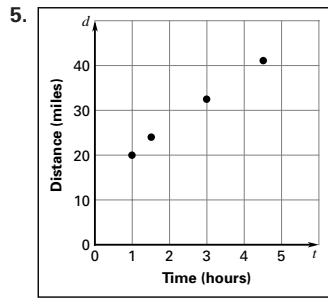
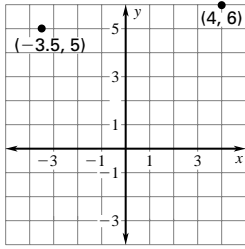
16. 4.2, 0, -5.6 17. $\frac{3}{4}, 0, -1$



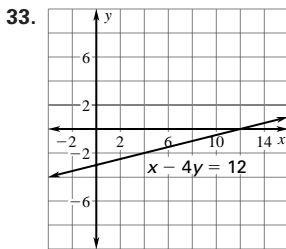
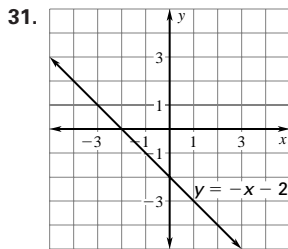
CHAPTER SUMMARY AND REVIEW (pp. 259–262)

1. Quadrant I 3. Quadrant II

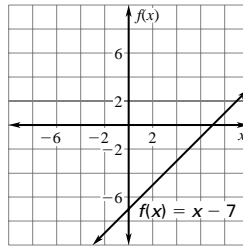
Graph for Ex. 1 and 3



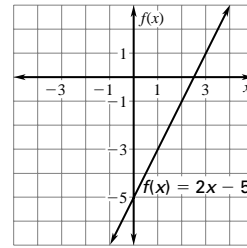
19. 0 21. undefined 23. $y = -\frac{1}{3}x$ 25. $y = 3.5x$
 27. $y = -2x + 6$ 29. $y = \frac{2}{3}x - 4$



35. -9



37. 11



39. function; domain: -1, 0, 1; range: 2, 4, 6

41. function; domain: -2, 0, 2; range: 6

MAINTAINING SKILLS (p. 265) 1. $\frac{1}{2}$ 3. $\frac{1}{9}$ 5. $\frac{5}{4}$ 7. $\frac{1}{10}$
 9. 0 11. -11 13. -11

Chapter 5

STUDY GUIDE (p. 268) 1. C 2. C 3. B

5.1 GUIDED PRACTICE (p. 272) 5. no 7. $y = x$

9. $y = -x + 3$ 11. $y = 5x + 5$

5.1 PRACTICE AND APPLICATIONS (pp. 272–275)

13. $y = 3x + 2$ 15. $y = 6$ 17. $y = \frac{2}{5}x + 7$

19. $y = -x - \frac{2}{5}$ 21. $y = -\frac{1}{5}x + \frac{2}{3}$ 23. $m = -\frac{1}{2}$;

$b = 1$ 25. $m = \frac{3}{2}$; $b = 2$ 27. $m = -\frac{2}{3}$; $b = -1$

29. $y = -3x - 1$ 31. $y = -x + 1$ 33. $y = 2x - 1$

41. 13.16 sec 43. *Sample answer:* The prediction may be unrealistic because athletes may be unable to continue the downward trend. 45. All three lines have the same slope, $\frac{1}{2}$. 47. $y = x + 63.64$, $y = -x - 63.64$,
 $y = x - 63.64$ 49. $y = -x + 63.64$ 53. 92 min

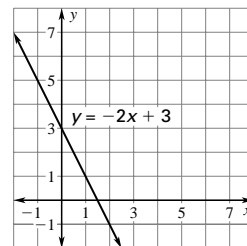
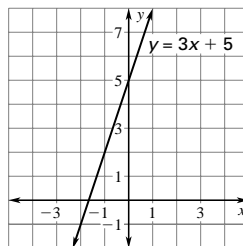
57. 3 59. -1 61. -1 63. *Sample answer:* (-1, -3),

(0, -4), (1, -5) 65. *Sample answer:* (0, 7), (-1, 12),

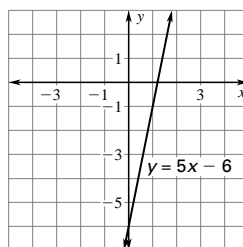
(1, 2) 67. *Sample answer:* (-3, 4), (0, 3), (3, 2)

69. 3; 5

71. -2; 3



73. 5; -6



75. $\frac{3}{4}$ 77. $\frac{31}{50}$ 79. $\frac{1}{200}$ 81. $1\frac{7}{25}$ 83. $\frac{3}{50}$

5.2 GUIDED PRACTICE (p. 281) 3. $y - 4 = 4(x - 3)$

5. $y - 4 = \frac{1}{2}(x - 3)$ 7. $y - 2 = 3(x - 2)$

9. $y = \frac{1}{2}x - \frac{5}{2}$ 11. $y = x$ 13. $y = \frac{1}{4}x + \frac{9}{4}$

5.2 PRACTICE AND APPLICATIONS (pp. 281–284)

15. $y - 2 = \frac{1}{2}(x - 1)$ 17. $y + 3 = \frac{1}{3}(x + 1)$

19. $y + 4 = -(x - 4)$ 21. $y - 2 = -5(x + 6)$

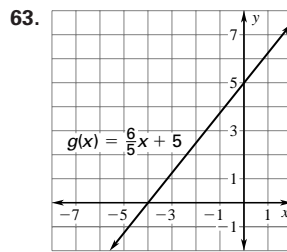
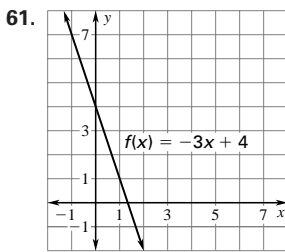
23. $y + 2 = 2(x + 8)$ 25. $y - 4 = 6(x + 3)$

27. $y + 1 = 0(x - 8); y = -1$ 29. $y - 4 = 2(x - 1); y = 2x + 2$

31. $y + 5 = -2(x + 5); y = -2x - 15$ 33. $y - 1 = -\frac{1}{3}(x + 1); y = -\frac{1}{3}x + \frac{2}{3}$ 35. $y = 2x - 2$

37. $y = \frac{1}{3}x - \frac{8}{3}$ 39. $y = -9x - 5$ 41. $y = 2x - 1$

43. $y = -x - 4$ 45. 55.25 psi 53. yes 55. yes 57. no



65. $\frac{5}{18}$ 67. $\frac{3}{10}$ 69. $\frac{1}{21}$ 71. $\frac{5}{12}$

QUIZ 1 (p. 284) 1. $y = -2x + 1$ 2. $y = 5x$

3. $y = -\frac{2}{3}x + 1$ 4. $y = x - 2$ 5. $y = 2x + 3$

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

8. $y = -\frac{1}{2}x$ 9. $y = x + 1$ 10. $y = 4$ 11. $y = -4x$

12. $y = 4x - 4$ 13. $y = -\frac{1}{3}x - 4$ 14. $y = -2x + 5$

15. $y = \frac{3}{7}x - \frac{13}{7}$

5.3 GUIDED PRACTICE (p. 288) 3. $y = -\frac{4}{3}x + 2$

5. $y = \frac{5}{3}x - \frac{1}{3}$ 7. $y = -\frac{2}{3}x$

5.3 PRACTICE AND APPLICATIONS (pp. 288–290)

9. $y - 3 = -\frac{1}{2}(x - 2)$ or $y - 4 = -\frac{1}{2}x$

11. $y + 10 = \frac{7}{6}x$ or $y - 4 = \frac{7}{6}(x - 12)$

13. $y - 1 = -(x - 1)$ or $y - 2 = -x$

15. $y - 6 = x + 8$ or $y - 1 = x + 13$ 17. $y - 5 = 0$

19. $y = \frac{15}{4}x + 16$ 21. $y = 4x + 1$ 23. $y = 2$

25. $y = -\frac{3}{2}x + 3$ 27. $y = \frac{8}{3}x + \frac{2}{3}$ 29. $y = -2x + 1$

31. $y = -3x + 14$ 33. point-slope form; $y = x - 2$

35. point-slope form; $y = \frac{4}{5}x - \frac{1}{5}$ 43. -5 45. 4

47. $\frac{17}{2}$ 49. $\frac{1}{3}$ 51. $7\frac{19}{24}$ 53. $8\frac{23}{24}$ 55. $26\frac{5}{6}$ 57. $6\frac{17}{18}$

5.4 GUIDED PRACTICE (p. 294) 3. $2x - y = 9$ or $-2x + y = -9$ 5. $3x - 4y = 0$ 7. $5x - y = 7$
9. $3x + y = 10$ 11. $3x + 5y = 15$ 13. $x = -2$

5.4 PRACTICE AND APPLICATIONS (pp. 294–297)

15. $5x + y = 2$ 17. $-4x + y = -9$ or $4x - y = 9$

19. $3x + 8y = 0$ 21. $2x - y = -19$ 23. $3x + y = 1$

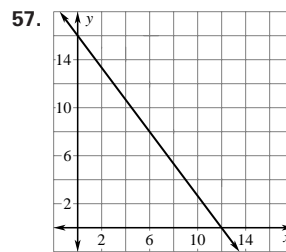
25. $5x - y = 17$ 27. $2x - 5y = -41$ 29. $x + 3y = 16$

31. $2x - 3y = -6$ 33. $2x + y = 1$ 35. $x + y = -3$

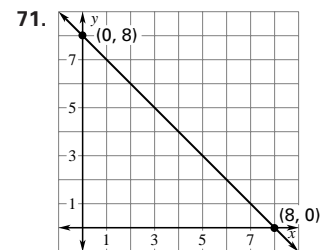
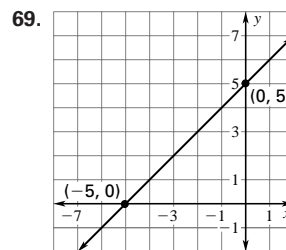
37. $x + 10y = 27$ 39. $y = -2$ 41. $x = 4$ 43. $x = -3\frac{1}{2}$

45. $x = 9$ 47. $y = 10$ 49. $-x + y = 4$ 51. $x + y = 7$

53. $4x + 3y = -8$ 55. Only the right side was multiplied by 3.



63. -5 65. -42 67. $\frac{21}{2}$ or 10.5



73. \$908 75. \$14,098 77. \$0 79. \$12,346

QUIZ 2 (p. 297) 1. $y = -\frac{1}{5}x - 1$ 2. $y = 3x - 16$

3. $y = 4$ 4. $y = -4x + 3$ 5. $y = \frac{1}{3}x - \frac{1}{3}$

6. $3x + y = 9$ 7. $-x + 2y = 8$ 8. $-2x + 5y = -5$

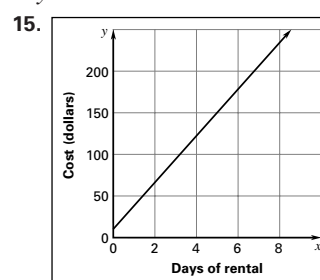
9. $2x - y = 4$ 10. $x + 2y = 6$ 11. $2x - 5y = -23$

12. $2x - y = -2$ 13. $x + 2y = 2$ 14. $y = 3$

5.5 GUIDED PRACTICE (p. 301) 3. C; the slope, 1.5, represents the amount paid for each unit produced per hour. 5. B; the slope, 0.32, represents the amount paid per day for each mile driven.

5.5 PRACTICE AND APPLICATIONS (pp. 301–304) 7. 124

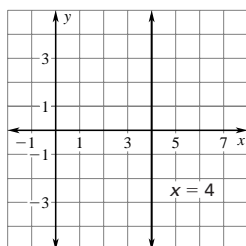
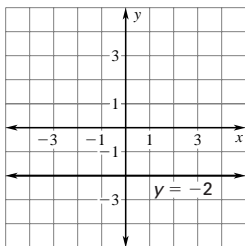
9. $y = 124t$ 11. about 3.2 hours 13. 10



17. 2 days 19. (1, 48.9) 21. about 67 cents
 23. *Sample answer:* about 51 cents 25. $5x + 7y = 315$
 27. $2x + y = 102$ 29. 62; 52; 42; 32; 22
 31. $2C + 1.25B = 10$ 33. *Sample answer:* 4500 years
 37. 0 39. -50 41. 3 feet 43. $\frac{3}{7}$; *Sample answer:* The slope is the rise divided by the run of the ramp.
 45. $y = -2x + 3$ 47. $y = \frac{4}{3}x - 3$ 49. $y = 2$ 51. $>$
 53. $<$ 55. $=$ 57. $=$

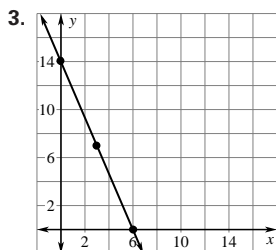
5.6 GUIDED PRACTICE (p. 309) 3. yes 5. no
 7. $y = x + 3$; the product of the slopes of the lines is $(1)(-1) = -1$, so the lines are perpendicular.
 9. $y = 2x - 8$

5.6 PRACTICE AND APPLICATIONS (pp. 309–312) 11. no
 13. yes 15. yes 17. $y = -x - 2$, $y = x - 3$; yes
 19. $y = -3$, $x = -2$; yes 21. $y = -\frac{1}{3}x - \frac{8}{3}$; the product of the slopes of the lines is $(-\frac{1}{3})(3) = -1$, so the lines are perpendicular. 23. $y = 4x - 23$; the product of the slopes of the lines is $(4)(-\frac{1}{4}) = -1$, so the lines are perpendicular. 25. $y = \frac{2}{3}x$; the product of the slopes of the lines is $(\frac{2}{3})(-\frac{3}{2}) = -1$, so the lines are perpendicular. 27. $y = -x - 2$ 29. $y = x - 1$
 31. $y = -2x + 5$ 33. $y = -\frac{8}{7}x + 3$ 35. $x = -2$
 37. $y = -\frac{3}{2}x + 2$ 39. $y = \frac{1}{4}x - 6$ 41. always
 43. always 45. $y = \frac{4}{3}x + 3$, $y = -\frac{3}{4}x + \frac{3}{2}$ 49. $-6k - 8$
 51. $6x + 12y + 2$ 53. $\frac{13}{3}$
 55. horizontal 57. vertical



59. $\frac{7}{10}$ 61. $\frac{2}{3}$ 63. $\frac{8}{27}$ 65. 7 67. $\frac{7}{13}$ 69. $\frac{2}{21}$

QUIZ 3 (p. 312) 1. $7x + 3y = 42$ 2. $y = -\frac{7}{3}x + 14$; 14, 7, 0

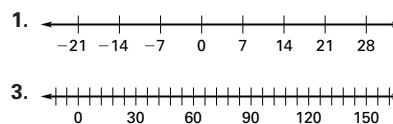


4. yes 5. yes 6. $y = x + 1$; The product of the slopes of the lines is $(1)(-1) = -1$, so the lines are perpendicular.
 7. $y = -\frac{4}{3}x - 4$; The product of the slopes of the lines is $(-\frac{4}{3})(\frac{3}{4}) = -1$, so the lines are perpendicular.
 8. $y = -2x + 11$

CHAPTER SUMMARY AND REVIEW (pp. 313–316)

1. $y = 6x - 4$ 3. $y = -8x + 8$ 5. $y = \frac{3}{2}x$
 7. $y = 2x - 2$ 9. $y = -x - 4$ 11. $y + 1 = \frac{5}{2}(x + 3)$;
 $y = \frac{5}{2}x + \frac{13}{2}$ 13. $y - 3 = 5(x + 2)$ or $y = 5x + 13$
 15. $y = 3x + 5$ 17. $y = -8x + 12$ 19. $y = \frac{16}{9}x$
 21. $y = -1$ 23. $y = 7$, $x = -1$ 25. $y = -6$, $x = -8$
 27. $2x + y = 7$ 29. \$1,489,200 31. 6; 4; 2; 0 33. yes
 35. $y = -2x$

MAINTAINING SKILLS (p. 319)



5. $<$ 7. $>$ 9. $>$ 11. $>$ 13. $>$

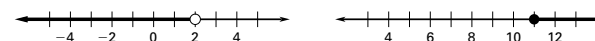
Chapter 6

STUDY GUIDE (p. 322) 1. C 2. B 3. C 4. B

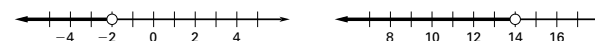
6.1 GUIDED PRACTICE (p. 326) 3. open 5. solid
 7. solid 9. left 11. left 13. left

6.1 PRACTICE AND APPLICATIONS (pp. 326–328)

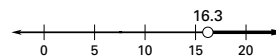
15. all real numbers less than 8 17. all real numbers greater than or equal to 21 19. solution 21. solution
 29. subtract 11 31. subtract 6 33. add 3
 41. $x < 2$ 45. $p \geq 11$



49. $-2 > c$ 55. $c < 14$



57. $r > 0.11$
 59. $d > 16.3$



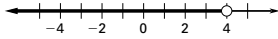
61. subtract 4 from each side; $x < -3$ 65. 6 67. 14
 69. 32 71. 3 73. -1 75. $y = -x + 3$ 77. $y = -x + 2$
 79. $y = 2x - 1$ 81. $y = -\frac{1}{3}x + \frac{10}{3}$ 83. $y = \frac{2}{5}x + \frac{36}{5}$
 85. -3 87. $-\frac{32}{7}$ 89. $-\frac{15}{8}$ 91. -1 93. $\frac{1}{9}$ 95. $\frac{8}{5}$

6.2 GUIDED PRACTICE (p. 333) 3. multiply by 5; do not reverse 5. divide by 4; do not reverse 7. multiply by -6; reverse 9. not equivalent 11. equivalent
 13. not equivalent

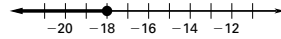
6.2 PRACTICE AND APPLICATIONS (pp. 333–335)

15. multiply by 3; do not reverse 17. multiply by 2; do not reverse 19. divide by -7 ; reverse 21. divide by -3 ; reverse 23. solution 25. solution 27. Not equivalent; $12y > -24$ is equivalent to $y > -2$.
29. equivalent 31. equivalent 33. Reverse the inequality sign when dividing by -3 ; $x \leq -5$.

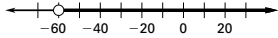
35. $p < 4$



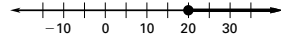
37. $j \leq -18$



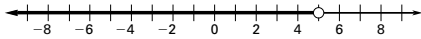
39. $n > -60$



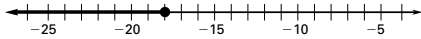
43. $a \geq 20$



47. $d < 5$; $1.999 \approx 2$



49. $a \leq -18$; $5.91 \approx 6$



51. always 53. never 55. $20n \geq 25,000$; $n \geq 1250$
57. 31 or fewer rides 63. -14 65. 0 67. 2 69. -4
71. -27 73. 9 75. -1 77. -2 79. $b = \frac{2A}{h}$
81. $A(4, -2), B(2, 1), C(-3, -3), D(0, 0)$ 83. 1, 2, 4, 5, 7, 10, 14, 20, 28, 35, 70, 140 85. 1, 2, 3, 4, 6, 8, 9, 12, 16, 18, 24, 36, 48, 72, 144 87. 1, 5, 17, 25, 85, 425
89. 1, 3, 9, 13, 19, 39, 57, 117, 171, 247, 741, 2223

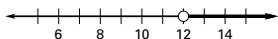
6.3 GUIDED PRACTICE (p. 339) 3. not multistep; subtract 2 5. not multistep; divide by -4 7. multistep; subtract 12, divide by 5 9. multistep; subtract 2, multiply by 2 11. multistep; subtract $2w$, subtract 2, divide by 4

6.3 PRACTICE AND APPLICATIONS (pp. 339–341)

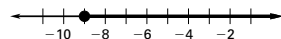
13. 14, 14; -7 ; -7 ; 7 15. subtract 11, divide by -2 and reverse inequality 17. subtract 22, divide by 3
19. divide by 6, add 2; or distribute 6, add 12, divide by 6
21. $x < 5$ 23. $\frac{7}{6} \leq x$ 25. $x \geq -8$ 27. $x \geq -3$
33. $x < 12$ 35. $6 \leq x$ 37. $x \leq -1$ 39. $x > \frac{1}{2}$
41. $x > -\frac{14}{3}$ 43. In line 2, distribute the 4 over -1 and distribute 3 over 1; $f > -\frac{7}{2}$. 45. $n \leq 16$; you may purchase up to 16 tickets. 47. $0.75t + 14 \leq 18.50$
49. $2x + 18 > 26$; $x > 4$ m 51. $\frac{1}{2}(8x) < 12$, $x < 3$ ft
55. 3 57. 3 59. $h = 4 + a$ 61. \$77.48 63. $\frac{9}{7}$ 65. $\frac{15}{4}$

QUIZ 1 (p. 341)

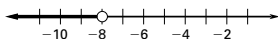
1.



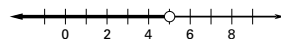
2.



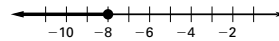
3.



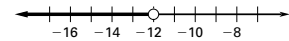
4. $a < 5$



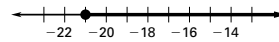
5. $m \leq -8$



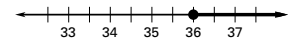
6. $-12 > b$



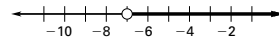
7. $z \geq -21$



8. $x \geq 36$



9. $-7 < k$

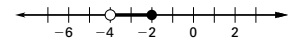
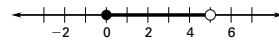


10. $h \geq 52$ 11. 8 or fewer plays 12. $-2 \geq x$
13. $x \leq -3$ 14. $x < 2$ 15. $x > -2$ 16. $7 \geq x$
17. $17 \leq x$

6.4 GUIDED PRACTICE (p. 345) 3. A 5. $(4 + x)$ is greater than 7 and less than 8. 7. $(-8 - x)$ is greater than or equal to 4 and less than 7. 9. $-4 \leq x \leq 4$

6.4 PRACTICE AND APPLICATIONS (pp. 345–347)

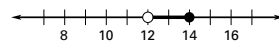
11. x is greater than or equal to -23 and less than or equal to -7 . 13. x is greater than or equal to -4 and less than 19. 15. $2 < x < 3$ 17. $-2 \leq x < 2$
19. $0 \leq x < 5$ 21. $-4 < x \leq -2$



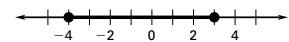
23. $85 \leq f \leq 1100$ 25. $15 \leq f \leq 50,000$

27. $85,000 \leq c \leq 2,600,000$

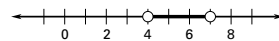
29. $12 < x \leq 14$



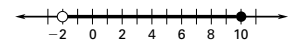
35. $-4 \leq x \leq 3$



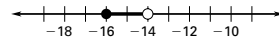
37. $4 < x < 7$



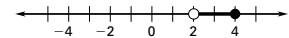
39. $-2 < x \leq 10$



41. $-16 \leq x < -14$



43. $2 < x \leq 4$



51. 24 53. 2 55. 20 57. -6 59. -8 61. 16

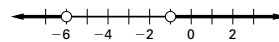
63. -12 65. -7 67. more than 25 times

69. 262 million 71. 37.5% 73. $33\frac{1}{3}\%$ 75. 75%

77. 84%

6.5 GUIDED PRACTICE (p. 351) 3. B 5. A 7. all real numbers less than 10 or greater than 13

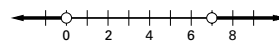
9. $x < -6$ or $x > -1$



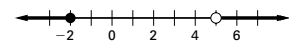
6.5 PRACTICE AND APPLICATIONS (pp. 351–353) 11. all real numbers less than or equal to 15 or greater than or equal to 31 13. all real numbers less than or equal to -7 or greater than 11 15. $x \leq -3$ or $x > 0$

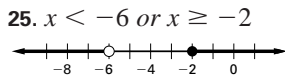
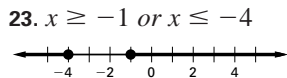
17. $x \leq 7$ or $x \geq 8$

19. $x > 7$ or $x < 0$

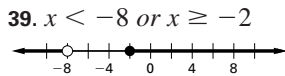
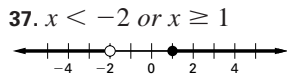
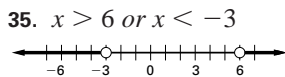
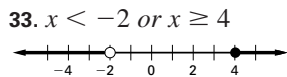


21. $x \leq -2$ or $x > 5$





29. $x < 10$ or $x > 12$; solution not a solution



41.

t (sec)	0	0.5	1	1.5	2
v (ft/sec)	-4	-2	0	2	4

The velocity of the yo-yo decreases until it reaches the bottom of the string and then as the yo-yo ascends, the velocity increases. At 1 second, the yo-yo has reached the bottom and has a velocity of 0. From then, it rises and gains speed.

43. $t \leq 32$ or $t \geq 212$ 45. $y < 11$ or $y \geq 65$

49.

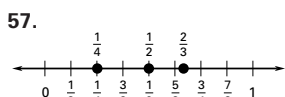
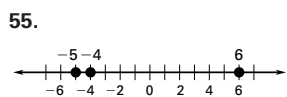
x	0	1	2	3	4
y	2	5	8	11	14

51.

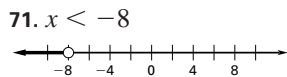
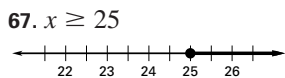
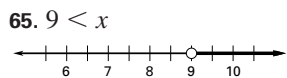
x	0	1	2	3	4
y	5	4	3	2	1

53.

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



59. 1.20 61. 6.65 63. -0.29



73. 28 75. 221 77. 28,000 79. 5400 81. 11,000

6.6 GUIDED PRACTICE (p. 358) 3. 2 5. none

7. $x - 4 = 10$, $x - 4 = -10$

9. $3x + 2 = 6$, $3x + 2 = -6$

6.6 PRACTICE AND APPLICATIONS (pp. 358-360)

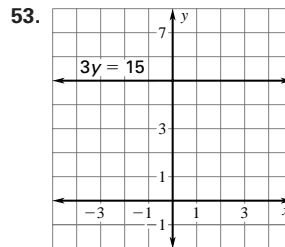
11. 9, -9 13. no solution 15. 100, -100 17. 7, -3

19. 12, -12 21. 10, -2 23. 3.5, -3.5 25. 10, -4

27. 18, -18 29. always 31. always 33. 6, -5

35. -1, -4 37. 8, -1 39. 11, -7 45. *Sample*

answer: $|x - 2| = 8$ 47. midpoint: 92.95 million miles; distance: 1.55 million miles

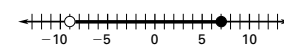
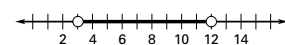


55. $y = -5x + 20$ 57. $y = 4x - 12$ 59. $y = -2x - 1$
61. 48,000 63. 47,500 65. 47,509.13

QUIZ 2 (p. 360)

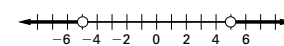
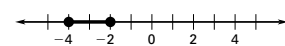
1. $3 < x < 12$

2. $-9 < x \leq 7$



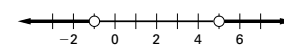
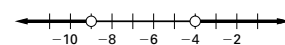
3. $-4 \leq x \leq -2$

4. $x > 5$ or $x < -5$



5. $x < -9$ or $x > -4$

6. $x < -1$ or $x > 5$



7. $-128.6 < T < 136$ 8. 14, -14 9. no solution

10. 33, -15 11. -9, -21 12. 18, -6 13. 7, -11

14. *Sample answer:* $|x - 7.5| = 10.5$ or $|2x - 15| = 21$

6.7 GUIDED PRACTICE (p. 364) 5. not a solution

7. solution

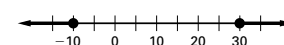
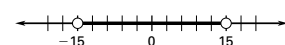
6.7 PRACTICE AND APPLICATIONS (pp. 364-366)

9. $x > 1$, $x < -1$; or 11. $x - 1 \leq 9$, $x - 1 \geq -9$; and

13. $10 + 7x \geq 11$, $10 + 7x \leq -11$; or

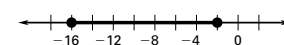
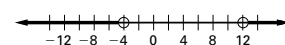
15. $-15 < x < 15$

19. $x \geq 30$ or $x \leq -10$



21. $x > 12$ or $x < -4$

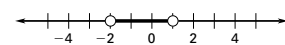
25. $-16 \leq x \leq -2$



27. never 29. always

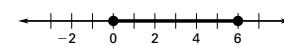
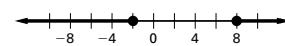
31. $-2 < x < 1$

37. $x > 1$ or $x < -\frac{7}{2}$



39. $x \geq 8$ or $x \leq -2$

41. $0 \leq x \leq 6$



43. $t < 3$ or $t > 7$ 45. orange 51. all real numbers except 4 53. \$38 55. *Sample answers:* $(-12, 0)$,

$(-12, 3)$, $(-12, -4)$ 57. *Sample answers:* $(\frac{2}{3}, 0)$,

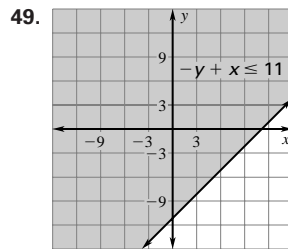
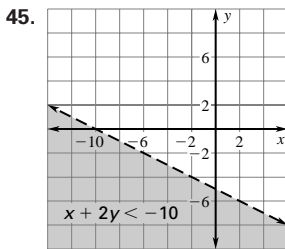
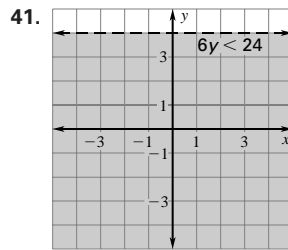
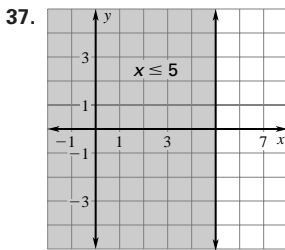
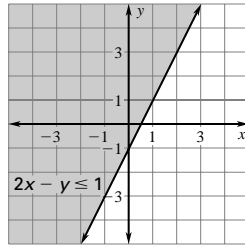
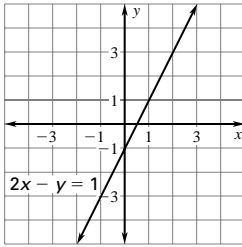
$(\frac{2}{3}, 1)$, $(\frac{2}{3}, 5)$ 59. function 61. not a function

63. $5\frac{11}{18}$ 65. $11\frac{5}{18}$ 67. $19\frac{3}{8}$

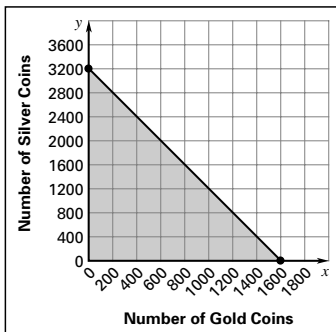
6.8 GUIDED PRACTICE (p. 370) 5. B 7. to the right
9. solution 11. not a solution 13. not a solution

6.8 PRACTICE AND APPLICATIONS (pp. 370–373)

15. Both $(0, 0)$ and $(-1, -1)$ are solutions. 17. $(0, 0)$ is a solution; $(2, 0)$ is not a solution. 19. Neither $(0, 0)$ nor $(2, -4)$ are solutions. 23. solid 25. dashed 27. $y = x$; solid 29. $y = \frac{1}{2}x - 8$; solid 31. $y = -2x - 3$; dashed 33. solid 35. yes



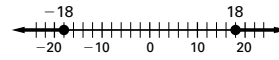
51. *Sample answer:* $(1, 3)$, $(2, 2)$, $(3, 1)$
53. $y \leq -2x + 3200$



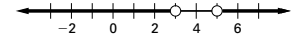
57. 15 59. 69 61. 30°C 63. $m = \frac{1}{2}, b = -2$
65. $m = -3, b = 7$ 67. $m = 0, b = 5$ 69. 52%

QUIZ 3 (p. 373)

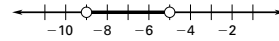
1. $x \geq 18$ or $x \leq -18$



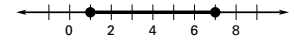
2. $x > 5$ or $x < 3$



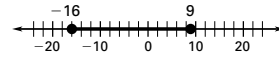
3. $-9 < x < -5$



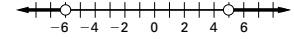
4. $1 \leq x \leq 7$



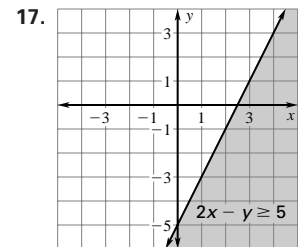
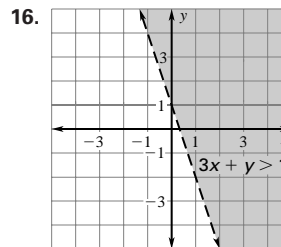
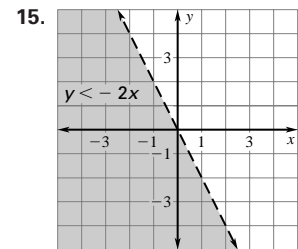
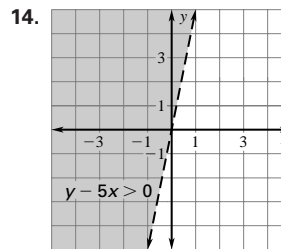
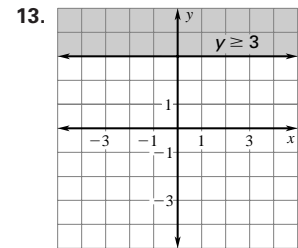
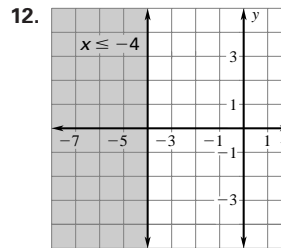
5. $-16 \leq x \leq 9$



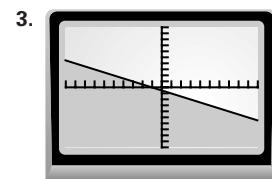
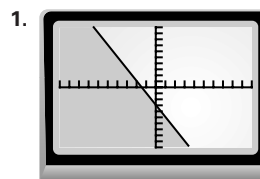
6. $x > 5$ or $x < -6$

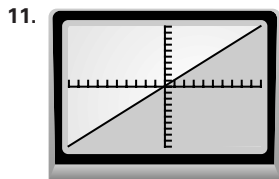
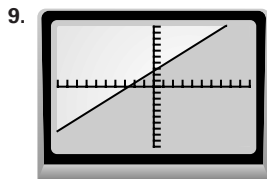
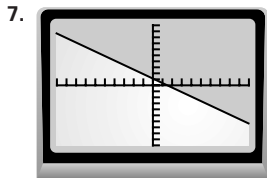
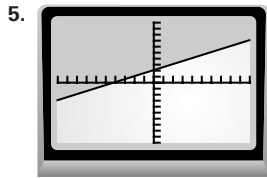


7. $t < 0.75$ or $t > 2.25$ 8. Both $(0, -1)$ and $(2, 2)$ are solutions. 9. $(0, 0)$ is not a solution; $(-4, 1)$ is a solution. 10. $(2, 1)$ is not a solution; $(-1, 2)$ is a solution. 11. $(1, -1)$ is a solution; $(2, -3)$ is not a solution.



6.8 TECHNOLOGY (p. 374)

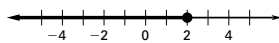




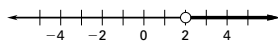
13. $y > x$

CHAPTER SUMMARY AND REVIEW (pp. 375–378)

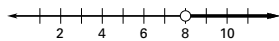
1. $x \leq 2$



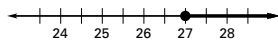
3. $2 < x$



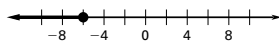
5. $8 < x$



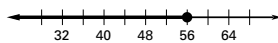
7. $27 \leq p$



9. $n \leq -6$



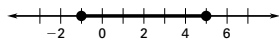
11. $t \leq 56$



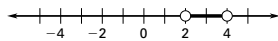
13. $x \geq 2$ 15. $x \geq 5$ 17. $x < -\frac{1}{3}$ 19. $x \geq 1$

21. $x \leq 13$

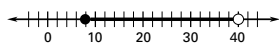
23. $-1 \leq x \leq 5$



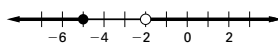
25. $2 < x < 4$



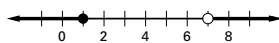
27. $8 \leq x < 40$



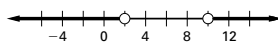
29. $x \leq -5$ or $x > -2$



31. $x \leq 1$ or $x > 7$

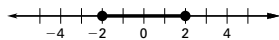


33. $x < 2$ or $x > 10$



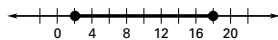
35. no solution 37. 9, -9

41. $-2 \leq x \leq 2$

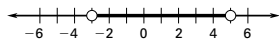


39. no solution

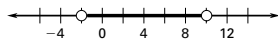
43. $2 \leq x \leq 18$



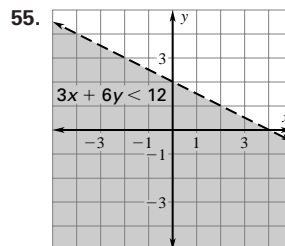
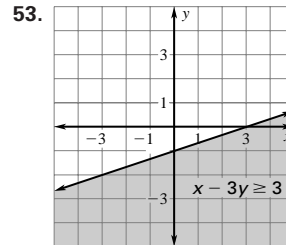
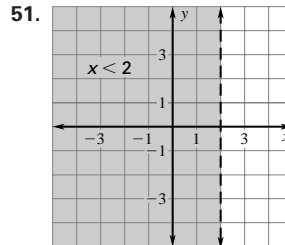
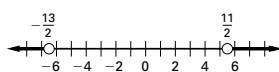
45. $-3 < x < 5$



47. $-2 < x < 10$



49. $x < -\frac{13}{2}$ or $x > \frac{11}{2}$



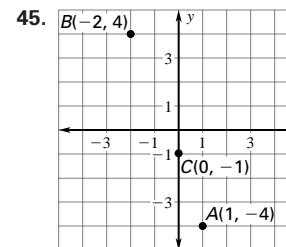
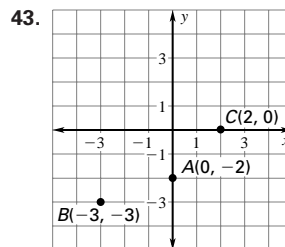
MAINTAINING SKILLS (p. 381) 1. 70 3. 37 5. 69 7. 51
9. -17 11. 7 13. 3 15. 7

CUMULATIVE PRACTICE (pp. 382–383) 1. 7 3. 45 5. 3

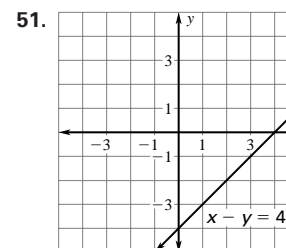
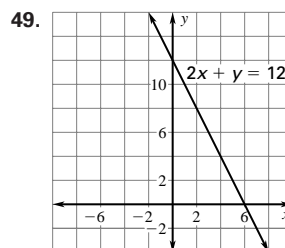
7.

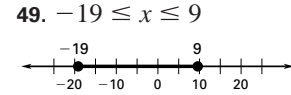
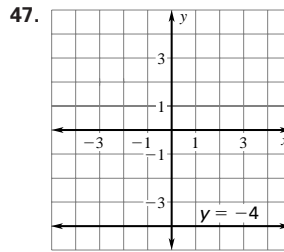
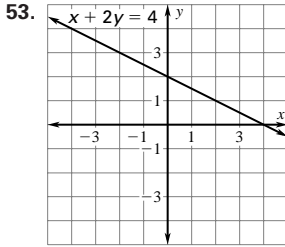
Input n	0	1	2	3	4	5	6
Output C	65	66	67	68	69	70	71

9. 2.5 11. -18 13. 4.6 15. 83°F 17. $18 + 3x$
19. $-15 + 5t$ 21. $11b + 7$ 23. $6y + 6$ 25. -18
27. 24 29. -4 31. 10 33. 75 35. 1 37. 12.5 cm^3
39. 52 mi/h 41. 25 ft/sec



47. The sales of catfish have increased since 1990, although not consistently. There are points clustered around sales of \$370 to \$380 million.





55. $y = -2x + 5$ 57. $y = 4x + 1$ 59. $y = x + 1$
 61. $y = \frac{1}{4}x - \frac{7}{4}$ 63. $y = -3x - 4$
 65. $y - 4 = x - 1$ or $y - 6 = x - 3$
 67. $y + 7 = -8(x + 1)$ or $y - 1 = -8(x + 2)$
 69. $y - 7 = \frac{3}{4}(x - 4)$ or $y - 10 = \frac{3}{4}(x - 8)$
 71. $x < 2$ 73. $x \geq -7$ 75. $x > 4$ 77. $-5 \leq x \leq 2$
 79. $x > 4$ or $x \leq -2$ 81. $-6 \leq x \leq 1$

Chapter 7

STUDY GUIDE (p. 388) 1. C 2. B 3. A 4. D

7.1 GUIDED PRACTICE (p. 392) 3. $y = x - 2$;
 $y = -2x + 10$ 5. (4, 2)

7.1 PRACTICE AND APPLICATIONS (pp. 392–394)

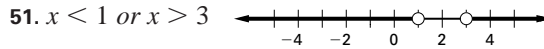
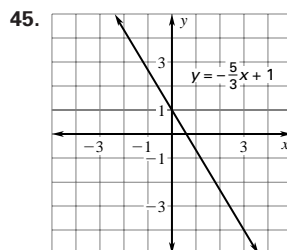
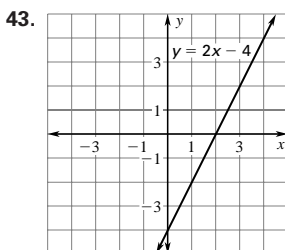
7. solution 9. not a solution 11. not a solution 13. (4, 5)
 15. (3, 0) 17. (6, -6) 19. (-3, -5) 21. (-4, -5)
 23. (1, 4) 25. 125,000 miles 27. 14 years 33. 4
 35. 5 37. -2 39. $y = x + 7$ 41. $y = -2x - 9$
 43. $y = -3x + 2$ 45. 4.764 47. 2 49. 10

7.1 TECHNOLOGY (p. 395) 1. (-3.5, 2.5)
 3. (-0.8, -2.05)

7.2 GUIDED PRACTICE (p. 399) 3. Equation 2; y has a coefficient of -1 5. $x = 1$ 7. (-5, 18) 9. (1, 3)

7.2 PRACTICE AND APPLICATIONS (pp. 399–401)

11. Equation 2; m has a coefficient of 1, no constant.
 13. Equation 2; x and y have coefficients of 1.
 15. Equation 2; x has a coefficient of 1. 17. (9, 5)
 19. (4, -2) 21. (-1, 5) 23. (0, 0) 25. (-7, 4)
 27. $(-\frac{7}{2}, -\frac{13}{2})$ 29. 30 11-inch softballs and 50 12-inch softballs
 31. \$3375 in ABC and \$1125 in XYZ
 33. 1200 meters uphill, 1000 meters downhill 39. $-2x$
 41. 26



53. 1, 3 55. 1, 3 57. 1, 2, 3, 6 59. 1, 3

7.3 GUIDED PRACTICE (p. 405) 3. $9x + 7x = 16x$;
 $24 + 8 = 32$; Solution: (2, 2) 5. *Sample answer*:
 multiply equation 2 by -4 , then add and solve for x .
 Solution: (1, -1)

7.3 PRACTICE AND APPLICATIONS (pp. 405–408)

7. (-3, 7) 9. (2, 0) 11. (3, 5) 13. (-8, 6) 15. (3, 0)
 17. (3, 2) 19. (2, 0) 21. $(\frac{7}{2}, 5)$ 23. (21, -3)
 25. (8, -1) 27. (3, -4) 29. $(-79, -\frac{61}{5})$ 31. (1, 2)
 33. (1, 0) 35. (2, 1) 37. (2, 0) 39. (3, 2) 41. (2, 0)
 43. about 3 cubic centimeters 45. There are 15,120 men
 and 20,000 rolls of cotton. 49. $y = 3x + 10$
 51. $y = -3x + 30$ 53. $y = x - 1$ 55. (1, 3) is a
 solution; (2, 0) is not a solution. 57. (-3, -2)
 59. (10, -2) 61. true 63. true 65. false

QUIZ 1 (p. 408) 1. (3, -4) 2. (0, 0)

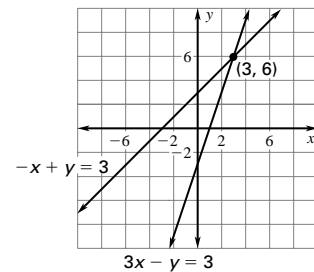
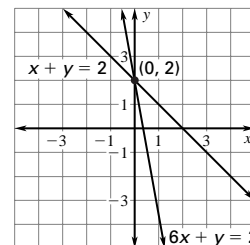
3. (6, 8) 4. (1, 9) 5. (-1, 3) 6. (-6, 10) 7. (6, 8)
 8. (5, 1) 9. $(-\frac{1}{2}, \frac{1}{2})$ 10. (2, -1) 11. (0, 1) 12. (2, 1)
 13. Four compact discs were bought at \$10.50 each and
 6 were bought at \$8.50 each.

7.4 GUIDED PRACTICE (p. 412) 3. (7.5, 0.5)

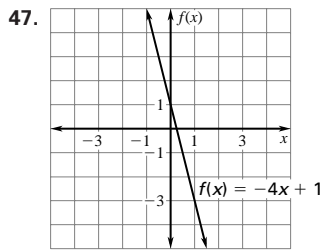
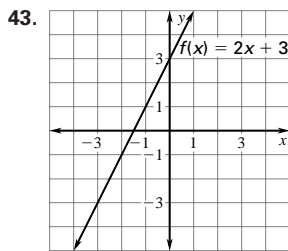
5. You would have to sell \$600,000 of merchandise.
 7. 10d

7.4 PRACTICE AND APPLICATIONS (pp. 412–414)

9. (0, 2) 11. (3, 6)



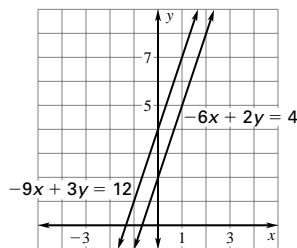
13. *Sample answer:* Multiplication and addition. No variable can be easily isolated. 15. *Sample answer:* Substitution. Equation 2 can be solved for x or y . 17. *Sample answer:* Substitution. Equations 1 or 2 can be solved for x . 19. (3, 3) 21. $(\frac{4}{15}, \frac{6}{5})$ 23. (-2, 1) 25. (-3, 2) 31. 6 pea plants, 7 broccoli plants 33. about (1.6, 6474) 39. parallel; $m = 4$ for both lines 41. not parallel; different slopes



49. $1\frac{1}{5}$ 51. $1\frac{11}{72}$ 53. $\frac{23}{30}$ 55. $\frac{25}{32}$

7.5 GUIDED PRACTICE (p. 420)

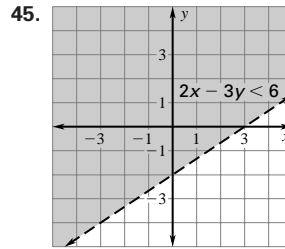
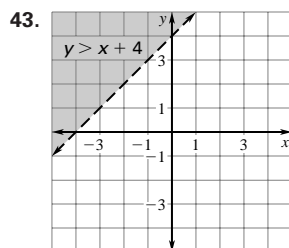
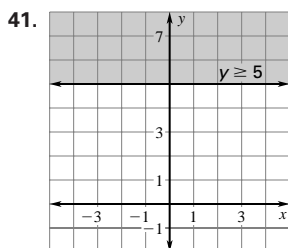
5. No solution; the two equations represent parallel lines.



7. no solution 9. one solution; (5, 12)

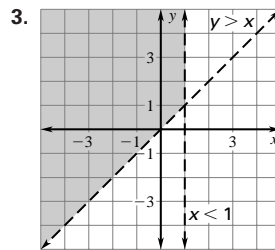
7.5 PRACTICE AND APPLICATIONS (pp. 420–422)

17. no solution 19. no solution 21. one solution 23. Infinitely many solutions; multiplying Equation 1 by 4 yields Equation 2. 25. infinitely many solutions; one line 27. infinitely many solutions; one line 29. no solution; parallel lines 31. No; there are infinitely many solutions for the system. 33. Yes, \$14.98. *Sample explanation:* The solution of the system $4x + 2y = 99.62$ and $8x + y = 139.69$ is (14.98, 19.85). 39. about 4:27 P.M.



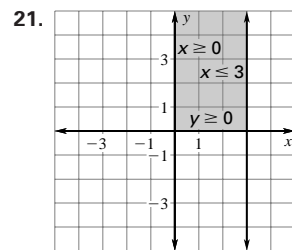
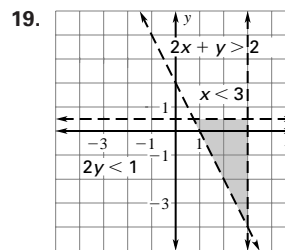
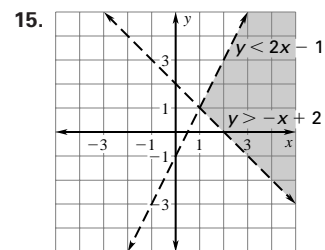
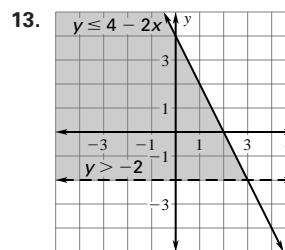
47. $20; \frac{25\pi}{4}$ 49. 20; 20

7.6 GUIDED PRACTICE (p. 427)

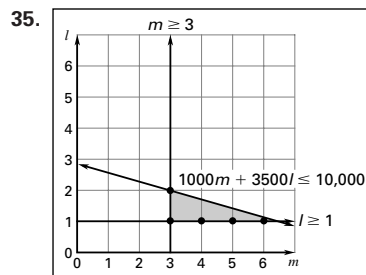


5. The student graphed $y \geq 1$, instead of $y > -1$; graphed $x \leq 2$, instead of $x \geq 2$; graphed $y \leq x - 4$, instead of $y > x - 4$. 7. $y \leq -x, x > -2$

7.6 PRACTICE AND APPLICATIONS (pp. 427–430)

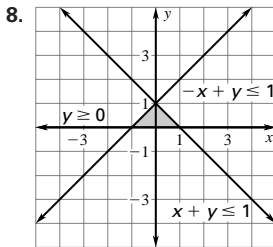
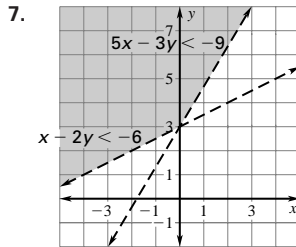
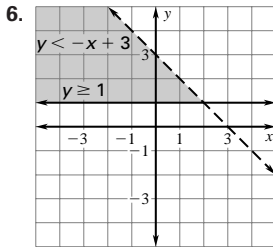


25. *Sample answer:* $2y - x \leq 4, 2y - x \geq -4$ 27. *Sample answer:* $y \geq 0, y \leq -x + 2, y \leq x + 2$ 29. *Sample answer:* $y \geq 0, 3y \leq -5x, 4y \leq 5x + 3$ 31. $b + c \geq 240; b < c; 5b + 3c \leq 1200$



37. $b + c \leq 20$, $5b + 6c \geq 90$ 39. *Sample answer:*
5 hours babysitting and 15 hours as a cashier; 15 hours
babysitting and 5 hours as a cashier 41. $y \geq 0$, $x \geq 0$,
 $y \leq -x + 4$ 45. 243 47. 137 49. 62 51. 49
53. -60 55. 38 5-point questions and 30 2-point
questions 57. 9.25 59. 2.8 61. 3.8 63. 6.875

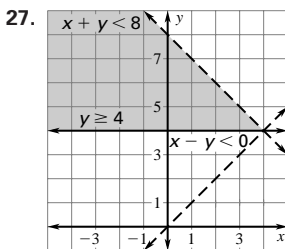
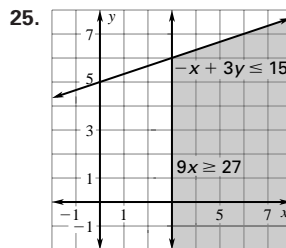
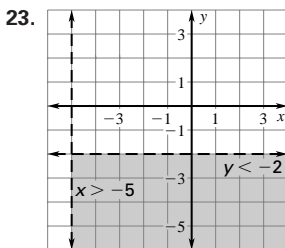
QUIZ 2 (p. 430) 1. $l = 8$ ft, $w = 3$ ft 2. premium gas costs
\$1.57/gallon, regular gas costs \$1.35/gallon 3. no
solution 4. one solution; (0, 1) 5. infinitely many
solutions



9. *Sample answer:* $x + 2y \leq 4$, $-x + y \geq -1$

CHAPTER SUMMARY AND REVIEW (pp. 431–434)

1. (9, -3) 3. (0, 1) 5. $(4, -\frac{1}{2})$ 7. (0, 3) 9. $(\frac{5}{8}, \frac{3}{2})$
11. $(\frac{1}{2}, 0)$ 13. $(-\frac{83}{14}, \frac{39}{14})$ 15. (3, -5) 17. (-1, 1)
19. 2 regular movies; 3 new releases 21. no solution



- MAINTAINING SKILLS (p. 437)** 1. 125 3. 9 5. 0.47
7. 0.035 9. 61% 11. 200%

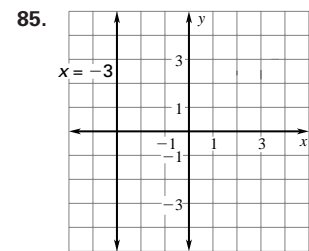
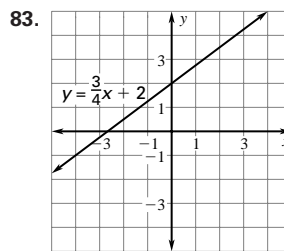
Chapter 8

STUDY GUIDE (p. 440) 1. A 2. C 3. D 4. D 5. A

8.1 GUIDED PRACTICE (p. 446) 5. $(-5)^6$ 7. 2^{12} 9. y^{20}
11. $16n^4$

8.1 PRACTICE AND APPLICATIONS (pp. 446–448) 13. 5
15. 18 17. 7 19. 4^9 21. $(-2)^6$ 23. x^9 25. 3 27. 12
29. 9 31. 2^6 33. $(-4)^{15}$ 35. c^{80} 37. 441 39. 576
41. $64d^6$ 43. $64m^6n^6$ 45. $-r^5s^5t^5$ 47. < 49. <
51. > 53. $-4x^7$ 55. r^8s^{12} 57. $18x^5$ 59. $a^4b^4c^6$
61. $V = 36\pi a^3 \approx 113.1a^3$ 63. 8, or 8 to 1 65. $2^1 = 2$,
 $2^2 = 4$, $2^3 = 8$ 67. $2^{30} = 1,073,741,824$ pennies

75. 10,000 77. $\frac{1}{25}$ 79. $\frac{45}{4}$



87. $x < 7$ 89. $x \leq 1$ 91. $x \geq \frac{7}{4}$ 93. true 95. false; 10
97. false; 1

8.2 GUIDED PRACTICE (p. 452) 3. 1 5. 64 7. 2

9. $\frac{1}{16}$ 11. 0.0016 13. 0.0156 15. $\frac{1}{m^2}$ 17. $3c^5$

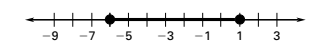
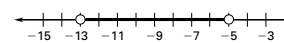
8.2 PRACTICE AND APPLICATIONS (pp. 452–454) 19. $\frac{1}{2}, \frac{1}{5}$,
 $\frac{1}{6}$ 21. 1 23. $\frac{1}{16}$ 25. $-\frac{1}{343}$ 27. 256 29. $\frac{1}{8}$ 31. $\frac{1}{36}$
33. 64 35. $\frac{1}{9}$ 37. $\frac{1}{400}$ 39. $\frac{1}{16}$ 41. 0.0313 43. 0.0016
45. 0.0625 47. 0.0714 49. The 5 should not be raised

to a negative power; $\frac{5}{x^3}$ 51. $\frac{1}{x^5}$ 53. $\frac{y^4}{x^2}$ 55. x^2
57. $x^{10}y^4$ 59. $\frac{1}{64x^3}$ 61. $\frac{216}{x^9}$ 63. about 5.31 million
people 73. 4 75. 2 77. $\frac{27}{2} = 13.5$ 79. -9

81. 15 83. -15

85. $-13 < x < -5$

87. $-6 \leq x \leq 1$



89. $x > 2$ or $x < -\frac{20}{3}$

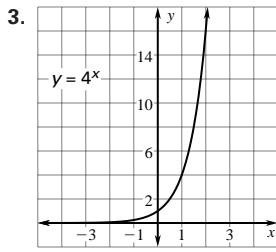
91. $(-\frac{5}{3}, -1)$ 93. (5, 0) 95. (2, 3) 97. *Sample*

answer: $\frac{6}{10}, \frac{9}{15}, \frac{12}{20}$ 99. *Sample answer:* $\frac{2}{16}, \frac{3}{24}, \frac{4}{32}$

101. *Sample answer:* $\frac{30}{32}, \frac{45}{48}, \frac{60}{64}$

103. *Sample answer:* $\frac{50}{64}, \frac{75}{96}, \frac{100}{128}$

8.3 GUIDED PRACTICE (p. 458)



5. domain: all real numbers; range: all positive real numbers

8.3 PRACTICE AND APPLICATIONS (pp. 458–460) 7. yes;

$2^0 = 1$ 9. no; $2(3)^0 = 2$ 11. yes; $(\frac{1}{8})^0 = 1$ 13. no; $7(\frac{1}{5})^0 = 7$

15.

x	-2	-1	0	1	2	3
$y = 3^x$	$\frac{1}{9}$	$\frac{1}{3}$	1	3	9	27

17.

x	-2	-1	0	1	2	3
$y = 5(4)^x$	$\frac{5}{16}$	$\frac{5}{4}$	5	20	80	320

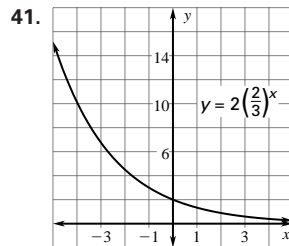
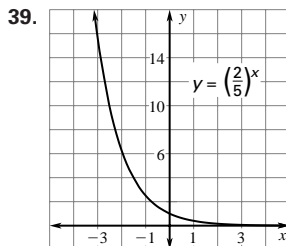
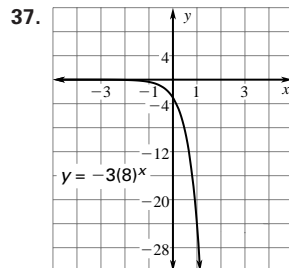
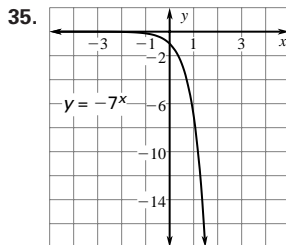
19.

x	-2	-1	0	1	2	3
$y = (\frac{1}{6})^x$	36	6	1	$\frac{1}{6}$	$\frac{1}{36}$	$\frac{1}{216}$

21.

x	-2	-1	0	1	2	3
$y = 2(\frac{1}{7})^x$	98	14	2	$\frac{2}{7}$	$\frac{2}{49}$	$\frac{2}{343}$

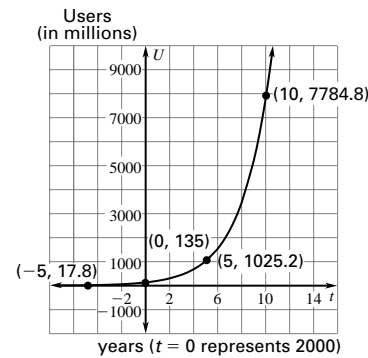
23. 55.90 25. 45.25 27. 0.00 29. 1.06



43. domain: all real numbers; range: all negative real numbers 45. domain: all real numbers; range: all negative real numbers 47. domain: all real numbers; range: all positive real numbers 49. domain: all real numbers; range: all positive real numbers

51.

Year	1995	2000	2005	2010
t	-5	0	5	10
U (in millions)	17.8	135	1025.2	7784.8

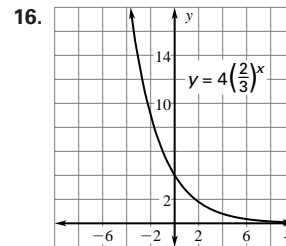
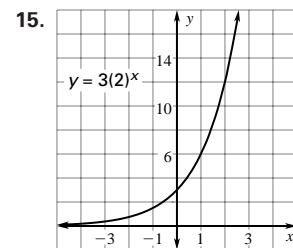
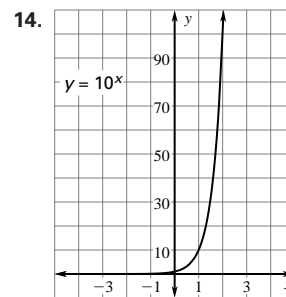


55. 0.38 57. -0.46 59. -1.91 61. $8x + y = 4$
 63. $7x - 8y = 0$ 65. $3x + 16y = 9$ 67. 1 solution
 69. no solution 71. infinitely many solutions
 73. -5, -4, 6 75. $-3\frac{4}{5}$, $-2\frac{3}{4}$, $-2\frac{1}{5}$ 77. 3.001, 3.01, 3.25

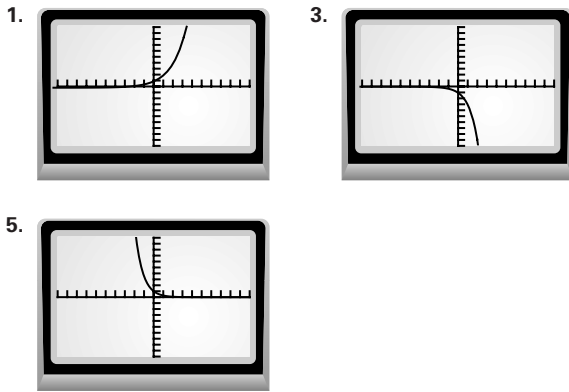
QUIZ 1 (p. 460) 1. 59,049 2. 64 3. 1600 4. 36 5. $\frac{1}{25}$

6. 1 7. r^{13} 8. k^8 9. $9d^2$ 10. $\frac{2}{x^3y^9}$ 11. $\frac{a^{10}b^{12}}{5}$

12. $\frac{1}{m^7n^7}$ 13. about \$1008; about \$2177



8.3 TECHNOLOGY (p. 461)



7. *Sample answer:* For $a > 1$, the graph of $y = a^x$ is a curve that passes through $(0, 1)$ and increases to the right. The graph of $y = -a^x$ passes through $(0, -1)$ and decreases to the right. Both graphs approach the x -axis to the left.

8.4 GUIDED PRACTICE (p. 465) 3. 125 5. -32 7. x^3
9. $\frac{1}{m^6}$ 11. $\frac{1}{32}$ 13. $\frac{256}{81}$ 15. $\frac{25}{m^2}$ 17. $\frac{m^6}{n^{10}}$

8.4 PRACTICE AND APPLICATIONS (pp. 465–468) 19. 4

21. 11 23. 6 25. 125 27. 1 29. $\frac{1}{x}$ 31. $\frac{1}{x^3}$ 33. 1296
35. 3 37. 10 39. $\frac{1}{625}$ 41. $-\frac{8}{27}$ 43. $\frac{81}{x^4}$ 45. $\frac{x^5}{y^5}$

47. $\left(\frac{6a}{b^2}\right)^3 = \frac{6^3 a^3}{b^6} = \frac{216a^3}{b^6}$ 49. $5x^3y^3$ 51. $6a^8b^3$

53. $\frac{96x^4}{y}$ 55. $\frac{2y^9}{3x^3}$ 57. $\frac{9x^2y^2}{2}$ 59. ≈ 0.437 61. 200,

160, 128, 102, 82, 66, 52 63. product of powers property; quotient of powers property; product of powers property; canceling a common factor 69. 100,000 71. 1

73. $y = \frac{1}{2}x + 4$ 75. $y = -x - 8$ 77. $y = -x + 3$

79. solution 81. not a solution 83. $(8, 4)$ 85. $(4, 3)$

87. $(9, -1)$ 89–93. Estimates may vary. 89. 450

91. 80.5 93. 1750

8.5 GUIDED PRACTICE (p. 472) 3. 430 5. 0.05

7. 0.245 9. 6.9×10^6 11. 9.9×10^{-1}

13. 2.05×10^{-2} 15. 2×10^{-11}

8.5 PRACTICE AND APPLICATIONS (pp. 472–474)

17. right, 2 19. left, 7 21. 8000 23. 21,000

25. 433,000,000 27. 0.009 29. 0.098

31. 0.00000000011 33. in scientific notation

35. 9×10^2 37. 8.8×10^7 39. 9.52×10^1

41. 1×10^{-1} 43. 6×10^{-6} 45. 8.5×10^{-3}

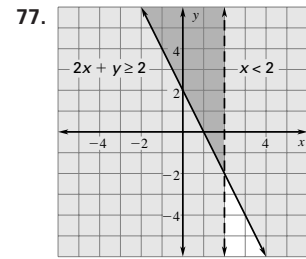
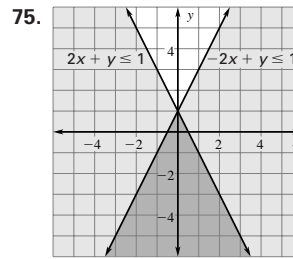
47. 1.23×10^9 49. 1.5×10^5 51. 7.0×10^{-4}

53. 2.7×10^7 55. 4.0×10^{-2} 57. 1.09926×10^6 ;

1,099,260 59. 1.5×10^{-11} ; 0.000000000015

61. $\approx 7.9626 \times 10^{-19}$; $\approx 0.00000000000000000079626$

63. 0.00098 65. 2×10^{-23} 67. about \$18.12 per square mile 69. about $(4.87 \times 10^{14})\pi$ km³ or about 1.53×10^{15} km³ 73. no solution



79. 212% 81. 67.4% 83. 7.567

QUIZ 2 (p. 474) 1. 7776 2. $\frac{1}{x^2}$ 3. $-\frac{343}{8}$ 4. $\frac{b^5}{a^5}$ 5. $\frac{4}{3y^9}$

6. $30x^2$ 7. $-\frac{25b^6}{a^3}$ 8. $\frac{16m^4}{81n^4}$ 9. $\frac{4x^3y^7}{5}$ 10. $\frac{243}{w^2z^{11}}$

11. 5,000,000,000 12. 4,800 13. 33,500 14. 0.000007

15. 0.011 16. 0.0000208 17. 1.05×10^2

18. 9.9×10^4 19. 3.07×10^7 20. 2.5×10^{-1}

21. 4×10^{-4} 22. 6.7×10^{-6}

8.6 GUIDED PRACTICE (p. 479) 3. 0.04 5. about \$608

8.6 PRACTICE AND APPLICATIONS (pp. 479–481)

7. $C = 100, r = 0.5$ 9. $C = 7.5, r = 0.75$

11. $y = 310,000(1.15)^t$; y = population, t = number of years 13. $y = 10,000(1.25)^{10}$; y = profit, t = number of years after 1990 ($t \leq 10$) 15. $y = 15,000(1.3)^{15}$; y = profit, t = number of years after 1990 ($t \leq 15$)

17. \$2231.39 19. \$4489.99 21. \$382.88 23. \$510.51

25. \$1466.01 27. \$1770.44 29. 3, 4 31. 2 33. 3

35. about 13.2 L/min, 46.3 L/min, 86.5 L/min 45. 5

47. -2 49. -7 51. 4 53. 2^4 55. 3^7 57. r^6

59. $\frac{1}{4}$ 61. $\frac{1}{8}$

8.7 GUIDED PRACTICE (p. 485) 3. \$6185.20 5. \$4266.98

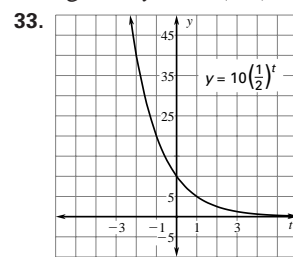
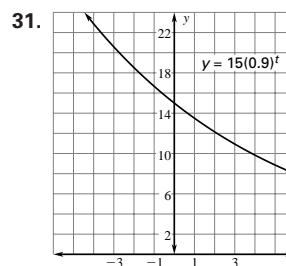
7. C 9. exponential decay 11. exponential decay

8.7 PRACTICE AND APPLICATIONS (pp. 485–488) 13. 18;

0.11 15. 0.5; 0.625 17. $y = 100,000(0.98)^t$

19. $y = 100(0.91)^t$ 21. $y = 70(0.99)^t$ 23. about \$11,192

25. about \$8372 27. about 229 mg 29. $y = 64(0.5)^t$

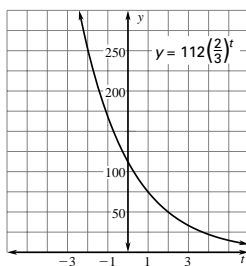
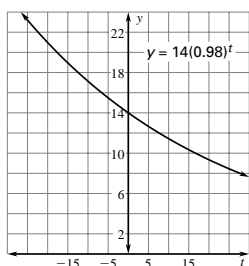


35. $y = 22,000(0.91)^t$; about \$10,300

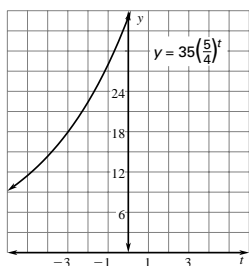
37. $y = 10,500(0.9)^t$; about \$3700

39. 302, 239, 189, 150, 119 41. about 106 miles

45. exponential decay; 0.98 47. exponential decay; $\frac{2}{3}$

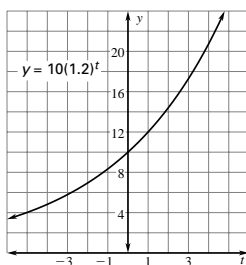
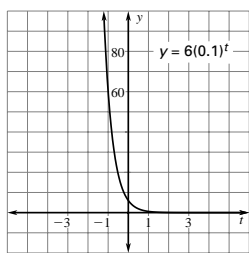


49. exponential growth; $\frac{5}{4}$

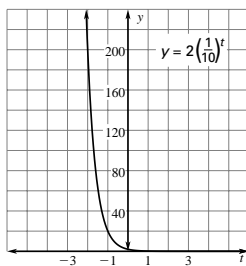
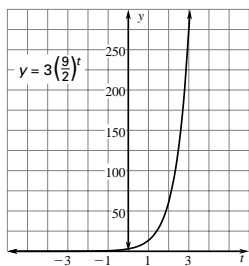


51. *Sample answer:* As b increases, the curve becomes steeper or more vertical. 57. 24 59. 72 61. -0.92
 63. -0.64 65. $y - 5 = 3(x - 2)$ 67. $y + 4 = 4(x + 1)$
 69. $y - 7 = -6(x + 1)$ 71. 2.5 73. 0.2 75. 5.5

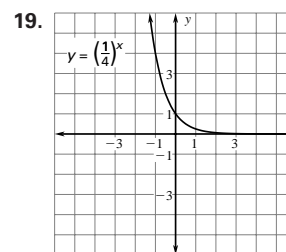
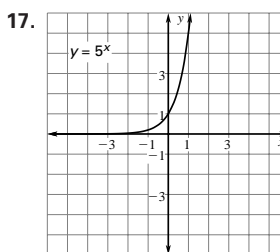
- QUIZ 3 (p. 488)** 1. \$270 2. \$314.93 3. \$367.33
 4. \$462.73 5. 1600 raccoons 6. about \$12,422
 7. about \$10,286 8. about \$9360 9. about \$5841
 10. $y = 20,000(0.92)^t$; about \$13,200
 11. exponential decay; 0.1 12. exponential growth; 1.2



13. exponential growth; 4.5 14. exponential decay; 0.1



- CHAPTER SUMMARY AND REVIEW (pp. 489–492)** 1. 128
 3. 4096 5. $81x^4$ 7. $8p^4$ 9. 1 11. $\frac{1}{49}$ 13. $\frac{x^6}{y^6}$ 15. $\frac{b^5}{a^2}$



21. $\frac{1}{3}$ 23. $\frac{16}{81}$ 25. $9y$ 27. $\frac{8a^6b^{12}}{125}$ 29. 70 31. 0.0002
 33. 5.2×10^7 35. 9×10^{-3} 37. 1.5×10^7
 39. 1.44×10^7 41. 7×10^8 43. $y = 2(1.05)^t$
 45. $y = 125(0.97)^t$

- MAINTAINING SKILLS (p. 495)** 1. 2^3 3. $3 \cdot 5 \cdot 7$ 5. $2\frac{5}{8}$
 7. $1\frac{12}{15}$

Chapter 9

- STUDY GUIDE (p. 498)** 1. B 2. D 3. C

- 9.1 GUIDED PRACTICE (p. 502)** 5. ± 11 7. -2
 9. irrational 11. rational 13. 14.66, -2.66
 15. 13.31, -9.31

- 9.1 PRACTICE AND APPLICATIONS (pp. 502–504)** 17. The positive and negative square roots of 16 are 4 and -4 .
 19. The positive square root of 225 is 15. 21. The negative square root of 289 is -17 . 23. The positive square root of 1 is 1. 25. 12 27. 14 29. ± 7 31. -16
 33. 20 35. 11 37. -1 39. 13 41. no 43. no
 45. yes 47. no 49. no 51. no 53. 2.24 55. 3.61
 57. -7 59. ± 1 61. ± 3.87 63. -4.47 65. 3 67. 0
 69. 6 71. 7 73. 7 75. 10.24, 5.76 77. -0.34 , -11.66
 79. -11.24 , -2.76 81. 5.13, -1.80 83. -2.90 , 0.57
 85. m is a perfect square 87. False. *Sample counterexample:* the square root of 0 is 0. 95. (2, -2)
 97. 116 adult tickets and 208 student tickets
 99. $(-4, -19)$ 101. (5, -6) 103. $0.5\bar{3}$ 105. 0.875
 107. 0.3125 109. 0.4 111. $0.\bar{8}$ 113. 0.9

- 9.2 GUIDED PRACTICE (p. 508)** 3. 2 5. 0 7. 2 9. ± 7
 11. $\pm\sqrt{7}$ 13. no real solution 15. 1.7 sec 17. 3.5 sec

- 9.2 PRACTICE AND APPLICATIONS (pp. 508–510)** 19. ± 1
 21. no real solution 23. ± 15 25. ± 11 27. ± 16
 29. ± 7 31. ± 8 33. ± 4 35. $\pm\sqrt{2}$ 37. ± 3 39. no real solution
 41. ± 5 43. $\pm\sqrt{3}$ 45. ± 6 47. $\pm\sqrt{14}$
 49. The equation has no real solution. 51. ± 1.41
 53. ± 2.83 55. ± 1.84 57. True; the solutions of $x^2 = c$ are \sqrt{c} and $-\sqrt{c}$. 59. $h = -16t^2 + 96$ 61. 0.40 mm
 63. 0.15 mm 65. 0.12 mm 67. 5,500,400; 22,582,900; 73,830,400 71. -18 73. 12 75. 5; 6 77. 8; 2
 79. $x \geq -2$ 81. $x < 2$ 83. 8×10^{-7} 85. 8.721×10^3
 87. $\frac{2}{3}$ 89. $\frac{1}{3}$ 91. $\frac{5}{6}$ 93. $\frac{3}{4}$

9.3 GUIDED PRACTICE (p. 514) 5. D 7. B 9. 6

11. $2\sqrt{15}$ 13. $\frac{\sqrt{15}}{4}$ 15. $\frac{\sqrt{10}}{5}$

9.3 PRACTICE AND APPLICATIONS (pp. 514–517)

17. no; radical in the denominator 19. yes 21. $2\sqrt{11}$
 23. $3\sqrt{2}$ 25. $3\sqrt{3}$ 27. $10\sqrt{2}$ 29. $5\sqrt{5}$ 31. 12 33. $\frac{1}{2}$

35. $\frac{2}{5}$ 37. $\frac{6}{5}$ 39. $\frac{\sqrt{11}}{9}$ 41. $\frac{3}{4}$ 43. $\frac{\sqrt{5}}{9}$

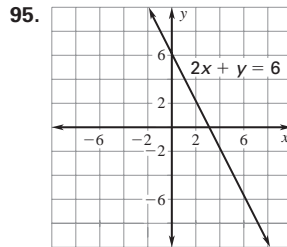
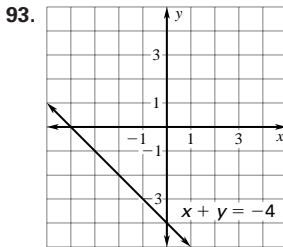
45. $\sqrt{20} = \sqrt{4 \cdot 5} = 2\sqrt{5}$ 47. $\frac{\sqrt{5}}{5}$ 49. $\frac{\sqrt{2}}{2}$ 51. $\frac{\sqrt{3}}{3}$

53. $\frac{\sqrt{10}}{5}$ 55. $\frac{\sqrt{11}}{11}$ 57. $\frac{5\sqrt{3}}{3}$ 59. 20 61. $-6\sqrt{3}$

63. -12 65. -1 67. $3\sqrt{6}$ 69. $-3\sqrt{10}$ 71. $\frac{\sqrt{15}}{5}$

73. $2\sqrt{5}$ 75. $70\sqrt{2}$ m/sec 77. No; ratio of speeds is the square root of the ratio of depths. 79. 98

81. Multiplication; square



97. $81x^4$ 99. 144 101. $64x^2y^2$ 103. $-a^3b^3c^3$

105. domain: all real numbers; range: all negative real numbers 107. $\frac{1}{4}$ 109. $\frac{3}{8}$ 111. $\frac{2}{189}$ 113. $\frac{1}{10}$

QUIZ 1 (p. 517) 1. 9 2. -5 3. 4 4. -2 5. ± 1 6. 10

7. ± 7 8. 11 9. ± 8 10. $\pm\sqrt{63}$ or $\pm 3\sqrt{7}$ 11. $\pm\sqrt{6}$

12. no real solution 13. ± 4 14. ± 5 15. $3\sqrt{2}$

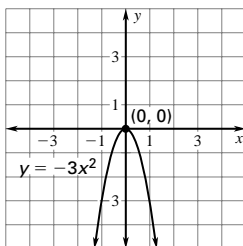
16. $2\sqrt{15}$ 17. $\sqrt{3}$ 18. -9 19. $4\sqrt{30}$ 20. $\frac{2\sqrt{3}}{3}$

21. $\frac{\sqrt{5}}{3}$ 22. $\frac{1}{2}$ 23. $\frac{\sqrt{5}}{4}$ 24. $2\sqrt{2}$ 25. $\frac{\sqrt{6}}{3}$ 26. $\frac{6\sqrt{5}}{5}$

9.4 GUIDED PRACTICE (p. 523) 3. up 5. down 7. up

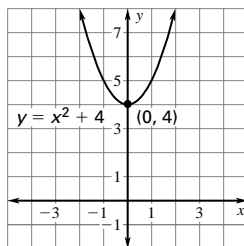
9. axis of symmetry:

$x = 0$



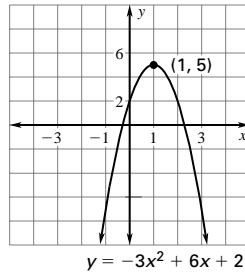
11. axis of symmetry:

$x = 0$



13. axis of symmetry:

$x = 1$



9.4 PRACTICE AND APPLICATIONS (pp. 523–525) 15. up

17. down 19. down 21. down 23. down

25.

(0, 0)

x	-2	-1	0	1	2	3
y	24	6	0	6	24	54

27.

$(\frac{5}{2}, -\frac{25}{2})$

x	0	1	2	$\frac{5}{2}$	3	4	5
y	0	-8	-12	$-\frac{25}{2}$	-12	-8	0

29.

$(-\frac{1}{6}, 3\frac{5}{6})$

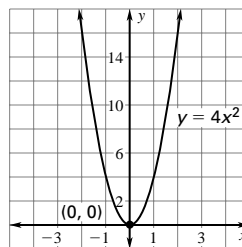
x	-2	-1	$-\frac{1}{6}$	0	1	2
y	24	8	$3\frac{5}{6}$	4	12	32

31.

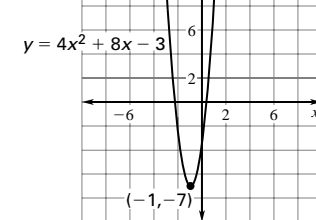
$(-\frac{1}{2}, 9)$

x	-3	-2	-1	$-\frac{1}{2}$	0	1	2
y	-16	0	8	9	8	0	-16

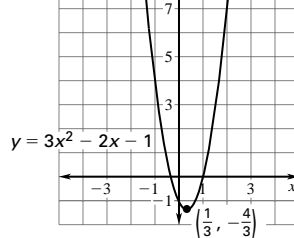
37.



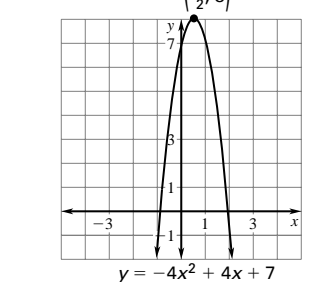
39.



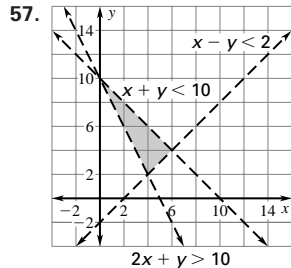
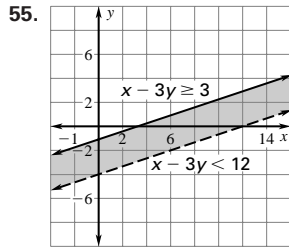
41.



43.



45. $(\frac{15}{32}, \frac{609}{64})$; this point represents the highest point on the path of the basketball. At $\frac{15}{32} \approx 0.47$ sec the ball reaches its high point of $\frac{609}{64} \approx 9.52$ ft. 47. 10 ft



59. $(-5)^9$ 61. x^8 63. m^8 65. 2^5 67. $\frac{4}{15}, \frac{1}{3}, \frac{2}{5}$

69. $\frac{3}{4}, \frac{7}{8}, \frac{9}{10}$

9.5 GUIDED PRACTICE (p. 529) 3. B 5. A 7. ± 1
9. ± 4 11. 2, 5

9.5 PRACTICE AND APPLICATIONS (pp. 529–531)

13. $x^2 - 6x + 6 = 0$ 15. $3x^2 - x - 5 = 0$
17. $6x^2 - 12x = 0$ 19. -3, 1 23. -3, 1 25. -3, 1
27. -1, 5 29. -5, 1 31. -3, 2 33. -1, 2 35. ± 5
37. ± 5 39. ± 4 41. ± 9 43. ± 2 45. ± 3 47. -4, 1
49. -4, 8 51. 10 sec 55. pasta: \$5.95; salad: \$1.95

57. (3, 2), one solution 59. $(-\frac{7}{2}, 6)$; one solution

61. no solution 63. 4 65. 0 67. 2 69. -9 71. $2\sqrt{6}$
73. $10\sqrt{2}$ 75. $\sqrt{3}$ 77. $\frac{20\sqrt{3}}{3}$ 79. $>$ 81. $>$ 83. $<$ 85. $<$

9.5 TECHNOLOGY (p. 532) 1. -1, 2 3. -0.77, 2.27 5. 2

9.6 GUIDED PRACTICE (p. 536) 5. $2x^2 - 16x + 32 = 0$;
 $a = 2, b = -16, c = 32$ 7. -7, 1 9. -6

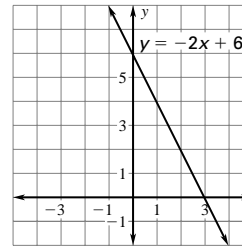
11. $\frac{-1 \pm \sqrt{13}}{6}$ 13. $2x^2 + x - 6 = 0$; -2, $\frac{3}{2}$

15. $x^2 - x - 2 = 0$; -1, 2 17. $x^2 - 4x + 3 = 0$; 1, 3

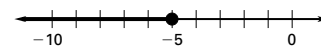
9.6 PRACTICE AND APPLICATIONS (pp. 536–539)

19. $3x^2 - 3x - 6 = 0$; $a = 3, b = -3, c = -6$
21. $x^2 - 5x + 6 = 0$; $a = 1, b = -5, c = 6$
23. $3x^2 - 24x + 45 = 0$; $a = 3, b = -24, c = 45$
25. $k^2 - \frac{1}{4} = 0$; $a = 1, b = 0, c = -\frac{1}{4}$
27. $\frac{2}{3}x^2 + 2x - \frac{1}{3} = 0$; $a = \frac{2}{3}, b = 2, c = -\frac{1}{3}$ 29. 9
31. 1 33. 169 35. 148 37. 21 39. 39 41. -1, -10
43. $-\frac{4}{3}, 2$ 45. -1.30, -0.26 47. -1.87, 13.87
49. $2x^2 - 4x - 30 = 0$; -3, 5 51. $x^2 + 6x - 5 = 0$;
 $-3 \pm \sqrt{14}$ 53. $2x^2 - 5x - 7 = 0$; -1, $\frac{7}{2}$
55. $x^2 - 2x - 3 = 0$; -1, 3 57. $2x^2 - 2x - 12 = 0$;
-2, 3 59. -2, -3 61. -2, -8 63. -1, 4 65. -3, 1
67. 2.30 sec 69. 2.21 sec 71. 0.92 sec 73. 0.4 sec
75. 1.4 sec 77. 5.7 sec 79. about 5.04 sec 81. A

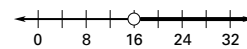
83. D 85. -27 91.



93. $x \leq -5$

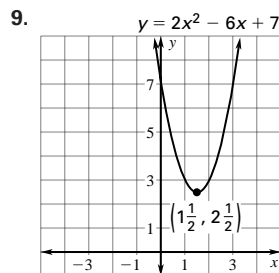
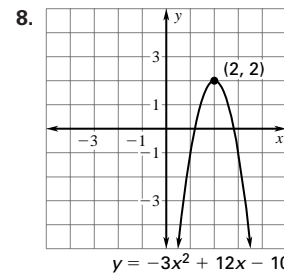
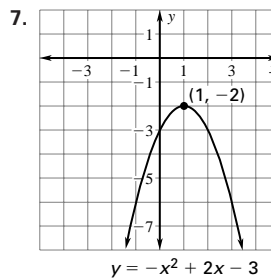


94. $x > 16$



96. $>$ 97. $<$ 99. $<$ 101. $<$

QUIZ 2 (p. 539) 1. up 2. up 3. down 4. up 5. down
6. down



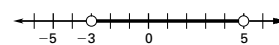
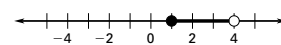
10. -2, 5 11. 6 12. -1, -3 13. -3 14. $-6, -\frac{1}{2}$
15. -2, 8 16. $\frac{3}{2}, 2$ 17. 1.17, -2.84 18. 1.55, -0.22

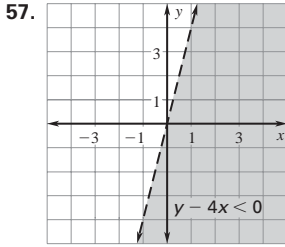
9.7 GUIDED PRACTICE (p. 543) 5. one solution 7. B

9. A 11. 2

9.7 PRACTICE AND APPLICATIONS (pp. 543–545)

13. 49 15. -40 17. 0 19. -111 21. -40
23. no solution 25. two solutions 27. no solution
29. two solutions 31. two solutions 33. one solution
35. 60 37. It crosses the x -axis at two distinct points.
39. 0 41. 0 43. 1 47. domain: $0 \leq t \leq 5$;
range: $9.29 \leq P \leq 161.49$ 49. about 8.5 years
53. $1 \leq x < 4$ 55. $-3 < x < 5$

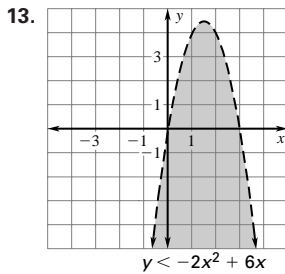
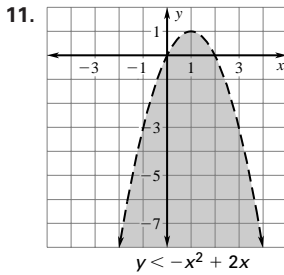
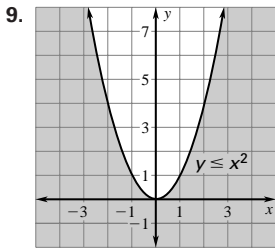




59. 0.06 61. 0.01 63. 0.0018

9.8 GUIDED PRACTICE (p. 550) 3. inside 5. outside

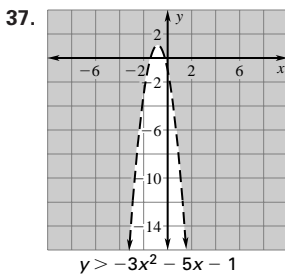
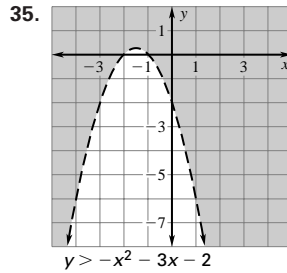
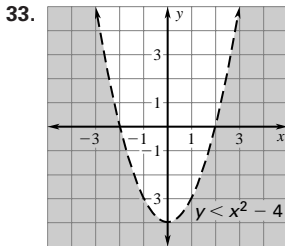
7. (0, 0), yes; (1, -2), no



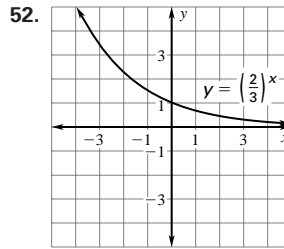
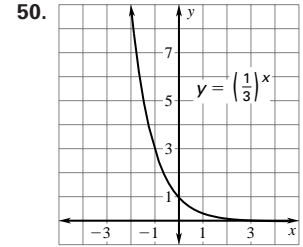
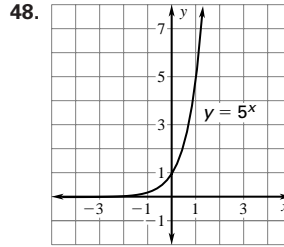
9.8 PRACTICE AND APPLICATIONS (pp. 550–552) 15. yes

17. no 19. no 21. outside 23. inside 25. sometimes

27. sometimes



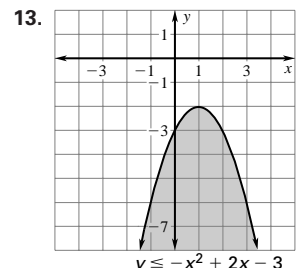
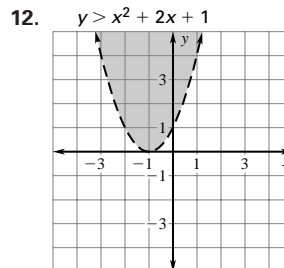
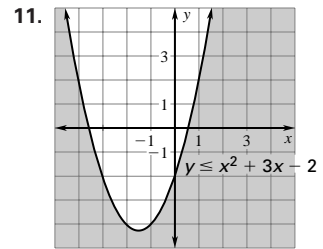
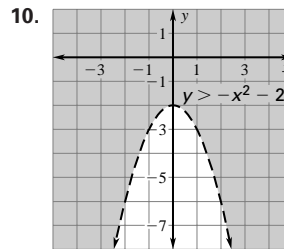
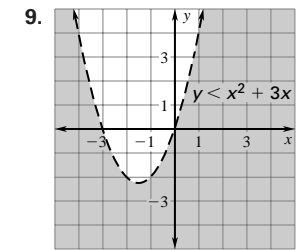
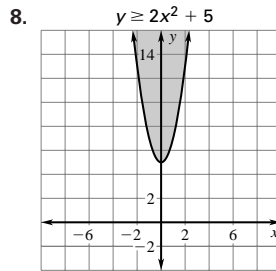
41. $y = 7x$ 43. $y = \frac{1}{2}x$ 45. $y = -2x$



53. $\frac{1}{25}$ 55. $\frac{9}{20}$ 57. $\frac{3}{100}$ 59. $\frac{6}{25}$ 61. $3\frac{9}{10}$ 63. $1\frac{3}{4}$
65. $\frac{91}{100}$ 67. $\frac{1}{4}$

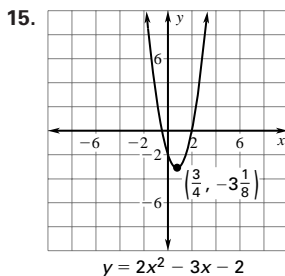
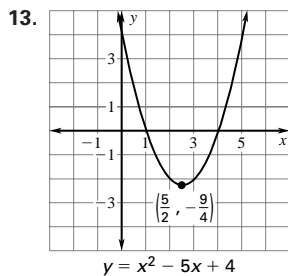
QUIZ 3 (p. 552) 1. two solutions 2. one solution 3. no solution 4. No. *Sample answer:* the vertical motion model is $h(t) = -16t^2 + 50t + 5$. If you let $h(t) = 45$ and solve for t , you have the quadratic equation $-16t^2 + 50t - 40 = 0$. The discriminant has a value of $2500 - 2560 = -60$, so there are no solutions.

5. A 7. B

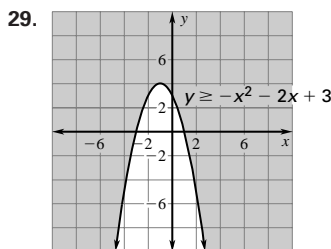


SUMMARY AND REVIEW (pp. 553–556) 1. -2 3. 10

5. ± 12 7. ± 4 9. $3\sqrt{5}$ 11. $\frac{\sqrt{6}}{2}$



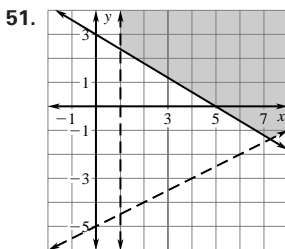
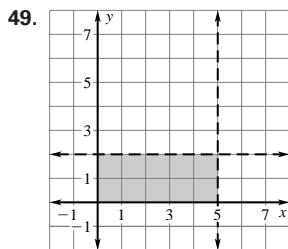
17. 5, 1 19. $1, \frac{1}{3}$ 21. $\frac{1}{2}, \frac{3}{5}$ 23. two solutions 25. 2 27. 1



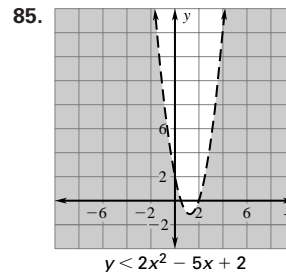
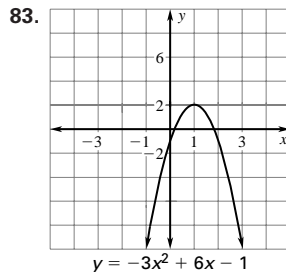
MAINTAINING SKILLS (p. 559) 1. $16x - 96$ 3. $5m - 65$
 5. $30a + 80$ 7. $21m + 6n$ 9. $2x + 10$

CHAPTERS 1–9 CUMULATIVE PRACTICE (p. 560–561)

1. No. Each input value can only have one output value. 5 has two. 3. $3x - 6$ 5. $9 + 2h$ 7. $1.25x = 60$;
 48 pretzels 9. 360 11. 400% 13. $-3; \frac{1}{2}$ 15. $\frac{14}{5}; 14$
 17. $-2; -28$ 19. Yes; slope of both lines is 4.
 21. $y = -x + 10$ 23. $y = -2x - 2$ 25. $y = -\frac{1}{2}x + \frac{9}{2}$
 27. $3x - 5y = -6$ 29. $-2x + 7y = 15$ 31. $x + 4y = 24$
 33. $m \leq -9$ 35. $t \leq -8$ 37. $y \geq 14$ 39. $y > -4$
 41. $k \geq 7$ 43. (2, 6) 45. $(-5, -4)$ 47. $(1, -\frac{1}{2})$



53. x^9 55. $64t^2$ 57. 243 59. $\frac{1}{16}$ 61. $\frac{x^4 y^8}{4}$ 63. $\frac{9x^3}{y}$
 65. 1.5×10^3 67. 6×10^{10} 69. 8×10^0 71. $2\sqrt{10}$
 73. $6\sqrt{2}$ 75. $\frac{\sqrt{21}}{2}$ 77. $3\sqrt{2}$ 79. $\frac{\sqrt{10}}{10}$ 81. $\frac{\sqrt{6}}{3}$



87. No. Discriminant for $-16t^2 + 100t - 180 = 0$ is -1520 , so there is no real solution.

Chapter 10

STUDY GUIDE (p. 566) 1. B 2. C 3. D

- 10.1 GUIDED PRACTICE** (p. 571) 3. linear binomial
 5. quadratic binomial 7. cubic trinomial 9. $-3x^2$
 and $-5x$ are not like terms; $9x^3 - 3x^2 - 5x - 2$
 11. $3x - 16$ 13. $4x^2 - 7x - 2$

10.1 PRACTICE AND APPLICATIONS (pp. 571–573)

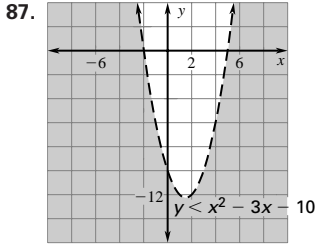
15. always 17. sometimes 19. always 21. 4
 23. 4 25. $20m^3$; cubic monomial 27. -16 ; constant
 monomial 29. $11y^3 - 14$; cubic binomial
 31. $7b^3 - 4b^2$; cubic binomial 33. $-6x^3 + 4x^2 - 6$
 35. $-7m^2 + 7m - 3$ 37. -6 39. $3x^2 - 5$
 41. $z^3 + 1$ 43. $-n^3 + 3n^2 + 3n - 5$
 45. $25x^3 + 8x + 2$ 47. $x^2 + 2x + 2$ 49. $-3x^2 + 6$
 51. $1.5x^2 + 60x$ 53. $A = 1.381t^2 + 3.494t + 235.325$
 59. $5x - 2$ 61. $-15x + 9$ 63. $-7x - 55$ 65. 32
 67. 256 69. 256 71. 1.295 73. 4 75. $1\frac{5}{8}$
 77. $3\frac{7}{10}$ 79. $12\frac{19}{28}$ 81. $3\frac{3}{14}$ 83. $15\frac{31}{72}$

10.2 GUIDED PRACTICE (p. 578) 3. $(x + 3), (x + 3)$

5. 3 7. 20 9. $-8x^2 - 14x$ 11. $-12x^4 - 8x^3 + 24x^2$
 13. $y^2 + 6y - 16$ 15. $w^2 + 2w - 15$
 17. $8x^2 - 29x - 12$ 19. $x^2 + x - 56$

10.2 PRACTICE AND APPLICATIONS (pp. 578–580)

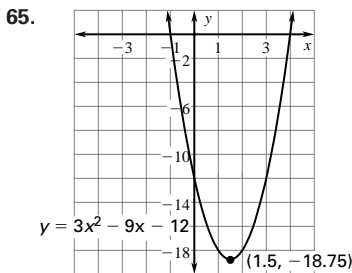
21. $-8x^2 + 20x$ 23. $2x^3 - 16x^2 + 2x$
 25. $12w^5 - 8w^4 - 4w^3$ 27. $t^2 + 13t + 40$
 29. $d^2 - 2d - 15$ 31. $2y^2 + 5y + 2$ 33. $3s^2 + 5s - 2$
 35. $8y^2 - 18y + 7$ 37. $y^2 - 3y - 40$
 39. $2w^2 + 5w - 25$ 41. $2x^2 - 3x - 135$
 43. $6z^2 + 25z + 14$ 45. $10t^2 + 9t - 9$
 47. $63w^2 - 143w + 60$ 49. $d^3 - 7d^2 + 4d + 30$
 51. $6x^3 + x^2 - 8x + 6$ 53. $a^3 + 4a^2 - 19a + 14$
 55. $4y^3 + 45y^2 - 38y - 24$ 57. $21x^2 + 100x + 100$
 59. $R = -3.15t^2 - 6.21t + 989.12$, in millions of dollars
 61. $2x^2 + 7x + 3$ 65. $49x^2$ 67. $\frac{4}{25}y^2$ 69. 9^8 71. b^7
 73. $432t^4$ 75. $-108x^3y^5$ 77. two solutions 79. two
 solutions 81. one solution 83. two solutions 85. two
 solutions



89. $0.0\bar{3}$ 91. 2 93. $\frac{27}{8}$ 95. $\frac{87}{92}$ 97. 2

10.3 GUIDED PRACTICE (p. 585) 3. $x^2 - 12x + 36$
 5. $p^2 + 12p + 36$ 7. $t^2 - 36$ 9. F; $9x^2 + 24x + 16$
 11. T

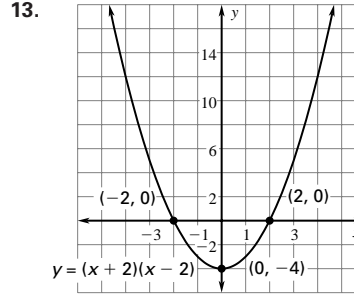
10.3 PRACTICE AND APPLICATIONS (pp. 585–587) 13. yes
 15. no 17. yes 19. yes 21. yes 23. $x^2 - 25$
 25. $4m^2 - 4$ 27. $9 - 4x^2$ 29. $x^2 + 10x + 25$
 31. $9x^2 + 6x + 1$ 33. $16b^2 - 24b + 9$ 35. $x^2 - 16$
 37. $9x^2 - 6x + 1$ 39. $4y^2 - 25$ 41. $a^2 - 4b^2$
 43. $9x^2 - 16y^2$ 45. $81 - 16t^2$ 47. false;
 $a^2 + 4ab + 4b^2$ 49. true 51. $(x + 3)^2 = x^2 + 6x + 9$;
 square of a binomial 53. $(2x + 4)^2 = 4x^2 + 16x + 16$;
 square of a binomial 55. $9x^2 - 24x + 16$ in.²
 57. 25% normal feathers; 50% mildly frizzled;
 25% extremely frizzled 61. x 63. $\frac{15x^2}{y}$



67. $\frac{1}{4}$ 69. $\frac{4}{9}$ 71. $\frac{1}{27}$ 73. $\frac{27}{64}$

QUIZ 1 (p. 587) 1. 2 2. 0 3. 3 4. 5 5. $3x^2 + 5x + 9$
 6. $-6x^3 - 14x^2 + 2x - 2$ 7. $3t^2 - 13t + 14$
 8. $6x^3 + 3x^2 + 4x + 3$ 9. $x^2 + 7x - 8$
 10. $y^2 + 11y + 18$ 11. $-12x^5 + 11x^4 - 3x^2$
 12. $4x^2 - 49y^2$ 13. $16n^2 - 49$ 14. $2x^3 - 3x^2 - 6x + 8$
 15. $x^2 - 36$ 16. $16x^2 - 9$ 17. $25 - 9b^2$
 18. $4x^2 - 49y^2$ 19. $9x^2 + 36x + 36$
 20. $64x^2 + 96x + 36$

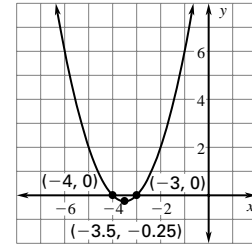
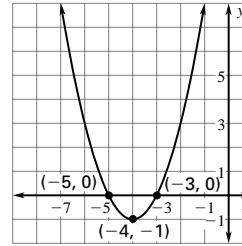
10.4 GUIDED PRACTICE (p. 591) 3. No; 2 and -5 are solutions, 3 is not. 5. no 7. yes 9. $-1, -3$ 11. 7



10.4 PRACTICE AND APPLICATIONS (pp. 591–593)

15. $-8, 6$ 17. -3 19. -7 21. $-2, -3$ 23. 17
 25. -9 27. 20, -15 29. $-1, -2, 4$ 31. $-5, 6$
 33. $-8, -9, 12$ 35. $8, -\frac{1}{2}, -2$

41. x-intercepts: $(-5, -3)$; vertex: $(-4, -1)$
 45. x-intercepts: $(-4, -3)$; vertex: $(-3.5, -0.25)$



47. $(0, -14)$ 49. 630 ft 51. 200 m 55. 0.04443
 57. 1,250,000 59. 9,960,000 61. 81,700,000
 63. $x^2 - 64$ 65. $6x^2 + 19x - 7$ 67. $24x^2 - x - 3$
 69. $x^2 + 20x + 100$ 71. exponential decay;
 $y = P(0.84)^t$ where P = the average price of the computer
 in 1996, and t is the number of years since 1996.
 73. exponential decay; $y = N(0.97)^t$ where N is the
 number of members in 1996 and t is the number of years
 since 1996. 75. 1, 2, 3, 4, 6, 12 77. 1, 2, 3, 6, 9, 18
 79. 1, 3, 17, 51 81. 1, 2, 3, 4, 6, 9, 12, 18, 36
 83. 1, 2, 4, 8, 16, 32, 64 85. 1, 2, 3, 4, 6, 7, 12, 14, 21,
 28, 42, 84

10.5 GUIDED PRACTICE (p. 599) 3. A 5. C 7. 5, -1
 9. always 11. never

10.5 PRACTICE AND APPLICATIONS (pp. 599–601)

15. $(z + 1)(z + 5)$ 17. $(b + 8)(b - 3)$ 19. $(r + 4)(r + 4)$
 21. $(m - 10)(m + 3)$ 23. $(b + 8)(b - 5)$ 25. 2, -7
 27. $-1, -15$ 29. 6, -9 31. 4, 11 33. 5, -13
 35. 8, -7 37. $-4, -8$ 39. 2, 15 41. 3, -6
 43. base: 8 ft, height: 5 ft 45. 305 m by 550 m 51. 15
 53. 1 55. 18 57. $y^2 + 5y - 36$ 59. $-3w^2 + 3w + 60$
 61. $20t^2 - 62t + 30$ 63. $-2, -3$ 65. 6, 9 67. 1, $-\frac{1}{2}$
 69. $-4, 3, \frac{1}{2}$ 71. 11.056 73. 11.86 75. 20.9204
 77. 114.8106

- 10.6 GUIDED PRACTICE** (p. 606) 3. -6 5. $10x^2$ 7. D
 9. C 11. $(2x + 1)(x - 2)$ 13. $(3x - 4)(4x - 1)$
 15. $(3x - 4)(x + 2)$ 17. $\frac{1}{2}, -8$

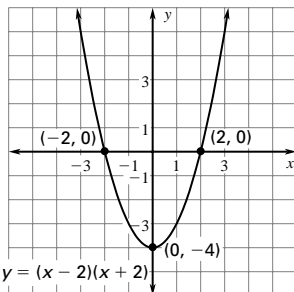
10.6 PRACTICE AND APPLICATIONS (pp. 606-608)

23. $(3t + 1)(t + 5)$ 25. $(2a + 1)(3a + 1)$
 27. $(6b + 1)(b - 2)$ 29. $3(x + 1)(2x - 5)$
 31. $(2z - 1)(z + 10)$ 33. $(4x + 7)(x + 5)$
 35. $(3c - 4)(c - 11)$ 37. $(2t + 7)(3t - 10)$
 39. $(2y - 5)(4y - 3)$ 41. Incorrectly factored:
 $3y^2 - 16y - 35 = (3y + 5)(y - 7)$; solutions are $-\frac{5}{3}, 7$.
 43. $\frac{3}{7}, 1$ 45. $\frac{1}{4}, 5$ 47. $\frac{13}{5}, -2$ 49. $\frac{1}{2}, \frac{3}{2}$ 51. $\frac{5}{2}, \frac{7}{4}$
 53. $\frac{3}{7}, -\frac{1}{4}$ 55. a. $h = -16t^2 + 8t + 8$ b. 1 sec; yes
 57. 2 sec; the other solution of $\frac{3}{4}$ second is the time it
 takes for the T-shirt to leave the cannon and go up to a
 height of 30 feet. You would probably catch the T-shirt
 as it fell. 61. $(-\frac{49}{12}, -\frac{11}{2})$ 63. $16t^2 - 8t + 1$
 65. $9x^2 + 30x + 25$ 67. $121 - 132x + 36x^2$ 69. $\frac{4}{33}$
 71. $\frac{5}{27}$ 73. $\frac{16}{35}$ 75. $\frac{5}{4}$

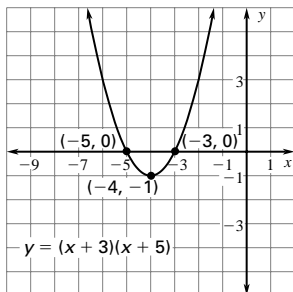
- QUIZ 2** (p. 608) 1. -5 2. -4 3. $-\frac{7}{2}, 4$ 4. $0, \frac{2}{5}$

5. 5, $-\frac{1}{2}$ 6. 0, -4, 7

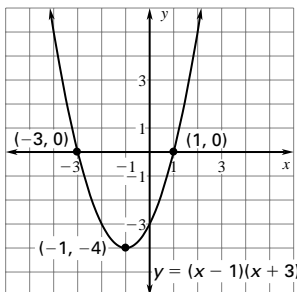
7. x-intercepts: 2, -2;
vertex: (0, -4)



8. x-intercepts: -3, -5;
vertex: (-4, -1)



9. x-intercepts: 1, -3; vertex: (-1, -4)



10. $(y + 4)(y - 1)$ 11. $(w + 11)(w + 2)$
 12. $(n + 19)(n - 3)$ 13. cannot be factored
 14. $(b - 8)(b + 2)$ 15. $(r - 7)(r + 4)$
 16. $(m - 9)(m + 5)$ 17. $(x + 6)(x + 11)$
 18. $(r - 43)(r + 2)$ 19. 1, -6 20. -1, -25 21. 5, 9

22. -9, -2 23. $-\frac{1}{2}, -5$ 24. $\frac{1}{3}, 1$ 25. $-\frac{2}{3}, 4$
 26. $-\frac{3}{2}$ 27. $-\frac{7}{3}, -\frac{2}{5}$

10.7 GUIDED PRACTICE (p. 613) 3. $(b + 5)^2$

5. $(w - 8)^2$ 7. $6(y - 2)(y + 2)$ 9. $(2x - 1)^2$ 11. -3
 13. 7 15. 3 17. 3 sec

10.7 PRACTICE AND APPLICATIONS (pp. 613-615)

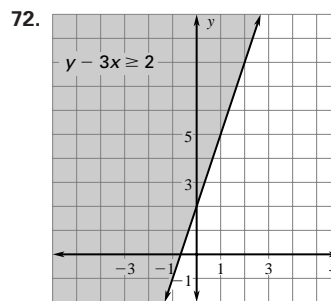
19. $(q - 8)(q + 8)$ 21. $(3c - 1)(3c + 1)$
 23. $(9 - x)(9 + x)$ 25. $(w - 3y)(w + 3y)$ 27. $(x + 4)^2$
 29. $(b - 7)^2$ 31. $(3x + 1)^2$ 33. $(5n - 2)^2$
 35. $4(2w - 5)^2$ 37. $(a - 2b)^2$ 39. $4(n - 3)(n + 3)$
 41. $5(c + 2)^2$ 43. $9(3t^2 + 2t + 1)$ 45. $3(k - 10)(k - 3)$
 47. $4(b - 5)^2$ 49. $4(2w + 5)^2$ 51. $-\frac{1}{2}$ 53. 4 55. 6
 57. $\frac{7}{4}$ 59. 5 sec 61. $S = 2D^2$; about 2.12 in.
 63. 1 sec 65. 16 ft 69. solution 71. not a solution
 73. (1, -1) 75. (0, 0) 77. (2, 2) 79. $6\sqrt{6}$ 81. $10\sqrt{2}$
 83. $\frac{2\sqrt{7}}{7}$ 85. 8 87. $\frac{7 \pm 4\sqrt{7}}{9}$ 89. $\frac{9 \pm \sqrt{557}}{14}$
 91. $2^2 \cdot 5$ 93. $3 \cdot 19$ 95. $2^4 \cdot 5$ 97. $2^3 \cdot 3 \cdot 5$
 99. $3 \cdot 5 \cdot 23$ 101. $2^3 \cdot 3 \cdot 5^2$

10.8 GUIDED PRACTICE (p. 620) 3. When factoring

out $-2b$, the remaining factor is $(b^2 - 6b + 7)$;
 answer is $-2b(b - 7)(b + 1)$. 5. $3x^2(x^2 + 2)$
 7. $(x - 1)(x^2 + x + 1)$ 9. $(3x + 1)(9x^2 - 3x + 1)$
 11. $2b(b - 3)(b + 3)$ 13. $3t(t + 3)^2$ 15. $x(x - 4)(x + 4)$

10.8 PRACTICE AND APPLICATIONS (pp. 620-622)

17. $6v(v^2 - 3)$ 19. $3x(1 - 3x)$ 21. $4a^2(1 - 2a^3)$
 23. $5x(3x^2 - x - 2)$ 25. $3d(6d^5 - 2d + 1)$
 27. $(a + b)(a + 3)$ 29. $(5x + 1)(2x - 3)$
 31. $(10x - 7)(x - 1)$ 33. $(c - 2)(c^2 + 2c + 4)$
 35. $(m - 5)(m^2 + 5m + 25)$ 37. $2y(y - 6)(y + 1)$
 39. $4t(t - 6)(t + 6)$ 41. $(c^3 - 12)(c + 1)$
 43. $3(x + 10)(x^2 - 10x + 100)$ 45. -3, -4 47. 9, -3
 49. $0, \frac{1}{2}, -\frac{1}{2}$ 51. $-\frac{3}{4}, 3$ 53. $\frac{-5 \pm \sqrt{17}}{4}$ 55. $\frac{2 \pm 2\sqrt{43}}{12}$
 57. 3 sec 59. $h, l = h - 3, w = h - 9$ 61. $h = 12$ in.,
 $l = 9$ in., $w = 3$ in. 65. $x < 1$ 67. -3, 3 69. 7, -19



75. $-\frac{1}{7}$ 77. $\frac{4}{7}$ 79. $-\frac{8}{21}$ 81. $-\frac{4}{35}$

- QUIZ 3 (p. 622)** 1. $(7x - 8)(7x + 8)$; difference of squares
 2. $(11 - 3x)(11 + 3x)$; difference of squares
 3. $(2t + 5)^2$; perfect square trinomial
 4. $2(6 - 5y)(6 + 5y)$; difference of squares
 5. $(3y + 7)^2$; perfect square trinomial 6. $3(n - 6)^2$; perfect square trinomial 7. 4 8. -4 9. 0, 3, -12
 10. $3x^2(x + 4)$ 11. $3x(2x + 1)$ 12. $9x^3(2x - 1)$
 13. $2x(4x^4 + 2x - 1)$ 14. $2x(x - 2)(x - 1)$
 15. $(x^2 + 4)(x + 3)$ 16. $4(x - 5)(x^2 + 5x + 25)$
 17. $0, \frac{5}{6}, -\frac{5}{6}$ 18. 2

CHAPTER SUMMARY AND REVIEW (pp. 623–626)

1. $3x - 5$ 3. $2x^2 + 5x + 7$ 5. $x^3 + 2x^2 + 2x - 2$
 7. $6a^3 - 15a^2 + 3a$ 9. $a^2 + 3a - 40$
 11. $d^3 - d^2 - 16d - 20$ 13. $x^2 - 225$
 15. $x^2 + 4x + 4$ 17. $(2x + 2)^2 = 4x^2 + 8x + 4$; square of a binomial 19. 2, 3 21. $\frac{3 \pm \sqrt{29}}{10}$ 23. 0, -9, 12
 25. $-\frac{1}{3}, 4$ 27. $(x + 6)(x + 4)$ 29. $(m - 10)(m + 2)$
 31. -8, 4 33. $(3x + 1)(4x + 1)$ 35. $(4r - 3)(r + 2)$
 37. $-\frac{1}{2}, 1$ 39. $\frac{1}{2}, -4$ 41. $\frac{1}{4}, -\frac{1}{4}$ 43. 10, -10
 45. $-\frac{2}{5}$ 47. $5y^2(y^2 - 4y + 2)$ 49. $(y^2 - 2)(3y - 4)$
 51. $(3b + 1)(9b^2 - 3b + 1)$ 53. 5, -5

- MAINTAINING SKILLS (p. 629)** 1. $\frac{1}{4}, \frac{2}{5}$ 3. $\frac{1}{3}, \frac{1}{2}, \frac{5}{6}$ 5. $\frac{3}{10}, \frac{13}{20}, \frac{3}{4}$ 7. $\frac{5}{6}, \frac{5}{4}, 1\frac{1}{3}$ 9. $1\frac{1}{12}$ 11. $\frac{29}{35}$ 13. $\frac{11}{30}$ 15. $5\frac{1}{3}$

Chapter 11

STUDY GUIDE (p. 632) 1. B 2. B 3. D

- 11.1 GUIDED PRACTICE (p. 636)** 3. 3 5. $\frac{1}{7}$ 7. 6 9. no
 11. yes (assuming $a, c \neq 0$)

11.1 PRACTICE AND APPLICATIONS (pp. 636–638)

13. $\frac{32}{9}$ 15. 35 17. 3 19. $\frac{45}{8}$ 21. $\frac{5}{2}$ 23. $\frac{1}{3}$ 25. ± 8
 27. 10 29. $-\frac{5}{3}$ 31. -5, 2 33. 2, 5 35. $4, \frac{5}{2}$
 37. about 7.5 ft high and 5.4 ft wide 39. 6.875 in.
 45. $y + 3 = -4(x - 5)$ 47. $2x + y = 26$
 49. $3x - 4y = -29$ 51. $12x + y = 84$ 53. 8 55. 100
 57. $3\sqrt{2}$ 59. $4\sqrt{5}$ 61. 54 63. $\sqrt{7}$

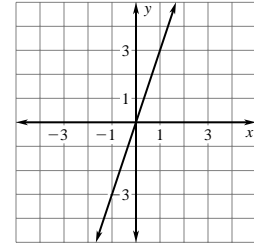
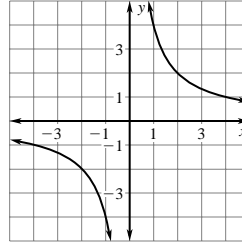
65.

Decimal	0.78	0.2	$0.\overline{6}$	0.073	0.03	0.48
Percent	78%	20%	$66\frac{2}{3}\%$	7.3%	3%	48%
Fraction	$\frac{39}{50}$	$\frac{1}{5}$	$\frac{2}{3}$	$\frac{73}{1000}$	$\frac{3}{100}$	$\frac{12}{25}$

- 11.2 GUIDED PRACTICE (p. 642)** 3. Direct variation; the graph is a line passing through the origin. 5. Inverse variation; the graph represents $y = \frac{4}{x}$. 7. neither
 9. inverse variation 11. $y = \frac{24}{x}$

11.2 PRACTICE AND APPLICATIONS (pp. 642–644)

13. $y = 4x$ 15. $y = 3x$ 17. $y = \frac{1}{9}x$ 19. $y = \frac{21}{x}$
 21. $y = \frac{22}{x}$ 23. $y = \frac{13}{x}$ 25. $y = \frac{27}{x}$
 27. inversely 29. directly



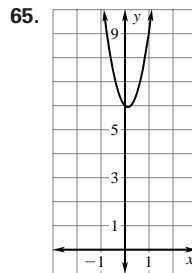
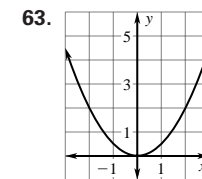
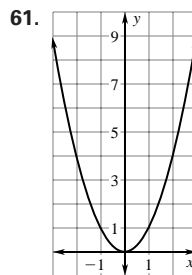
31. inverse variation 33. inverse variation 35. 116 lb
 37. about 0.36 pounds per square inch 39. 2.2° 45. 4.5
 47. 1 49. 5.5 51. yes 53. yes 55. $(x + 7)(x - 2)$
 57. $(5x - 6)(x - 9)$ 59. $5x^2(3x + 2)(x - 4)$
 61. about 1.36 to 1 63. $\frac{2}{3}$ 65. 2 67. $9\frac{7}{15}$ 69. $1\frac{28}{55}$

11.2 TECHNOLOGY (p. 645) 1. directly; 0.825; $y = 0.825x$

- 11.3 GUIDED PRACTICE (p. 649)** 5. $\frac{1}{8c}$ 7. already in simplest form 9. $\frac{2n}{3n^2 + 10}$ 11. $y^4 - 1$ 13. $3y + 1$ 15. $x + 1$

11.3 PRACTICE AND APPLICATIONS (pp. 649–651) 17. $3x$

19. $\frac{7}{25x^2}$ 21. $\frac{4}{3}$ 23. $\frac{t^2}{t + 2}$ 25. $\frac{7}{12 + x}$ 27. $\frac{7 - x^2}{6}$
 29. -1 31. $\frac{x - 4}{x - 3}$ 33. $\frac{x + 1}{x + 6}$ 35. $2x - 1$ 37. $-\frac{1}{x}$
 39. $-\frac{1}{2y}$ 41. $-\frac{1}{y + 3}$ 43. $a - 2$ 45. $x - 8$
 47. $-\frac{4(11x - 738)}{5(x + 40)}$; 3.6 lb per in.² 51. $-\frac{1}{3}$ 53. $\frac{24}{49}$
 55. $\frac{9y}{20}$ 57. $4m^3$ 59. $\frac{8c^2}{3}$



67. 2.387 69. 111.4 71. 0.02

- QUIZ 1 (p. 651)** 1. 8 2. $\frac{27}{7}$ 3. 4 4. 1, $-\frac{5}{3}$ 5. $y = 4x$
 6. $y = \frac{3}{5}x$ 7. $y = \frac{3}{2}x$ 8. $y = \frac{24}{x}$ 9. $y = \frac{16}{x}$ 10. $y = \frac{7.5}{x}$
 11. $\frac{3x}{2}$ 12. $\frac{x-4}{x+6}$ 13. $-\frac{1}{x+4}$ 14. $\frac{5}{11+x}$ 15. $x+4$
 16. $2x+3$

- 11.4 GUIDED PRACTICE (p. 655)** 3. $\frac{1}{2x^2}$ 5. $\frac{x}{(x+5)^2}$
 7. $\frac{1}{4}$ 9. The solver should have multiplied the first expression by the reciprocal of the second expression;

$$\frac{x+3}{x-3} \div \frac{4x}{x^2-9} = \frac{x+3}{x-3} \cdot \frac{x^2-9}{4x} = \frac{(x+3)(x+3)(x-3)}{(x-3)(4x)} = \frac{(x+3)^2}{4x}$$

11.4 PRACTICE AND APPLICATIONS (pp. 655–657) 11. x

13. $\frac{6}{35x}$ 15. $-\frac{1}{4(x-7)}$ 17. $\frac{z(z+1)}{10(z-7)}$ 19. 3 21. x
 23. $\frac{c-8}{4c^2(c+1)}$ 25. $9x$ 27. $2(y-3)$ 29. $x+3$ 31. $5x$

33. $\frac{5}{6x}$ 35. $\frac{x+2}{2(x-2)}$ 37. $\frac{x(x-6)}{x+3}$ 39. $\frac{x(2x+1)}{2(x-1)^2}$

41. $-\frac{x+6}{5x^2}$ 43. $\frac{1}{(2y+3)(y-2)}$

45. $\frac{4x+3}{(x-1)(4x-3)(x+1)}$ 47. $\frac{x+3}{x+1}$ 49. The ratio approaches 1.

55.

Input x	2	3	4	5	6
Output y	11	12	13	14	15

57. $-19 < x < 5$ 59. $x \leq -46$ or $x \geq 20$
 61. $x < -22$ or $x > 12$ 63. $-3 \pm 2\sqrt{3}$ 65. $-\frac{5}{3}, -2$
 67. $\frac{1}{2}, -\frac{5}{3}$ 69. $2x^2 + 11x - 18$
 71. $16p^3 + 11p^2 - 8p + 8$ 73. 0.85 75. 1.74
 77. 1.125 79. 1.12

- 11.5 GUIDED PRACTICE (p. 660)** 3. $\frac{5(y+2)}{y+3}$ 5. $\frac{7}{3r}$
 7. $-\frac{5}{c^2-4}$ 9. $-\frac{12}{y-2}$ 11. $\frac{2}{r+4}$

11.5 PRACTICE AND APPLICATIONS (pp. 660–662)

13. $\frac{7}{x+7}$ 15. 2 17. $\frac{1}{2}$ 19. $\frac{t+14}{3t}$ 21. $\frac{2-5x}{3x-1}$ 23. 2

25. $\frac{a-1}{a-5}$ 27. $\frac{x+5}{x+2}$ 29. $\frac{2x+3}{x+1}$ 31. $\frac{y-3}{y-7}$ 33. The solver multiplied the rational expressions rather than adding them;
 $\frac{y+2}{y+3} + \frac{y-4}{y+3} = \frac{2y-2}{y+3}$ 35. $\frac{3x+9}{x-9}$

37. $-\frac{2}{x-3}$ 39. $\frac{2(3x-4)^2}{x^2}$ 41. $\frac{14x}{x+1}$ 43. 1 joule

45. $\frac{x}{x-10}$ joules 49. $\frac{x^5}{y^6}$ 51. $\frac{y^5}{2x^8}$ 53. $\frac{1}{1296c^4}$ 55. c^2d

57. $\frac{1}{p^2}$ 59. $\frac{1}{a^5}$ 61. m^{16} 63. $-\frac{v^9}{8u^3}$ 65. 1.6×10^2
 67. 8.1×10^{-7} 69. 1.6×10^{-3} 71. 9, 11, 13 73. 42, 35, 27 75. 8, $\frac{19}{2}, 11$

- 11.6 GUIDED PRACTICE (p. 667)** 3. $\frac{x}{3}$ 5. $\frac{(x+2)(2x+7)}{(x+1)(2x+3)}$
 7. -1

11.6 PRACTICE AND APPLICATIONS (pp. 667–669) 9. 15

11. $7c^5$ 13. $5b$ 15. $90x^3$ 17. $24y^2$ 19. $21a^7 + 7a^6$

21. $8a^4 - 12a^3$ 23. $\frac{155}{78x}$ 25. $\frac{4x+5}{4}$ 27. $\frac{7n^2+1}{30n}$

29. $\frac{63x-4}{14x^2}$ 31. $-\frac{3x+1}{6x^2}$ 33. $\frac{19x-11}{33x}$

35. $\frac{2(x^2-20)}{(x-10)(x+6)}$ 37. $\frac{4x^2+17x+5}{(3x-1)(x+1)}$

39. $-\frac{x^2+14x-2}{(3x-1)(x-2)}$ 41. $-\frac{5x(x-3)}{(x-1)(x+4)}$

43. $T = \frac{x}{10} + \frac{8-x}{20}$, where x is the number of miles in the woods.

45.

Distance (woods), x	0	2	4	6	8
Total time, T	0.4	0.5	0.6	0.7	0.8

47. $T = \frac{48x}{(x-2)(x+2)}$ 49. $\frac{2(2x^2+x+1)}{(2x+1)(2x-1)}$ 51. $\frac{3}{35}$

55. $y+2 = 2(x+3)$ 57. $y-6 = \frac{1}{2}(x+3)$

59. $y = \frac{3}{7}(x-7)$ 61. $\frac{1}{2x}$ 63. $\frac{1}{2x^4}$ 65. $\frac{1}{12x}$ 67. $\frac{3p^2}{4q}$

69. $6x^2 - 5x + 7 = 0$ 71. $3y^2 - y - 4 = 0$

73. $12x^2 + 5x - 7 = 0$ 75. $|x - 8500| \leq 1000$

77. 0.315 79. 0.296 81. -0.708 83. -0.545 85. 0.104
 87. -0.514

- 11.7 GUIDED PRACTICE (p. 674)** 3. $3x$ 5. $3x^3$ 7. 6, -1
 9. 7 11. 2

11.7 PRACTICE AND APPLICATIONS (pp. 674–677) 13. 28

15. 13 17. $\frac{1}{2}$ 19. -7 21. 10, -2 23. 0, 16 25. $\frac{1}{3}$

27. 2 29. 2 31. $-\frac{6}{7}$ 33. $\frac{2}{3}$ 35. 3, $-\frac{1}{4}$ 37. 0, 3

39. -12 41. 3, -2 43. 7, -6 45. -4 47. 3, 6

49. about 6.43 hours, or 6 hours 26 minutes; about 128.57 hours, or 128 hours 34 minutes 51. \$1.00 per pound
 53. 7 dimes, 5 quarters 61. 9, 8, 7, 6, 5

63. 0, -1, -4, -9, -16 65. 0, $\frac{1}{2}, 2, \frac{9}{2}, 8$ 67. 36 69. 1

71. 125 73. $6\sqrt{2}$ 75. $\sqrt{13}$ 77. $\frac{3\sqrt{10}}{4}$ 79. $\frac{21\sqrt{17}}{8}$

81. $3\sqrt{3}$ 83. $3\sqrt{3}$ 85. $\frac{7}{8}$ 87. $\frac{31}{45}$ 89. 1 91. $-\frac{7}{24}$

93. 1 95. $\frac{89}{220}$

- QUIZ 2 (p. 677)** 1. $\frac{7x^2}{2}$ 2. 10 3. $\frac{3}{2}$ 4. $\frac{x-3}{x+2}$ 5. $\frac{1}{x-7}$

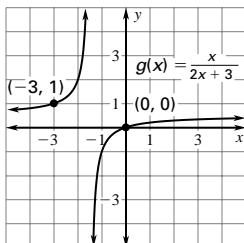
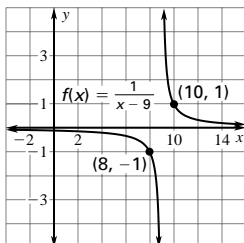
6. $\frac{1}{x+1}$ 7. $\frac{7x^2-7x+6}{(x+1)(x-1)}$ 8. $\frac{x(x^2+2x-2)}{(x-3)(x+2)}$ 9. 4

10. -2 11. 3 12. 130 13. $\frac{15}{x+2}, \frac{15}{x-2}$

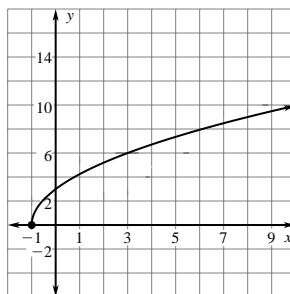
14. $\frac{15}{x+2} + \frac{15}{x-2} = \frac{30x}{(x+2)(x-2)}$ 15. 18 hours

16. about 1.71 hours, or 1 hour 43 minutes

- EXTENSION EXERCISES (p. 680)**
1. $\frac{10}{x-9}$ 3. $\frac{2x-1}{x^2}$
5. $\frac{x(11x+7)}{(x-7)(x+7)}$ 7. $\frac{3x+5}{3x+7}$ 9. $-\frac{x+3}{x^2}$
11. $-\frac{18}{(x+9)(x-9)}$ 13. $\frac{3}{x(x+15)}$ 15. $\frac{3(x-2)^2}{2x}$
17. $(x-2)^2$ 19. $\frac{x(x+3)}{x+1}$ 21. $\frac{x^2}{(2x+1)^2}$ 23. $\frac{(x+5)^2}{(x+2)^2}$
25. $f(x) = \frac{1}{x-9}$ 27. $g(x) = \frac{x}{2x+3}$



17. all real numbers ≥ -1



19. 1200 gal/min

12.1 PRACTICE AND APPLICATIONS (pp. 695–697)

21. -10 23. 6 25. 6 27. 4

29. All nonnegative real numbers. *Sample table:*

x	0	1	4	9
$y = 6\sqrt{x}$	0	6	12	18

31. All real numbers $\geq \frac{10}{3}$. *Sample table:*

x	$\frac{10}{3}$	$\frac{11}{3}$	4	5	6
$y = \sqrt{3x-10}$	0	1	≈ 1.4	≈ 2.2	≈ 2.8

33. All nonnegative real numbers. *Sample table:*

x	0	1	4	9	16
$y = 4 + \sqrt{x}$	4	5	6	7	8

35. All real numbers ≥ -9 . *Sample table:*

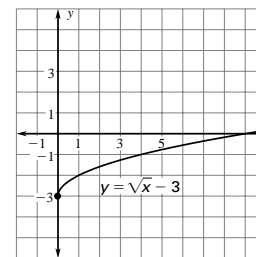
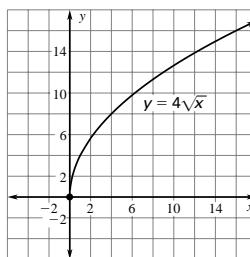
x	-9	-8	-5	0	7
$y = \sqrt{x+9}$	0	1	2	3	4

37. All nonnegative real numbers. *Sample table:*

x	0	1	4	9
$y = x\sqrt{x}$	0	1	8	27

39. incorrect statement; $S = 42$ mph

41. domain: all nonnegative real numbers; range: all nonnegative real numbers
47. domain: all nonnegative real numbers; range: all real numbers ≥ -3



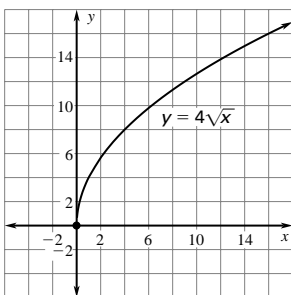
- CHAPTER SUMMARY AND REVIEW (pp. 681–684)**
1. $\frac{8}{7}$
3. 4 5. $y = 5x$ 7. $y = \frac{4}{5}x$ 9. $y = 14x$ 11. $y = \frac{36}{x}$
13. $y = \frac{450}{x}$ 15. $y = \frac{22}{x}$ 17. $\frac{x}{3x^2+1}$ 19. $\frac{7x(x-2)}{3x+2}$
21. $\frac{x+2}{x+7}$ 23. $\frac{x+7}{x-1}$ 25. $\frac{y-8}{2y-3}$ 27. $20x^2$
29. $\frac{8(2x+7)}{x-1}$ 31. $9x$ 33. $\frac{x+2}{x}$ 35. 1 37. $\frac{x+2}{4}$
39. $\frac{4x-5}{x-2}$ 41. $\frac{1}{6}$ 43. $-4, 2$ 45. no solution

- MAINTAINING SKILLS (p. 687)**
1. $\frac{4\sqrt{2}}{7}$ 3. $\frac{\sqrt{5}}{3}$ 5. $\frac{11\sqrt{3}}{12}$
7. $2\sqrt{2}$ 9. $(a-9)^2$ 11. $(y-11)^2$ 13. $(15+r)^2$ or $(r+15)^2$ 15. $(2x+5)^2$ 17. $(4-7x)^2$ or $(7x-4)^2$

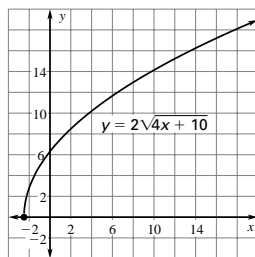
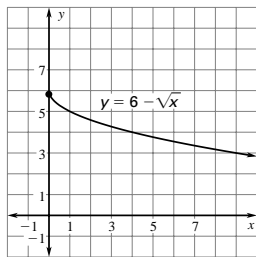
Chapter 12

- STUDY GUIDE (p. 690)** 1. D 2. A 3. B

- 12.1 GUIDED PRACTICE (p. 695)**
3. 0, 4, 5.7, 6.9, 8
5. 4, 7, 8.2, 9.2, 10 7. 1.4, 1.7, 2, 2.2, 2.4 9. domain: all nonnegative real numbers; range: all nonnegative real numbers
11. domain: all nonnegative real numbers; range: all real numbers ≥ -10 13. domain: all real numbers ≥ -5 ; range: all nonnegative real numbers
15. all nonnegative real numbers



49. domain: all nonnegative real numbers; range: all real numbers ≤ 6
55. domain: all real numbers $\geq -\frac{5}{2}$; range: all nonnegative real numbers



57. twice as fast 63. $2\sqrt{15}$ 65. $6\sqrt{10}$ 67. $2\sqrt{5}$
 69. $\sqrt{11}$ 71. $-1.24, 3.24$ 73. $-3.30, 0.30$
 75. $0.19, 1.31$ 77. $3x^2 + 5x - 28$
 79. $10x^2 - 33x + 27$ 81. $2x^3 + x^2 + x - 1$ 83. $\frac{8}{3}$
 85. $\frac{x}{x+1}$ 87. $\frac{1}{2}$ 89. 24 91. 35 93. 0.2635

- 12.2 GUIDED PRACTICE (p. 701)** 3. $4 + 6\sqrt{5}$ 5. $5\sqrt{6}$
 7. $16 + 6\sqrt{7}$ 9. $\frac{4\sqrt{13}}{13}$ 11. $\frac{3\sqrt{10}}{5}$

12.2 PRACTICE AND APPLICATIONS (pp. 701–703)

13. $7\sqrt{7}$ 15. $-\sqrt{3}$ 17. $\sqrt{3} + 5\sqrt{5}$ 19. $5\sqrt{2}$
 21. $\sqrt{5}$ 23. $12\sqrt{5}$ 25. 15 27. $3\sqrt{10}$ 29. $6 - \sqrt{6}$
 31. $4\sqrt{5} + 5$ 33. $5\sqrt{6} + 3$ 35. -12 37. 5 39. 33
 41. $\frac{5\sqrt{7}}{7}$ 43. $\frac{\sqrt{3}}{4}$ 45. $\frac{\sqrt{30}}{3}$ 47. $\frac{12 - 2\sqrt{3}}{11}$
 49. $\frac{2 - \sqrt{2}}{2}$ 51. $\frac{3\sqrt{5} + 5}{4}$ 53. $\sqrt{12}$ and $\sqrt{13}$ are not like terms; $\sqrt{12} + \sqrt{13} = 2\sqrt{3} + \sqrt{13}$ 55. You ran $16\sqrt{5} - 32 \approx 3.78$ ft/sec faster. 61. 43.75% 63. 147
 65. $-5, 3$ 67. $13, -2$ 69. $-\frac{2}{3}, -1$ 71. -30
 73. All nonnegative real numbers. *Sample table:*

x	0	1	4	9	16
$y = \sqrt{x} - 3$	-3	-2	-1	0	1

75. All nonnegative real numbers. *Sample table:*

x	0	1	4	9	16
$y = 6\sqrt{x}$	0	6	12	18	24

77. All real numbers ≥ -3 . *Sample table:*

x	-3	-2	1	6	13
$y = \sqrt{x+3}$	0	1	2	3	4

79. $>$ 81. $=$ 83. $>$ 85. $<$ 87. $<$ 89. $=$ 91. $<$
 93. $>$ 95. $<$

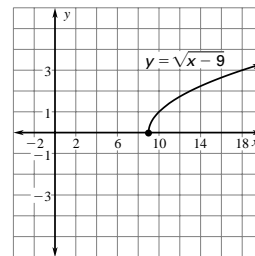
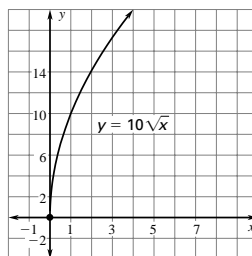
- 12.3 GUIDED PRACTICE (p. 707)** 3. 64 5. 196 7. 36
 9. no solution 11. 4 13. 25 15. 3 17. 3

12.3 PRACTICE AND APPLICATIONS (pp. 707–709)

19. 1 21. 100 23. 256 25. 6 27. 3 29. $\frac{1}{3}$ 31. 48
 33. Line 2 should be $(\sqrt{x})^2 = 7^2; x = 49$. 35. 75
 37. about 28.4 lb/in.² 39. *Sample answer:* $\sqrt{2x - 20} = 4$
 41. 36 43. no solution 45. no solution 47. 7
 49. no solution 51. 3 53. 3 55. 270 m/sec²
 57. false; $\sqrt{36} \neq -6$ 61. $\pm\sqrt{11}$ 63. ± 2 65. $\pm\sqrt{3}$
 67. $4x^2 - 12x + 9$ 69. $9x^2 - 25y^2$
 71. $4a^2 - 36ab + 81b^2$ 73. $(x - 6)^2$ 75. $\frac{9}{19}$ 77. $\frac{10}{13}$
 79. $\frac{50}{57}$ 81. $\frac{9}{34}$

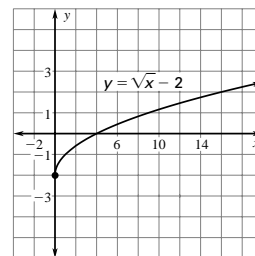
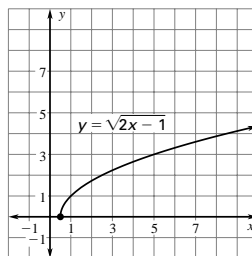
QUIZ 1 (p. 709)

1. domain: all nonnegative real numbers; range: all nonnegative real numbers
2. domain: all real numbers ≥ 9 ; range: all nonnegative real numbers



3. domain: all real numbers $\geq \frac{1}{2}$; range: all nonnegative real numbers

4. domain: all nonnegative real numbers; range: all real numbers ≥ -2



5. $18\sqrt{10}$ 6. $3\sqrt{6} + 3$ 7. $4\sqrt{7} + \sqrt{5}$ 8. 4 9. 64
 10. $-\frac{1}{3}$ 11. 6 12. 7 13. 3 14. 1.78 lb/in.²

- 12.4 GUIDED PRACTICE (p. 713)** 3. 7 5. 125 7. 27
 9. 729

12.4 PRACTICE AND APPLICATIONS (pp. 713–714)

11. $11^{1/3}$ 13. $16^{5/2}$ 15. $\sqrt{7}$ 17. $(\sqrt[3]{8})^7$ 19. 100 21. 2
 23. 16 25. 81 27. 25 29. 256 31. 16 33. 36 35. 20
 37. 64 39. $x^{5/6}$ or $(\sqrt[6]{x})^5$ 41. $x^{1/2}y^{1/2}$ or \sqrt{xy} 43. y^2
 45. sometimes 49. $\pm 2\sqrt{14}$ 51. ± 6 53. $\pm \frac{2\sqrt{5}}{5}$
 55. $-4, 8$ 57. prime 59. composite; $3 \cdot 5^2$
 61. composite; $2 \cdot 3^2$ 63. composite; $3 \cdot 23$

12.5 GUIDED PRACTICE (p. 719) 3. 100 5. 25 7. 121

9. $\frac{3 \pm \sqrt{41}}{2}$ 11. $-5 \pm \sqrt{35}$ 13. $-13, -1$

15. $-\frac{2}{3}, -5$ 17. $\frac{5 \pm \sqrt{85}}{6}$ 19. $\pm \frac{\sqrt{6}}{3}$

12.5 PRACTICE AND APPLICATIONS (pp. 719–721)

21. 16 23. 121 25. 400 27. 9 29. 2, 6 31. 2, -8

33. $-5 \pm \sqrt{37}$ 35. 3, -13 37. 2, 22 39. $1 \pm \sqrt{6}$

41. $2 \pm \sqrt{5}$ 43. $-7 \pm \sqrt{51}$ 45. $-5 \pm 2\sqrt{7}$

47. $-11 \pm 2\sqrt{30}$ 49. $-4 \pm \sqrt{22}$ 51. $-10 \pm 7\sqrt{2}$

53. $6 \pm \sqrt{39}$ 55. $1 \pm \sqrt{5}$ 57. about 12.25 ft by 12.25 ft

59. Base is about 6.8 ft; height is about 17.6 ft. 61. ± 3

63. $-7, 2$ 65. $-3, \frac{4}{3}$ 67. $3 \pm \sqrt{2}$ 69. $-\frac{1}{2}, -3$

71. $12 \pm 5\sqrt{6}$ 73. no solution 75. about 8.6 ft

81. (4, 0) 83. ± 7 85. ± 9 87. $\pm 4\sqrt{10}$ 89. no

solution 91. no solution 93. 3, -1 95. -4, 8

97. -5, -6 99. 3 101. $(x+5)(x-4)$ 103. $(x+2)^2$

105. $(2x-3)(x+1)$ 107. $\frac{3}{5}$ 109. $\frac{11}{100}$ 111. $\frac{1}{100}$

113. $\frac{3}{100}$ 115. $\frac{3}{8}$

12.6 GUIDED PRACTICE (p. 727) 3. $c = 25$ 5. $a = 8$

7. $a = 60$ 9. $b = 16$ 11. 6, 8

12.6 PRACTICE AND APPLICATIONS (pp. 727–729)

13. $b = \sqrt{7} \approx 2.65$ 15. $a = 2\sqrt{10} \approx 6.32$

17. $b = 5\sqrt{3} \approx 8.66$ 19. $c = 2\sqrt{17} \approx 8.25$

21. $a = \sqrt{91} \approx 9.54$ 23. $b = \sqrt{33} \approx 5.74$

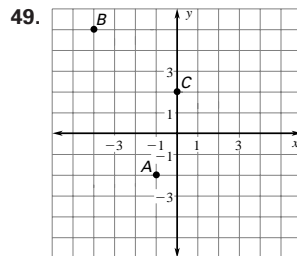
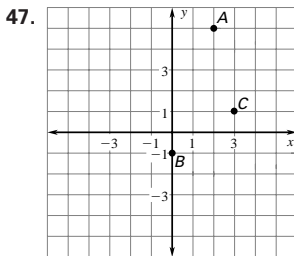
25. $x - 6 = 18, x = 24$ 27. $x = 5, x + 5 = 10$

29. $x = 1, \sqrt{2x} = \sqrt{2}$ 31. about 127.3 ft

33. about 12.2 in. 35. about 4.9 ft 37. right triangle;

$5^2 + 12^2 = 13^2$ 39. right triangle; $11^2 + 60^2 = 61^2$

41. not a right triangle; $3^2 + 9^2 \neq 10^2$ 43. not a right triangle; $6^2 + 9^2 \neq 11^2$



51. zero 53. two 55. two 57. 35 59. 50 61. 51

QUIZ 2 (p. 729) 1. 2 2. 42 3. 9 4. $3 \pm \sqrt{2}$

5. $-2 \pm \sqrt{5}$ 6. $-1 \pm \sqrt{3}$ 7. not a right triangle;

$6^2 + 9^2 \neq 11^2$ 8. right triangle; $12^2 + 35^2 = 37^2$

9. right triangle; $1^2 + 1^2 = (\sqrt{2})^2$ 10. 2000 ft

12.7 GUIDED PRACTICE (p. 733) 3. 7.62 5. right

triangle 7. not a right triangle 9. 25 yd

12.7 PRACTICE AND APPLICATIONS (pp. 733–735)

11. 12.08 13. 8.60 15. 4.24 17. 9 19. 21.26

21. 16.16 23. 12.73 25. right triangle 27. not a right triangle

29. right triangle 31. $AB = 4\sqrt{2} \approx 5.66,$

$BC = \sqrt{17} \approx 4.12, CA = 5$ 33. 269 mi

35. about 670 mi 37. about 457 mi

43. $9(3x-4)(3x+4)$ 45. $(x+6)^2$

47. $(3x+1)^2$ 49. $2(6-5p)(6+5p)$

51. $3y(y+6)(y-1)$ 53. $2x^2(x-2)(x+2)$

55. $\frac{x}{7}$ 57. $4x$ 59. $\frac{7-x}{4x}$ 61. $x+6$ 63. $9a-36$

65. $\frac{x+12}{x}$ 67. $\frac{13}{x}$ 69. $\frac{43}{12x}$ 71. 40% 73. $33.\bar{3}\%$

75. 62.5% 77. 4%

12.8 GUIDED PRACTICE (p. 738) 3. $(\frac{3}{2}, 3)$ 5. (-4, 0)

7. (0, 5) 9. (2, 1); $d = \sqrt{17} \approx 4.12$ 11. (3, 4);

$d = \sqrt{5} \approx 2.24$ 13. (-1, 7); $d = \sqrt{5} \approx 2.24$

12.8 PRACTICE AND APPLICATIONS (pp. 738–739)

15. (3, 3) 17. (3, 3) 19. $(-\frac{1}{2}, \frac{1}{2})$ 21. $(-\frac{5}{2}, -\frac{3}{2})$

23. $(-\frac{5}{2}, -4)$ 25. $(\frac{1}{2}, 1)$; $d = \frac{\sqrt{5}}{2} \approx 1.12$ 27. (3, -2);

$d = \sqrt{13} \approx 3.61$ 29. $(-1, \frac{5}{2})$; $d = \frac{\sqrt{97}}{2} \approx 4.92$

31. (-2, 5); $d = \sqrt{193} \approx 13.89$ 33. $(\frac{5}{2}, 8), (7, 1),$

$(-\frac{17}{2}, 1)$ 35. (39.95° N, 115.35° W) 37. (1, 1)

or 1 mi east and 1 mi north of the starting point, $\sqrt{13}$, or

3.61 mi 39. $(\frac{1}{3}, -\frac{1}{9})$ 41. (2, -1) 43. $(\frac{3}{2}, 0)$; one

45. = 47. <

12.9 GUIDED PRACTICE (p. 743) 3. identity property

of multiplication 5. distributive property 7. identity property of addition

12.9 PRACTICE AND APPLICATIONS (p. 744–746)

9. inverse property of addition; identity property of addition 13. *Sample answer:* $a = 3, b = 2$

15. *Sample answer:* $a = 3, b = 2$ 17. Yes; the map cannot be colored with three different colors so that no two countries that share a border have the same color.

27. 10,000 29. 20 31. 2 solutions 33. 1 solution

35. no real solution 37. not a solution 39. solution

41. $2\frac{3}{4}$ 43. $\frac{11}{12}$ 45. $-\frac{7}{8}$

QUIZ 3 (p. 746) 1. right triangle 2. right triangle

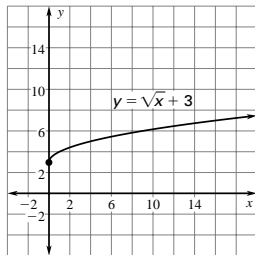
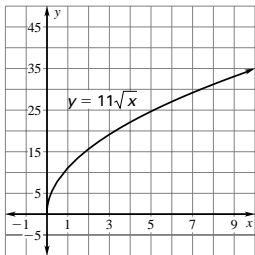
3. 13.42; (4, -3) 4. 7.21; (4, -8) 5. 16.12; (4, -7)

6. 16; (-8, 0) 7. 6; (0, 4) 8. 10.30; $(-\frac{3}{2}, \frac{5}{2})$

9. *Sample answer:* $a = 2, b = 3, c = -5$ 10. *Sample answer:* $a = 2, b = 3$

CHAPTER SUMMARY AND REVIEW (pp. 747–750)

1. domain: all nonnegative real numbers; range: all nonnegative real numbers
 3. domain: all nonnegative real numbers; range: all real numbers ≥ 3

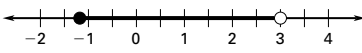
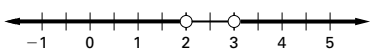


5. $3\sqrt{5} - \sqrt{3}$ 7. $6\sqrt{2} - 8\sqrt{3}$ 9. $\frac{48 + 8\sqrt{7}}{29}$
 11. no solution 13. 26 15. 9 17. 16 19. 16 21. 22
 23. $2 \pm 2\sqrt{3}$ 25. $8 \pm 2\sqrt{14}$ 27. $\frac{1 \pm \sqrt{13}}{2}$
 29. $c = 2\sqrt{13}$ 31. $b = 5, 2b + 2 = 12$ 33. not a right triangle; $10^2 + 14^2 \neq 17^2$ 35. 9.49 37. 10.77
 39. (2, -1) 41. $(-\frac{1}{2}, -\frac{13}{2})$

43. Sample answer:

$$\begin{aligned} (c)(-b) &= (c)[(-1)(b)] && \text{Multiplication property of } -1 \\ &= [(c)(-1)](b) && \text{Associative property of multiplication} \\ &= [(-1)(c)](b) && \text{Commutative property of multiplication} \\ &= (-1)[(c)(b)] && \text{Associative property of multiplication} \\ &= -cb && \text{Multiplication property of } -1 \end{aligned}$$

CHAPTERS 1–12 CUMULATIVE PRACTICE (pp. 754–755)

1. $\frac{m}{7} \geq 16; m \geq 112$ 3. $t = 3d; t = 9 \text{ mi}$ 5. 25
 7. -63 9. -27 11. $\frac{34}{3}$ 13. -49 15. -1.64
 17. -5.56 19. Sample answer: $y = \frac{2}{3}x - \frac{10}{3}$
 21. function; domain: -1, 1, 3, 5; range: -1, 1, 3
 23. function; domain: -2, -1, 0, 1, 2; range: -2, -1, 0, 1 25. $4x - 5y = 15$
 27. $-\frac{5}{4} \leq x < 3$ 
 29. $x > 3$ or $x < 2$ 
 31. (24, 21) 33. $b^6; 64$ 35. $-8a^3b^6; -512$ 37. $\frac{4b^5}{a^4}; 128$ 39. 2 solutions; $\pm \frac{\sqrt{39}}{3}$ 41. 1 solution; -1
 43. $(x - 28)(x + 4)$ 45. $(2x + 3)^2$ 47. $(x - 7)^2$
 49. $-\frac{3}{2}, \frac{5}{3}$ 51. -2 53. 0, -3, -6 55. $\frac{2}{x - 3}$
 57. $\frac{1}{3x}$ 59. $\frac{2x^2 - 7x}{(x + 4)(x - 1)}$ 61. $-15\sqrt{2}$ 63. $\frac{77 + 11\sqrt{3}}{46}$

65. $6 \pm \sqrt{55}$ 67. $3 \pm \sqrt{22}$ 69. $-11 \pm 2\sqrt{29}$
 71. 4.47; (3, 5) 73. 9.43; $(2, -\frac{1}{2})$ 75. 12.21; $(5, 7\frac{1}{2})$
 77. 11.18; $(2, 4\frac{1}{2})$

Skills Review Handbook

- DECIMALS (p. 760)** 1. 14.42 3. 122.312 5. 25.72
 7. 1.02 9. 2.458 11. 7.07 13. 40.625 15. 3.6
 17. 520.37908 19. 16.7 21. 18.4 23. 4220
 25. \$62.44; \$7.56

- FACTORS AND MULTIPLES (p. 762)** 1. 1, 2, 3, 6, 9, 18
 3. 1, 7, 11, 77 5. 1, 3, 9, 27 7. 1, 2, 3, 6, 7, 14, 21, 42
 9. 3^3 11. 2^5 13. $5 \cdot 11$ 15. $2^2 \cdot 37$ 17. 1 19. 1, 5
 21. 1, 3, 9 23. 1, 5 25. 5 27. 1 29. 14 31. 51
 33. 35 35. 208 37. 45 39. 42 41. 12 43. 30
 45. 140 47. 51

- FRACTIONS (p. 766)** 1. $\frac{1}{7}$ 3. $\frac{12}{7}$, or $1\frac{5}{7}$ 5. 20 7. $\frac{13}{5}$, or $2\frac{3}{5}$ 9. $\frac{5}{6}$ 11. 3 13. $\frac{5}{32}$ 15. $\frac{7}{2}$, or $3\frac{1}{2}$ 17. $\frac{5}{6}$ 19. $\frac{1}{3}$
 21. $\frac{5}{8}$ 23. $1\frac{1}{30}$ 25. $2\frac{3}{8}$ 27. $1\frac{13}{24}$ 29. $8\frac{1}{5}$ 31. $3\frac{7}{16}$
 33. $\frac{1}{4}$ 35. $\frac{1}{6}$ 37. $\frac{2}{3}$ 39. $7\frac{2}{3}$ 41. $1\frac{1}{6}$ 43. $1\frac{1}{5}$ 45. 6
 47. $\frac{17}{20}$ 49. $\frac{13}{16}$ 51. 1 53. $5\frac{3}{8}$ 55. $\frac{7}{18}$ 57. $2\frac{5}{6}$ 59. $1\frac{3}{5}$
 61. $1\frac{11}{40}$ 63. $\frac{11}{40}$

- WRITING FRACTIONS AND DECIMALS (p. 768)** 1. 0.25
 3. 0.08 5. $0.\bar{3}$ 7. $0.\bar{90}$ 9. $\frac{1}{2}$ 11. $\frac{289}{1000}$ 13. $\frac{7}{9}$ 15. $\frac{613}{999}$

- FRACTIONS, DECIMALS, AND PERCENTS (p. 769)** 1. 0.63; $\frac{63}{100}$ 3. 0.24; $\frac{6}{25}$ 5. 0.17; $\frac{17}{100}$ 7. 0.45; $\frac{9}{20}$ 9. $0.\bar{3}$; $\frac{1}{3}$
 11. 0.625; $\frac{5}{8}$ 13. 0.052; $\frac{13}{250}$ 15. 0.0012; $\frac{3}{2500}$ 17. 8%; $\frac{2}{25}$ 19. 150%; $\frac{3}{2}$ 21. 5%; $\frac{1}{20}$ 23. 480%; $4\frac{4}{5}$
 25. 375%; $3\frac{3}{4}$ 27. 52%; $\frac{13}{25}$ 29. 0.5%; $\frac{1}{200}$ 31. 0.7; 70% 33. 0.44; 44% 35. 0.375; 37.5% 37. 5.125; 512.5% 39. 0.875; 87.5%

COMPARING AND ORDERING NUMBERS (p. 771)

1. $12,428 < 15,116$ 3. $-140,999 > -142,109$
 5. $0.40506 > 0.00456$ 7. $1005.2 < 1050.7$
 9. $-0.058 > -0.102$ 11. $17\frac{1}{4} = 17\frac{2}{8}$ 13. $-\frac{5}{9} = -\frac{15}{27}$
 15. $\frac{1}{8} > \frac{1}{9}$ 17. $42\frac{1}{5} > 41\frac{7}{8}$ 19. $32,227 > 32,226.5$
 21. $-17\frac{5}{6} < -17\frac{5}{7}$ 23. -45,617; -45,242; -40,099; -40,071 25. 9.003, 9.027, 9.10, 9.27, 9.3 27. $\frac{1}{3}, \frac{3}{8}, \frac{5}{6}, \frac{5}{4}$ 29. $\frac{15}{16}, 1\frac{1}{8}, 1\frac{2}{5}, \frac{5}{3}, \frac{7}{4}$ 31. $-1\frac{1}{3}, -\frac{5}{4}, -\frac{7}{8}, -\frac{5}{12}$

PERIMETER, AREA, AND VOLUME (p. 773) 1. 34

3. 84 ft 5. 72 ft 7. 841 yd² 9. 12.25 in.² 11. 20 in.²
13. 15,625 ft³ 15. 420 yd³ 17. 212 in.³

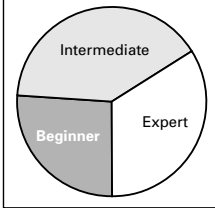
ESTIMATION (p. 776) 1–53. Estimates may vary. 1. 50

3. 2400 5. 500 7. 20 9. 1600 11. 700 13. 22.5
15. 481 17. 1340 19. 41 21. 209 23. 267 25. 2500
27. 30,000 29. 30 31. 3 33. 40 35. 4 37. 750
39. 80,000 41. 7000 43. 23 45. 10 47. 50 49. 16
51. 19 53. 18

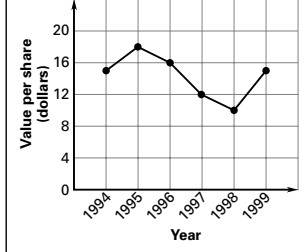
DATA DISPLAYS (p. 779) 1–10. Sample answers are given.

1. 0 to 25 by fives 3. 0 to 20 by fives

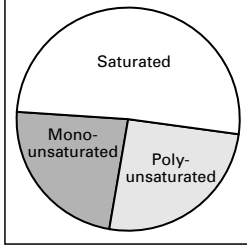
5. **Mountain Man Ski Runs**



7. **Company Stock**



9. **Fat Content of Canola Oil**



MEASURES OF CENTRAL TENDENCY (p. 780)

1. 1.3; 0.5; 0 3. 30; 30; no mode 5. ≈ 550.1 ; 487; 376

PROBLEM SOLVING (p. 782) 1. 5 salads, 3 cartons of milk

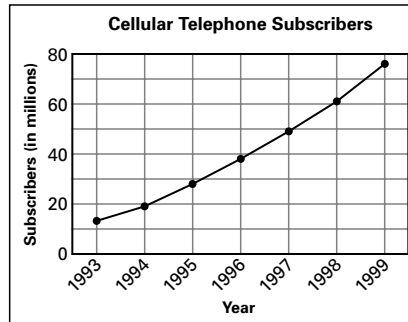
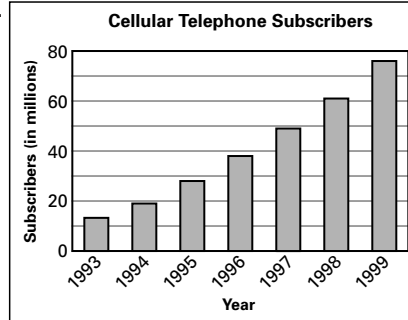
3. \$26.25 5. no later than 6:25 A.M. 7. 10 groups
9. The problem cannot be solved; not enough information is given.

Extra Practice

CHAPTER 1 (p. 783) 1. 105 3. 8 5. 512 7. 76 9. 49

11. 31 13. 3 15. 1 17. 7 19. 12 21. 24 23. solution
25. not a solution 27. solution 29. $16 = 20 - x$

31.

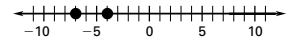
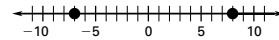


33.

Input x	0	1	2	3	4	5
Output y	1	8	15	22	29	36

CHAPTER 2 (p. 784)

1. $-7 < 8$, $8 > -7$ 3. $-4 > -7$, $-7 < -4$

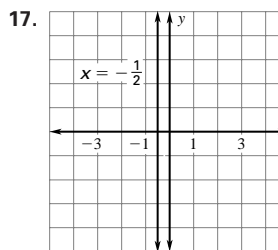
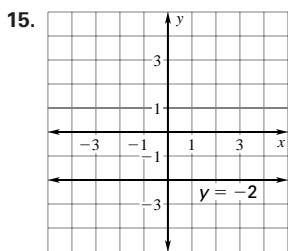
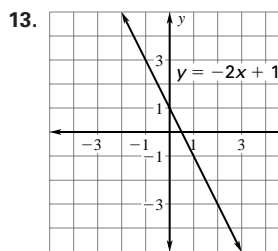
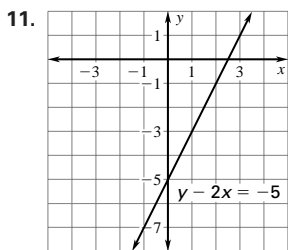
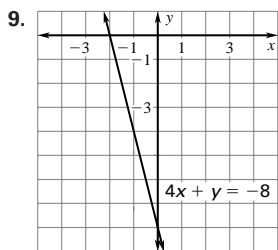
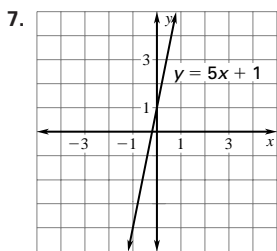
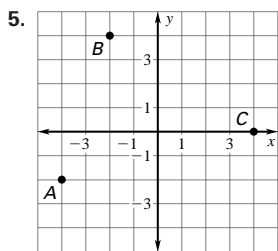
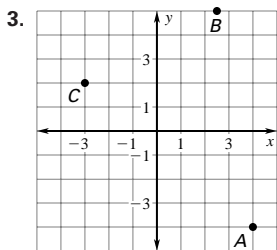
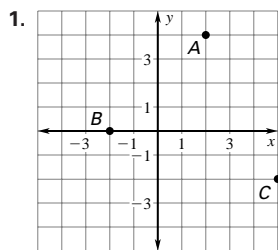


5. 3 7. 8.5 9. 5 11. -2 13. 3 15. -3 17. -13
19. -2.2 21. -7 23. -6.5 25. -7 27. 15
29. -450 31. 6 33. -81 35. 48 37. -90 ft
39. $4a - 24$ 41. $8x + 6$ 43. $-2 - t$ 45. $1.5y - 4.5$
47. already simplified 49. $7w - 4$ 51. $-m^2 + 2m$
53. -4 55. 66

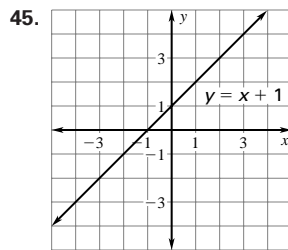
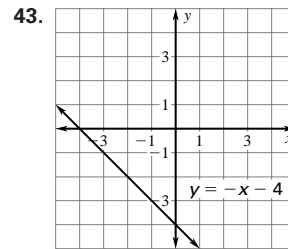
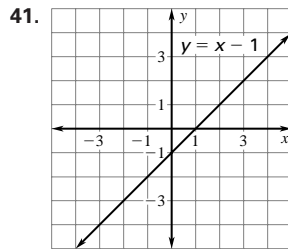
CHAPTER 3 (p. 785) 1. 14 3. 17 5. 7 7. 3 9. 5

11. $\frac{1}{2}$ 13. -20 15. 84 17. 4 19. 2 21. -14 23. 1
25. 2 27. -2 29. 3 31. $-\frac{3}{2}$ 33. -7.46 35. -0.25
37. 12 mi/h 39. \$7.25/h 41. 2 g/bar 43. 48 m
45. 45

CHAPTER 4 (p. 786)



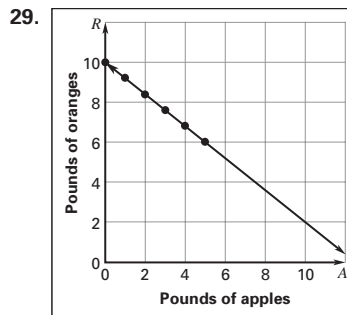
19. -1 21. 6 23. -5 25. 6 27. 0 29. -7
 31. undefined 33. $y = 3x$ 35. $y = -\frac{7}{8}x$ 37. $y = x$
 39. $y = -3x$



47. function; domain is 1, 3, 5, 7 and range is 1, 2, 3
 49. not a function

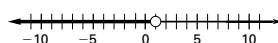
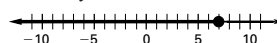
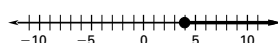
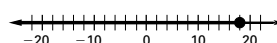
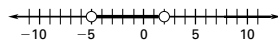
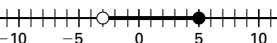
CHAPTER 5 (p. 787) 1. $y = 2x + 1$ 3. $y = \frac{1}{2}x - 3$

5. $y = 3(x + 1)$ 7. $y - 6 = 0(x - 3)$
 9. $y + 1 = 4(x + 3)$ 11. $y + 1 = \frac{1}{2}(x - 2)$
 13. $y = 3x - 11$ 15. $y = -\frac{1}{2}x - 2$ 17. $y = -x + 2$
 19. $3x - y = 17$ 21. $5x + 6y = -2$
 23. $7x + y = 8$ 25. $2x + y = 12$
 27. $4A + 5R = 50$, $0.80A + 1.00R = 10.00$

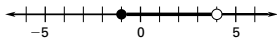


31. not perpendicular 33. not perpendicular
 35. $y = -\frac{4}{3}x + \frac{8}{3}$

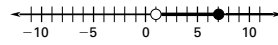
CHAPTER 6 (p. 788)

1. $x < 1$ 3. $7 \geq y$
 
 5. $x \geq 4$ 7. $k \leq 18$
 
 9. $x > -1$ 11. $x \geq -2\frac{1}{2}$ 13. $x \leq 9$
 15. $-5 < x < 2$ 17. $-3 < x \leq 5$
 

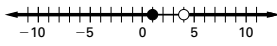
19. $-1 \leq x < 4$



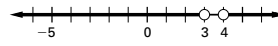
21. $1 < x \leq 7$



23. $x \leq 1$ or $x > 4$



25. $x < 3$ or $x > 4$



27. -14, 14

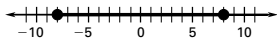
29. -12, 12

31. -14, -6

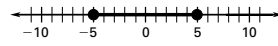
33. $\frac{1}{5}, 1$

35. 1, 7

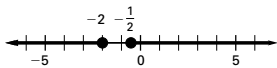
37. $-8 \leq x \leq 8$



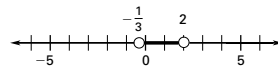
39. $-5 \leq x \leq 5$



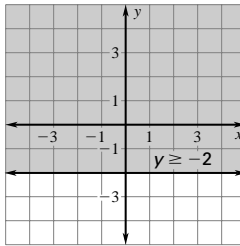
41. $x \leq -2$ or $x \geq -\frac{1}{2}$



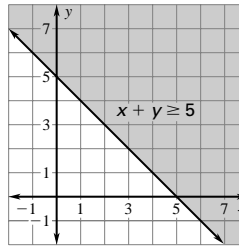
43. $-\frac{1}{3} < x < 2$



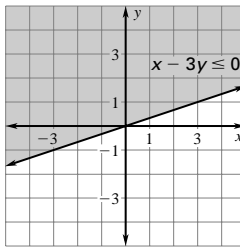
45.



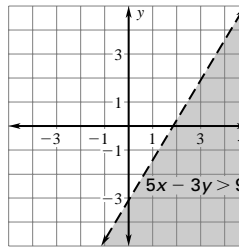
47.



49.



51.



CHAPTER 7 (p. 789) 1. (-2, 5) 3. (4, 6) 5. (-5, -1)

7. (6, 3) 9. (4, 1) 11. (11, -15) 13. (4, 2)

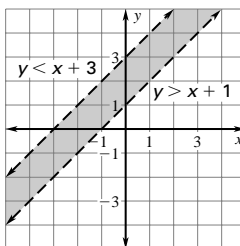
15. (0, -2) 17. (13, -2) 19. (2, 1) 21. *Sample answer:* substitution, because it is easy to solve for x; (0, 5)

23. *Sample answer:* substitution, because the equations are already solved for y; (-1, -4) 25. *Sample answer:* linear combinations, because it is easy to eliminate y;

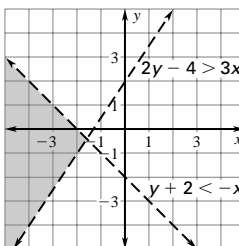
(3, 0) 27. *Sample answer:* linear combinations, because it is easy to eliminate y; (2, 0) 29. 12 adult tickets and 8 student tickets 31. none 33. one 35. infinitely many

37. none

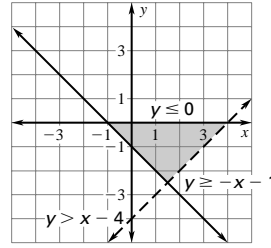
39.



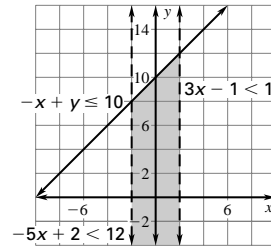
41.



43.



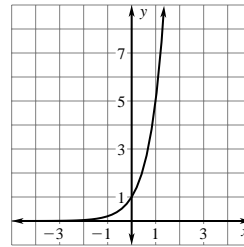
45.



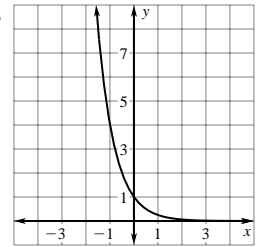
CHAPTER 8 (p. 790) 1. 16,807 3. $1728x^3$ 5. m^6 7. $98x^7$

9. $\frac{1}{x^4}$ 11. $\frac{1}{x^3y^2}$ 13. $4xy^5$ 15. $\frac{16}{y^4}$

17.



19.



21. 8 23. $\frac{16}{81}$ 25. $-\frac{1}{64}$ 27. $\frac{8}{3}$ 29. $\frac{3x^4y^2}{2}$

31. $\frac{27x^3z^9}{8}$ 33. $\frac{4b^7}{9a^5}$ 35. 0.000004813 37. 0.084162

39. 50.645 41. 0.0000000234 43. 5.28×10^3

45. 1.138×10^1 47. 8.2766×10^2 49. 1.6354×10^1

51. 3.95×10^0 53. 8×10^{-3} 55. \$1155 57. \$2286.82

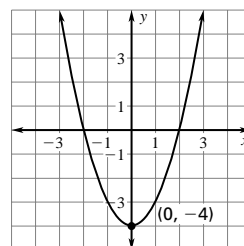
59. $y = 120,000(0.90)^t$

CHAPTER 9 (p. 791) 1. 1.73 3. -10 5. 3.87 7. 14.83

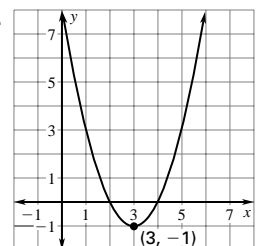
9. ± 5 11. no real solution 13. ± 4 15. $\pm \sqrt{3}$

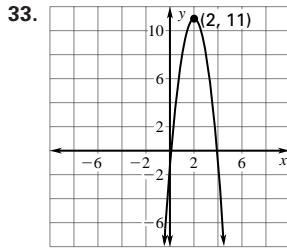
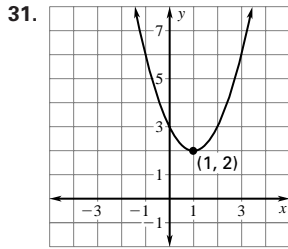
17. 2.2 sec 19. $2\sqrt{22}$ 21. $4\sqrt{7}$ 23. 2 25. $\sqrt{3}$

27.

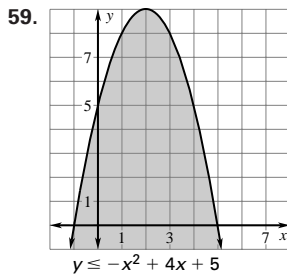
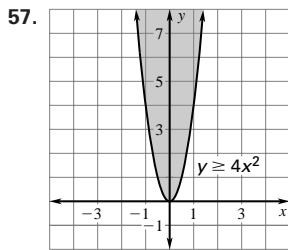


29.

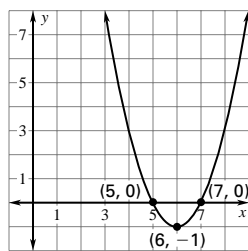
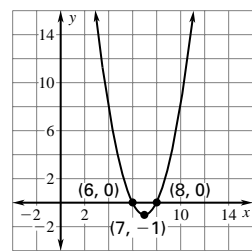




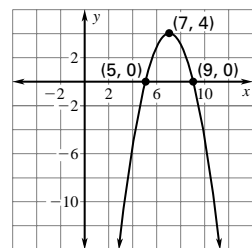
35. -3, -2 37. -5, 2 39. -1, 3
 41. $x^2 - 4x - 12 = 0$; -2, 6
 43. $x^2 - 5x + 4 = 0$; 1, 4 45. $x^2 + 5x + 6 = 0$;
 -3, -2 47. $2x^2 - x - 10 = 0$; -2, $\frac{5}{2}$ 49. one solution
 51. one solution 53. no real solution 55. no real solution



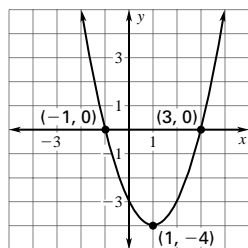
- CHAPTER 10 (p. 792)** 1. $8x^2 + 1$ 3. $14x^2 - 7x + 8$
 5. $x^2 + 9x - 4$ 7. $4x^3 - 8x^2 + 7x$
 9. $15b^5 - 10b^4 + 5b^2$ 11. $d^2 + 4d - 5$
 13. $x^3 + x^2 + 18$ 15. $x^2 + 18x + 81$ 17. $a^2 - 4$
 19. $16x^2 + 40x + 25$ 21. $4a^2 - 9b^2$ 23. -6, -3
 25. -5, 1 27. $\frac{3}{2}, 7$ 29. 1, 2
 31. 6, 8; (7, -1) 33. 5, 7; (6, -1)



35. 5, 9; (7, 4)



37. -1, 3; (1, -4)

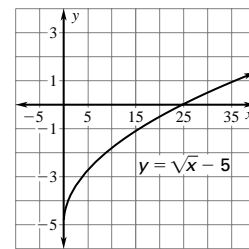
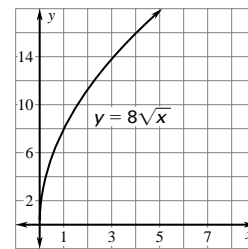


39. -3 41. 6 43. 6, 9 45. -4, 6 47. -2, $\frac{3}{2}$ 49. $-\frac{4}{3}$
 51. $-\frac{3}{4}, 2$ 53. $-\frac{7}{3}, 8$ 55. $(x + 1)(x - 1)$
 57. $(11 + x)(11 - x)$ 59. $(t + 1)^2$ 61. $(8y + 3)^2$

63. $x^2(x + 3)(x - 3)$ 65. $x^2(x + 9)(x - 5)$
 67. $-3y(y + 1)(y + 4)$ 69. $7x^4(x^2 - 3)$
 71. 4 ft by 2 ft by 12 ft

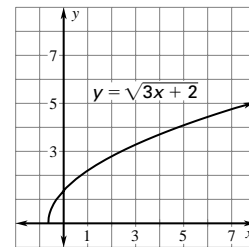
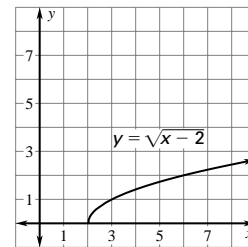
- CHAPTER 11 (p. 793)** 1. 6 3. $1\frac{3}{5}$ 5. 4 7. $y = 3x$
 9. $y = \frac{1}{4}x$ 11. $y = \frac{15}{x}$ 13. $y = \frac{2}{x}$ 15. $\frac{2x^3}{7}$ 17. $\frac{1}{x+1}$
 19. $\frac{2}{3x}$ 21. $-\frac{1}{y+4}$ 23. $\frac{1}{2}$ 25. $\frac{10x^2}{x+5}$ 27. $\frac{5}{x-3}$ 29. $\frac{1}{x}$
 31. $-\frac{2(x+1)}{x-1}$ 33. $\frac{5-3x}{x^2}$ 35. $\frac{x^2+35}{(x-3)(x+8)}$
 37. $\frac{2(5x+14)}{(x+5)(x-5)}$ 39. $33\frac{1}{3}$ 41. -2 43. 4

- CHAPTER 12 (p. 794)**
 1. domain: all nonnegative real numbers; range: all nonnegative real numbers
 3. domain: all nonnegative real numbers; range: all real numbers ≥ -5



5. domain: all real numbers ≥ 2 ; range: all nonnegative real numbers

7. domain: all real numbers $\geq -\frac{2}{3}$; range: all nonnegative real numbers



9. $5\sqrt{5}$ 11. $16\sqrt{2}$ 13. $7\sqrt{3} - 3\sqrt{2}$ 15. $\frac{\sqrt{6}}{3}$ 17. 121
 19. no solution 21. 1, 3 23. 16 25. 64 27. $x^{3/4}$
 29. $x^6y^{5/2}$ 31. -14, 4 33. -4, -2 35. -2, 8 37. $\sqrt{2}$
 39. 8 41. 20 43. 8 45. 18.36 47. 12.08 49. 4.47
 51. (2, 4.5); $d = \sqrt{4.25}$ 53. (2.5, -2); $d = 2.5$
 55. (0, 4); $d = 2\sqrt{5}$ 57. (5, 6); $d = \sqrt{17}$ 59. Sample answer: Assume $xy = 0$ and both $x \neq 0$ and $y \neq 0$. If $xy = 0$ and $x \neq 0$, then $y = \frac{0}{x} = 0$, but this is impossible since $y \neq 0$. Therefore if $xy = 0$, either $x = 0$ or $y = 0$.