

21. $\frac{7}{9}$ 23. $\frac{1}{2}$ 25. $\frac{1}{28}$ 27. $\frac{34}{55}$ 29. $\frac{1}{3}$
 31. $\frac{28}{15}$ 33. $\frac{144}{125}$

Preparing for College Entrance Exams,
 page 93 1. D 3. A 5. C 7. C

Chapter 3 Transforming Equations

- Written Exercises, pages 97–98* 1. {20}
 3. {23} 5. {136} 7. {7} 9. {-50}
 11. {-38} 13. {42} 15. {-4} 17. {0}
 19. {-10} 21. {-1} 23. {2.9} 25. {2}
 27. {-7} 29. {10} 31. {-17} 33. {-5}
 35. {-5} 37. {-7} 39. {11} 41. {92}
 43. {-7} 45. {5} 47. {18, -18}
 49. {8, -8} 51. {2, -2} 53. no solution
 55. {4, -4} 57. {4, -4} 59. {0}

- Problems, pages 98–100* 1. -63 3. -21
 5. 76 7. 32 mi/h 9. -7°C 11. \$2.45
 13. 454 employees 15. 111° 17. \$.35
 19. 14 km

- Mixed Review Exercises, pages 100–101* 1. 3
 2. 1 3. 12 4. 2 5. $\frac{1}{12}$ 6. 36 7. 420
 8. -270 9. $-4a$ 10. 1 11. $12b$
 12. $5a - 5b$

- Application, page 101* 1. a. \$3240 b. \$240
 3. a. \$5058 b. \$558

- Written Exercises, page 104* 1. {11} 3. {-3}
 5. {-9} 7. {3} 9. {24} 11. {-35}
 13. {-64} 15. {18} 17. {-80} 19. {-33}
 21. {-24} 23. {0} 25. {-45} 27. {-18}
 29. {7} 31. {-0.4} 33. {16} 35. {-11}
 37. {-3} 39. {0} 41. {9, -9}
 43. no solution 45. {10, -10} 47. {21, -21}
 49. {6, -6} 51. {4, -4}

- Problems, pages 105–106* 1. -75 3. -21
 5. 360 seniors 7. 196 m 9. \$7.20
 11. 7 games 13. 250 apples 15. 9 hard-cover
 books 17. \$21,250 19. $\frac{1}{72}$ mi/s; 50 mi/h

- Mixed Review Exercises, page 106* 1. 20
 2. 48 3. 11 4. 1 5. $\frac{15}{4}$ 6. 1 7. $16a + 6$
 8. $5n$ 9. $9p + 2$ 10. $-4m - 8$ 11. $8x + 56$
 12. $6y - 15$

- Calculator Key-In, page 106* 1. 0.75 3. -0.2
 5. 0.025 7. -0.24 9. 0.96875 11–20. yes

- Written Exercises, pages 109–110* 1. {6}
 3. {-3} 5. {-7} 7. {-2} 9. {12} 11. {16}
 13. {-13} 15. {18} 17. {0} 19. {4}
 21. {-5} 23. {15} 25. {5} 27. {5} 29. {2}
 31. {-36} 33. {-12} 35. {-2} 37. {-4}
 39. {-4} 41. {8} 43. {4} 45. {6} 47. {2}
 49. {-34} 51. {4} 53. {0} 55. {-18}
 57. {5} 59. {7, -7}

- Mixed Review Exercises, page 110* 1. {-161}
 2. {6} 3. {16} 4. {4} 5. {3} 6. {34}
 7. {-8} 8. {-4} 9. {-4} 10. {1.3}
 11. {0} 12. {20}

- Computer Exercises, page 111* 1. a. 8
 b. -2 c. -10 d. 6 e. 36 f. 11
 3. a. {2, -2} b. no solution c. {0.5, -0.5}

- Self-Test 1, page 111* 1. {38} 2. {42}
 3. {125} 4. {-11} 5. 6 cm by 18 cm 6. {7}
 7. {24}

- Calculator Key-In, page 111* 1. no 3. no

- Problems, pages 113–115* 1. 43 3. 42
 5. 27 7. 56, 57, 58 9. 58, 60, 62, 64
 11. with cheese, 165; without cheese, 330
 13. 32 weeks 15. 90 cm 17. 130 cm
 19. 17 cm by 32 cm 21. width, 14 cm; length,
 50 cm 23. $m\angle A = 84$, $m\angle B = 28$, $m\angle C = 68$
 25. $AB = 9$; $AC = 18$; $BC = 21$ 27. Theo,
 \$22; Rudy, \$6; Denise, \$17 29. Mach. A,
 15,800 bottles; Mach. B, 7900 bottles; Mach. C,
 16,300 bottles 31. \$21,800 33. 15 or -8

- Mixed Review Exercises, page 115* 1. {6}
 2. {-1.5} 3. {13} 4. {5} 5. {-63}
 6. {-100} 7. {30} 8. {57} 9. {0} 10. {2}
 11. {10} 12. $\left\{-\frac{3}{2}\right\}$

- Written Exercises, page 118* 1. {2} 3. {6}
 5. {2} 7. {-11} 9. {8} 11. {-14}
 13. {-1} 15. {3} 17. {6} 19. {-12}
 21. {4} 23. {10} 25. {1} 27. {1}
 29. {-14} 31. identity 33. {4} 35. {-3}
 37. identity 39. {-1} 41. identity 43. {-1}
 45. {-2} 47. {1}

- Problems, pages 118–119* 1. 48 3. 7 5. 23
 7. -14, -13 9. Cliff, 6; Kyle and Lyle, 18
 11. 7, 8 13. 14 units 15. 6 years

17. Marcia, \$87.50; Eric, \$175; Laurel, \$262.50
 19. If $n + (n + 1) + (n + 2) = n + 200$, then $n = 98.5$, which is not an integer. \therefore it is impossible.

Mixed Review Exercises, page 120 1. 2

2. $-1\frac{2}{5}$ 3. -199 4. $14x - 5$ 5. $15y + 18$
 6. -420 7. $\{-12\}$ 8. $\{1\}$ 9. $\{-98\}$
 10. $\{9\}$ 11. $\{42\}$ 12. $\{38\}$

Computer Exercises, page 120 1. $\{-3\}$

3. no solution 5. $\{5\}$

Self-Test 2, page 120 1. \$21 2. $\{5\}$ 3. $\{7\}$

4. Paul, \$4.50; Jeff, \$9.50; Hilary, \$13.50

Problems, pages 122–125 1. 14 shifts

3. 306 lb 5. orange, 65 Calories; peach, 35 Calories 7. red, 9 cm by 24 cm; blue, 14 cm by 22 cm 9. \$120 11. 15 ft by 45 ft; 9 ft by 75 ft 13. Greg, 8; Rodney, 16 15. 420 Calories 17. Angel Falls, 807 m; Niagara Falls, 57 m 19. 65 Calories

Mixed Review Exercises, page 125 1. $\{24\}$

2. $\{15\}$ 3. $\{0\}$ 4. $\{65\}$ 5. $\{3\}$ 6. $\{-8\}$
 7. $\{7\}$ 8. $\{4\}$ 9. $\{11\}$ 10. $\{-7\}$ 11. $\{18\}$
 12. $\{-20\}$

Problems, pages 127–129 1. 12 students

3. 22 nickels 5. 50 programs 7. 14 quarters
 9. \$44 11. plumber, \$25.50; apprentice, \$21
 13. 7 quarters 15. Solution involves a fractional number of coins. 17. \$3.80

Mixed Review Exercises, page 129 1. 1

2. 216 3. $13y + 1$ 4. 35 5. $3x + 28$
 6. $15x + 23y$ 7. 5 8. $\frac{5}{8}$ 9. 23

Written Exercises, pages 131–133

1. (1) Reflex. prop. of $=$; (3) Substitution principle 3. (2) Mult. prop. of $=$; (3) Assoc. prop. of mult.; (4) Prop. of reciprocals; (5) Identity prop. of mult. 5. (1) Prop. of opposites; (2) Prop. of opposites; (3) Substitution principle or Trans. prop. of equality; (4) Comm. prop. of add. 7. (1) Subtraction; (3) 5; (4) Comm. prop. of add.; (5) Def. of subtr.

9. (1) $a = b$ (Given)

(2) $a \cdot \frac{1}{c} = b \cdot \frac{1}{c}$ (Mult. prop. of $=$)

(3) $\frac{a}{c} = \frac{b}{c}$ (Def. of div.)

11. (1) $\frac{a}{b} \cdot \frac{b}{a} = \left(a \cdot \frac{1}{b}\right)\left(b \cdot \frac{1}{a}\right)$ (Def. of division)

(2) $\frac{a}{b} \cdot \frac{b}{a} = \left(a \cdot \frac{1}{a}\right)\left(b \cdot \frac{1}{b}\right)$ (Commutative and associative props. of mult.)

(3) $\frac{a}{b} \cdot \frac{b}{a} = 1 \cdot 1$ (Prop. of reciprocals)

(4) $\frac{a}{b} \cdot \frac{b}{a} = 1$ (Identity prop. of mult.)

(5) $\frac{a}{b} \cdot \left(\frac{1}{\frac{a}{b}}\right) = 1$ (Prop. of reciprocals)

(6) $\frac{a}{b} \cdot \frac{1}{\frac{a}{b}} = \frac{a}{b} \cdot \left(\frac{b}{a}\right)$ (Substitution)

(7) $\frac{1}{\frac{a}{b}} = \frac{b}{a}$ (Div. prop. of $=$)

Mixed Review Exercises, page 133 1. 14

2. 32 3. $3x$ 4. $-4 - a$ 5. $b + 1$ 6. 20
 7. 50 8. 3 9. 3 10. $\frac{7}{6}$ 11. 5 12. 5

Self-Test 3, page 134 1. 51 cm by 59 cm;

- 56 cm by 65 cm 2. nickels, 22; quarters, 12
 3. (1) Assoc. prop. of add.; (2) Prop. of opposites; (3) Identity prop. of add.

Chapter Review, page 135 1. c 3. d 5. a

7. b 9. a 11. b

Cumulative Review, page 137 1. 25 3. 4

5. 24 7. -20 9. $3\frac{3}{4}$ 11. $2x - 2$ 13. -28
 15. $17x$ 17. 1 19. -6 21. $-4\frac{1}{2}$
 23. no solution 25. $\{-4\}$ 27. $\{16\}$ 29. $\{18\}$
 31. $\{2\}$ 33. $\{11\}$ 35. $\left\{\frac{9}{5}\right\}$ 37. peach, \$.30; melon, \$1.20 39. 95 employees

Maintaining Skills, page 138 1. $2\frac{1}{12}$ 3. $5\frac{1}{5}$

5. $7\frac{7}{12}$ 7. $9\frac{1}{4}$ 9. $\frac{25}{6}$ 11. $\frac{25}{9}$ 13. $\frac{47}{13}$

15. $\frac{119}{12}$ 17. $18\frac{1}{5}$ 19. $-1\frac{1}{21}$ 21. $25\frac{1}{2}$

23. $3\frac{9}{40}$ 25. $4\frac{3}{10}$ 27. $21\frac{27}{35}$ 29. $-2\frac{13}{22}$

31. $1\frac{11}{36}$ 33. $-1\frac{13}{21}$ 35. $26\frac{1}{12}$

Mixed Problem Solving Review, page 139

1. 5 3. 75 km/h 5. 7 oranges, 5 apples
 7. -5°C 9. 3, 4, 5 11. 7 \$10 bills, 11 \$5 bills 13. \$480,000 15. 7 h 17. no solution