Extra Practice: Skills

Chapter 1

Simplify each expression.

1. $5 + (4 \times 8)$
2. $(3 + 7) \times 2$
3. $(30 \times 3) + (5 \times 2)$
4. $(40 \div 4) - (9 - 5)$
5. $(30 + 3) \times (4 + 2)$
6. $(40 - 4) \div (9 - 5)$
7. $9 + 7 - 2 \times 8 \div 4$
8. $32 \div 8 + 3 \times 7 - 6$
9. $4 \times 6 - 16 \div 2 + 7$

Evaluate each expression if $e = 2$, $f = 3$, $g = 4$, $u = 0$, $v = 5$, and $w = 1$.

10. $ev - f$
11. $5g + 4w$
12. $(uv) + (fg)$
13. $w(v - f) + g$
14. $(3g) \cdot (e + u)$
15. $(v - u)w + g$
16. $(e + f)(g + v)$
17. $e(u + v - w)$
18. $(4e - 2f)(v + w)$
19. $\dfrac{e + g}{v - f}$
20. $\dfrac{gv - 5e}{5 - 3u}$
21. $f(we + v) + \dfrac{g}{e}$

Solve each equation if $x \in \{0, 1, 2, 3, 4, 5, 6\}$.

22. $7 + x = 12$
23. $x - 4 = 2$
24. $8 - x = 3$
25. $x - x = 0$
26. $6x = 18$
27. $0 = 5x$
28. $8x = 32$
29. $x \cdot x = 36$
30. $x \cdot x = 1$
31. $\dfrac{1}{2}x = 2$
32. $\dfrac{1}{3}x = 2$
33. $x \cdot x = 5x$
34. $3x + 9 = 26$
35. $15 = 9x - 3$
36. $4x = x \cdot 4$
37. $x(9 - x) = 0$

Translate each phrase into a variable expression.

38. Three more than twice the number m
39. Four less than half the number z
40. Two more than eight times the number k
41. The difference of five times a number w and one
42. Three times the sum of a number h and six

Complete each statement with a variable expression.

43. In x weeks there are ___?___ days.
44. In y yards there are ___?___ feet.
45. A house is x years old. Four years ago it was ___?___ years old.
46. Tony weighs w lb. Ray is 7 lb heavier than Tony. Ray weighs ___?___ lb.
47. My car is 5 years older than my sister's car. If my car is n years old, then her car is ___?___ years old.

In Exercises 48–50,
a. **Choose a variable to represent the number described by the words in parentheses.**
b. **Write an equation that represents the given information.**

48. A package of a dozen pencils costs $1.39. (Cost of one pencil in cents)
49. The perimeter of a square is 52 m. (Length of a side in meters)
50. All but 5 of the 34 invited guests came to the party. (Number of guests at the party)

Translate each problem into an equation. Drawing a sketch may help you.

51. Henry is 4 years older than Celia. If the product of their ages is 140, find each person's age.
52. The length of a rectangle is 5 cm more than its width. If the area of the rectangle is 176 cm^2, find the dimensions of the rectangle.

Solve using the five-step plan. Write out each step. A choice of possible numbers for one unknown is given.

53. The number of tickets Cynthia sold is 12 less than half the number Holly sold. Together they sold 114 tickets. How many tickets did each sell? Choices for the number Holly sold: 68, 72, 84
54. Jim weighs 40 lb more than Stephanie. Stephanie weighs three fourths as much as Jim. How much does each weigh? Choices for Stephanie's weight: 100 lb, 118 lb, 120 lb

Write a number to represent each situation. Then write the opposite of that situation and write a number to represent it.

55. 400 ft above sea level
56. A bank withdrawal of $50
57. Ten losses
58. Seven floors up

Graph the given numbers on a number line.

59. $5, -2, \frac{1}{2}, 3, -4$
60. $-3, 0, 1, -2.5, 2$

Simplify.

61. $-(7 - 4)$
62. $[-(-8)] + 10$
63. $3 + [-(-6)]$
64. $2 + |-9|$
65. $|-3| + |0|$
66. $|6| - |6|$
67. $|-3.2| + |-0.8|$
68. $|-4.7| + |4.7|$

Replace each __?__ with one of the symbols < or > to make a true statement.

69. $9 - 8 \underline{\ ?\ } -1$
70. $7 \underline{\ ?\ } 6 + 5$
71. $|0| \underline{\ ?\ } 1$
72. $-4.3 \underline{\ ?\ } -4.4$
73. $-(7 + 3) \underline{\ ?\ } |-14|$
74. $-\frac{3}{7} \underline{\ ?\ } -\frac{2}{7}$

Chapter 2

Simplify.

1. $237 + 75 + 13 + 25$

3. $0.2 + 16.4 + 2.8 + 0.6$

5. $6\frac{3}{8} + 1\frac{2}{7} + 4\frac{5}{8} + 3\frac{5}{7}$

2. $456 + 29 + 44 + 21$

4. $3.75 + 4.85 + 1.25 + 3.15$

6. $25\frac{3}{4} + \frac{4}{5} + \frac{1}{4} + 2\frac{1}{5}$

7. $8 + 3m + 4$

10. $5(7u)$

13. $(3p)(4q)(5r)$

8. $15 + 5f + 7$

11. $(8n)(11)$

14. $(2x)(5k)(7l)$

9. $9 + 6w + 3$

12. $(4b)9$

15. $(10w)(3h)(2m)$

Simplify. If necessary, draw a number line to help you.

16. $(-4 + 8) + 9$

18. $[16 + (-21)] + 4$

20. $[0 + (-7)] + [-8 + (-22)]$

22. $-3 + (-4) + (-9)$

24. $-7.2 + (-3.5) + 10.7$

17. $(-7 + 10) + (-3)$

19. $[-5 + (-13)] + 6$

21. $[27 + (-7)] + [1 + (-1)]$

23. $(-5) + (-8) + (-6)$

25. $5.4 + (-3.1) + (-7.9)$

Add.

26. $9 + 8 + (-3) + 4$

28. $112 + (-32) + (-40) + (-25)$

30. $-[24 + (-8)] + [-(-4 + 6)]$

27. $-6 + (-7) + 10 + 2$

29. $-265 + (-88) + 105 + 95$

31. $[-9 + (-2)] + [-(-9 + 2)]$

Evaluate each expression if $x = 2$, $y = -5$, and $z = 3$.

32. $-8 + x + (-y)$

35. $|x + y + z|$

33. $-z + y + (-4)$

36. $x + (-z) + (-12)$

34. $1 + (-x) + z$

37. $-|z + (-y) + x|$

Simplify.

38. $48 - 218$

39. $53 - (-47)$

40. $-18 - (-5)$

41. $-27 - 56$

42. $133 - (62 - 59)$

43. $186 - (40 - 69)$

44. $(33 - 44) - (66 - 77)$

45. $(54 - 32) - (-8 + 13)$

46. $[14 - (-8) - [6 - (-3)]$

47. $-18 - 7 - [-6 - (-11)]$

48. $6 + x - (6 - x) - x$

49. $y - (-4) - [y + (-4)] - 4$

50. $30\left(\frac{1}{6} + \frac{1}{3}\right)$

51. $\frac{1}{5}(24) + \frac{1}{5}(16)$

52. $\frac{1}{4}(16 + 12)$

53. $(0.25)(34) + (0.75)(34)$

54. $(37 \times 22) - (7 \times 22)$

55. $(16 \times 58) - (6 \times 58)$

56. $14m + 7m$

57. $15q + (-8)q$

58. $53n - 110n$

59. $79a - 37a$

60. $3u + 7u + 8$

61. $7(c + 3) + 6$

Simplify.

62. $26 + 4(h + 3)$

63. $8(j - 4) + 17$

64. $23 + 6(t - 2)$

65. $5x + 9 + 3x + 11$

66. $(-5)m + 3 + 13m + 17$

67. $14u - 8 - 12u + 13$

68. $4h + 8k + (-2)h + 12k$

69. $9f + 3g - 7f + 7g$

70. $10x + 14y - 6x - 3y$

71. $(-27)(-5)$

72. $38(-2)$

73. $(-4)45$

74. $(-8)(-6)(30)$

75. $(-5)(-9)(-3)$

76. $(-13)(-14)(0)$

77. $5(-4)(-12)(-2)$

78. $-3(-2 - 9)$

79. $(-17 + 6)(-1)$

80. $(-6 \times 13) + (-6 \times 15)$

81. $[27 \times (-5)] - (27 \times 5)$

82. $-16 \times (-1) - [-16 \times (-11)]$

83. $7(-m + 6p)$

84. $-5(2u - h)$

85. $-4(6n - 9v)$

86. $-x + 7 + 6x - 5$

87. $4 - t - 8 - 7t$

88. $-l + 9 + 6l - 4$

89. $3(x + 4y) + (-4)(8x - y)$

90. $-4(2u + v) + 5(u - v)$

91. $-2(3c + d) - 3(5d - c)$

92. $7(e - f) - 3(2e - 3f)$

Write an equation to represent the given relationship among integers.

93. The sum of three consecutive integers is 75.

94. The sum of three consecutive odd integers is 87.

95. The sum of three consecutive even integers is 138.

96. The product of two consecutive integers is 156.

97. The greater of two consecutive odd integers is eight more than three times the lesser.

98. The smaller of two consecutive even integers is one less than half of the greater.

Simplify each expression.

99. $-\frac{1}{11}(55)$

100. $-5000\left(\frac{1}{50}\right)$

101. $-\frac{1}{9}(-63)$

102. $112\left(-\frac{1}{7}\right)\left(-\frac{1}{2}\right)$

103. $-\frac{1}{5}(80)\frac{1}{4}$

104. $6uv\left(-\frac{1}{6}\right)$

105. $44xy\left(\frac{1}{4}\right)$

106. $\frac{1}{m}(3mn), m \neq 0$

107. $(8fg)\left(\frac{1}{f}\right), f \neq 0$

108. $\frac{1}{5}(-35a + 15)$

109. $(27h - 18)\frac{1}{3}$

110. $-\frac{1}{4}(-32e + 40f)$

111. $(42x - 63y)\left(-\frac{1}{7}\right)$

112. $\frac{1}{12}(-480 - 144m)$

113. $(-50p - 100q)\left(-\frac{1}{10}\right)$

114. $-392 \div 56$

115. $216 \div (-27)$

116. $55 \div \left(-\frac{1}{5}\right)$

117. $0 \div (-29)$

118. $\dfrac{-36}{-\frac{1}{6}}$

119. $\dfrac{8}{-\frac{1}{5}}$

120. $\dfrac{-12}{\frac{1}{4}}$

121. $\dfrac{0}{-\frac{1}{3}}$

122. $\frac{168m}{-12}$ **123.** $\frac{252a}{-8}$

124. $\frac{-756x}{7x}$, $x \neq 0$ **125.** $\frac{-253u}{-23u}$, $u \neq 0$

126. $-\frac{c}{17}(-17)$ **127.** $-9 \cdot \frac{x}{9}$

128. $\frac{8w}{7} \cdot 7$ **129.** $-\frac{5h}{3}(-3)$

Chapter 3

Solve. Check your answers.

1. $a - 13 = 17$

2. $c + 8 = 22$

3. $s - 20 = -12$

4. $y + 14 = -33$

5. $15 + h = 0$

6. $0 = k - 13$

7. $f - 4 = |16|$

8. $g + 7 = |-2|$

9. $-x + 6 = 9$

10. $23 - y = 47$

11. $-5 - m = 7$

12. $13 = -q + 8$

13. $(e + 4) + 3 = 9$

14. $6 = 10 + (n + 3)$

15. $-5 + (1 + z) = 8$

16. $13u = 338$ **17.** $-396 = 22a$ **18.** $-12x = -444$ **19.** $126 = -9w$

20. $\frac{1}{7}t = 13$ **21.** $\frac{1}{8}h = -8$ **22.** $11 = -\frac{1}{4}v$ **23.** $-10 = -\frac{1}{5}m$

24. $-42 = \frac{n}{7}$ **25.** $-\frac{c}{4} = 32$ **26.** $-\frac{m}{27} = 0$ **27.** $-\frac{m}{3} = -40$

28. $4x = -\frac{2}{7}$ **29.** $-\frac{3}{2} = -9z$ **30.** $\frac{1}{4}v = 2\frac{3}{4}$ **31.** $3\frac{1}{2} = \frac{1}{2}u$

32. $5k + 8 = 43$ **33.** $7h - 6 = 36$ **34.** $-3 + 3m = -45$

35. $2n + 8n = 80$ **36.** $9v - 5v = 44$ **37.** $3c - 8c = 65$

38. $\frac{n}{5} + 9 = -11$ **39.** $-\frac{x}{3} - 2 = 7$ **40.** $\frac{5}{6}u + 15 = 0$

41. $x - 5 - 6x = -25$ **42.** $0 = y - 14 - 3y$ **43.** $e + 3e + 4e = 48$

44. $5(k + 3) = -10$ **45.** $-\frac{4}{3}(n - 6) = 12$ **46.** $2(v + 7) - 9 = 19$

Solve each problem using the five-step plan to help you.

47. The sum of 37 and three times a number is 67. Find the number.

48. Four times a number, decreased by 24, is -20. Find the number.

49. The perimeter of a rectangle is 108. If the length is 33, find the width.

50. A large bucket holds 3 L more than twice as much as a small bucket. It took 2 small buckets and 5 large buckets to fill a 63 L tank. How much does a large bucket hold?

51. The lengths, in meters, of the sides of a triangle are consecutive even integers. The perimeter is 18 m. How long are the sides?

52. Bruce's savings account contains $122 more than his younger brother's account. Together, they have $354. Find the amount in each account.

Extra Practice: Problem Solving

Chapter 1

Use the five-step plan to solve each problem.

1. A train is traveling at an average speed of 90 km/h. How far will it travel in 2.5 h?

2. If a number is decreased by 27, the result is 36. Find the number.

3. A football team finished its 12-game season with no ties. The team won twice as many games as it lost. How many games did the team win?

4. A store sold 102 record albums during a two-day sale. Twice as many albums were sold the second day as the first. How many albums were sold the first day?

5. If three times a number is increased by 11, the result is 68. Find the number.

6. A bank contains 57 nickels, dimes, and quarters. There are 8 more dimes than quarters and 5 more nickels than dimes. How much money is in the bank?

Chapter 2

Solve.

1. A football team gained 23 yd on one play. However, the ball was brought back to the line of scrimmage and then the team was given a 15 yd penalty. How far was the ball from where it would have been had no penalty been assessed?

2. An elevator left the twenty-sixth floor of a building and went up eight floors, then down twelve, and back up four. On what floor was the elevator then?

3. At the beginning of the month the Cranes had $250 in their vacation fund. They were able to add $10 per week for four weeks. Then they had to take out $85 for emergency household repairs. How much was in the fund at the end of the month?

4. A neighborhood association collected $85 in dues, earned $280 at a garage sale, and got $124 in donations. The association needs $500 to build a playground. How much more must it collect?

5. An 8:00 A.M. flight from Boston to Minneapolis took three hours. The time in Minneapolis is one hour earlier than Boston. What time was it in Minneapolis when the flight arrived?

6. A train is traveling at the rate of 100 km/h. A conductor is walking toward the back of the train at 5 km/h. What is the conductor's speed relative to the ground?

Solve.

1. Neon freezes at $-248.61°$ C and boils at $-246.09°$ C. Find the difference between the boiling point and the freezing point.

2. The highest point in California is Mount Whitney at 4418 m above sea level. The lowest point is Death Valley at 86 m below sea level. Find the difference in altitude.

3. A candidate goes door to door along Main Street from a point 16 blocks west of campaign headquarters to a point 12 blocks east of headquarters. How many blocks has she gone?

4. Find the difference in degrees of longitude between Chicago at about 88° W and Rome at about 12° E.

5. Mount Everest at 8848 m above sea level is 9245 m higher than the Dead Sea. Find the altitude of the Dead Sea.

6. One winter day the temperature in Marshview reached a record high of 18.3° C. That was 22.7° C higher than the average temperature for that day. Find the average temperature.

Chapter 3

Solve.

1. A number increased by 13 is -5. Find the number.

2. A glass of milk costs 70¢. If a glass of milk and a sandwich cost $2.50, how much does the sandwich cost?

3. Fifteen less than a number is 43. Find the number.

4. A plane flew 145 km/h faster when it was flying with the wind than it would have flown in still air. If its speed with the wind was 970 km/h, find the speed of the plane in still air.

5. The Booster Club had $425 in its treasury. The members earned $642 selling refreshments. They donated $320 to the football team for bus rentals. How much money did they have left?

6. Seventy-six tickets were sold in advance for a museum field trip. Thirteen tickets were sold the day of the trip. Seven people had to return their tickets and did not go. How many people went altogether?

Solve.

1. The opposite of seven times a number is 238. Find the number.

2. One fourth of a number is 73. Find the number.

3. A 2.5 kg bag of apples costs $1.40. Find the cost per kilogram of the apples.

Extra Practice: Skills

Chapter 1

Simplify each expression.

1. $5 + (4 \times 8)$ 37
2. $(3 + 7) \times 2$ 20
3. $(30 \times 3) + (5 \times 2)$ 100
4. $(40 \div 4) - (9 - 5)$ 6
5. $(30 + 3) \times (4 + 2)$ 198
6. $(40 - 4) \div (9 - 5)$ 9
7. $9 + 7 - 2 \times 8 \div 4$ 12
8. $32 \div 8 + 3 \times 7 - 6$ 19
9. $4 \times 6 - 16 \div 2 + 7$ 23

Evaluate each expression if $e = 2$, $f = 3$, $g = 4$, $u = 0$, $v = 5$, and $w = 1$.

10. $ev - f$ 7
11. $5g + 4w$ 24
12. $(uv) + (fg)$ 12
13. $w(v - f) + g$ 6
14. $(3g) \cdot (e + u)$ 24
15. $(v - u)w + g$ 9
16. $(e + f)(g + v)$ 45
17. $e(u + v - w)$ 8
18. $(4e - 2f)(v + w)$ 12
19. $\dfrac{e + g}{v - f}$ 3
20. $\dfrac{gv - 5e}{5 - 3u}$ 2
21. $f(we + v) + \dfrac{g}{e}$ 23

Solve each equation if $x \in \{0, 1, 2, 3, 4, 5, 6\}$.

22. $7 + x = 12$ {5}
23. $x - 4 = 2$ {6}
24. $8 - x = 3$ {5}
25. $x - x = 0$ {0, 1, 2, 3, 4, 5, 6}
26. $6x = 18$ {3}
27. $0 = 5x$ {0}
28. $8x = 32$ {4}
29. $x \cdot x = 36$ {6}
30. $x \cdot x = 1$ {1}
31. $\dfrac{1}{2}x = 2$ {4}
32. $\dfrac{1}{3}x = 2$ {6}
33. $x \cdot x = 5x$ {0, 5}
34. $3x + 9 = 26$ Ø
35. $15 = 9x - 3$ {2}
36. $4x = x \cdot 4$ {0, 1, 2, 3, 4, 5, 6}
37. $x(9 - x) = 0$ {0}

Translate each phrase into a variable expression.

38. Three more than twice the number m $2m + 3$
39. Four less than half the number z $\frac{1}{2}z - 4$
40. Two more than eight times the number k $8k + 2$
41. The difference of five times a number w and one $5w - 1$
42. Three times the sum of a number h and six $3(h + 6)$

Complete each statement with a variable expression.

43. In x weeks there are ___?___ days. $7x$
44. In y yards there are ___?___ feet. $3y$
45. A house is x years old. Four years ago it was ___?___ years old. $x - 4$
46. Tony weighs w lb. Ray is 7 lb heavier than Tony. Ray weighs ___?___ lb. $w + 7$
47. My car is 5 years older than my sister's car. If my car is n years old, then her car is ___?___ years old. $n - 5$

In Exercises 48–50,
  a. Choose a variable to represent the number described by the words in
    parentheses.
  b. Write an equation that represents the given information.

(1-5)

48. A package of a dozen pencils costs $1.39. (Cost of one pencil in cents) a. c b. 12c = 1.39
49. The perimeter of a square is 52 m. (Length of a side in meters) a. s b. 4s = 52
50. All but 5 of the 34 invited guests came to the party. (Number of guests at
    the party) a. g b. g + 5 = 34

Translate each problem into an equation. Drawing a sketch may help you. (1-6)

51. Henry is 4 years older than Celia. If the product of their ages is 140, find
    each person's age. Let x = Celia's age; x(x + 4) = 140

52. The length of a rectangle is 5 cm more than its width. If the area of the
    rectangle is 176 cm^2, find the dimensions of the rectangle.
      Let x = width of rectangle; x(x + 5) = 176

**Solve using the five-step plan. Write out each step. A choice of possible
numbers for one unknown is given.** (1-7)

53. The number of tickets Cynthia sold is 12 less than half the number Holly
    sold. Together they sold 114 tickets. How many tickets did each sell?
    Choices for the number Holly sold: 68, 72, 84 Cynthia, 30; Holly, 84

54. Jim weighs 40 lb more than Stephanie. Stephanie weighs three fourths as
    much as Jim. How much does each weigh? Choices for Stephanie's weight:
    100 lb, 118 lb, 120 lb Jim, 160 lb; Stephanie, 120 lb

**Write a number to represent each situation. Then write the opposite of
that situation and write a number to represent it.** (1-8)
400; 400 ft below sea level; −400
−50; a deposit of $50; 50
55. 400 ft above sea level
56. A bank withdrawal of $50

57. Ten losses −10; ten wins; 10
58. Seven floors up 7; seven floors down, −7

Graph the given numbers on a number line. (1-8)

59. 5, −2, $\frac{1}{2}$, 3, −4
60. −3, 0, 1, −2.5, 2

Simplify. (1-9)

61. −(7 − 4) −3   62. [−(−8)] + 10 18   63. 3 + [−(−6)] 9   64. 2 + |−9| 11
65. |−3| + |0| 3   66. |6| − |6| 0   67. |−3.2| + |−0.8| 4   68. |−4.7| + |4.7| 9.4

**Replace each __?__ with one of the symbols < or > to make a true
statement.** (1-9)

69. 9 − 8 __?__ −1 >
70. 7 __?__ 6 + 5 <
71. |0| __?__ 1 <

72. −4.3 __?__ −4.4 >
73. −(7 + 3) __?__ |−14| <
74. $-\frac{3}{7}$ __?__ $-\frac{2}{7}$ <

Simplify.

1. $237 + 75 + 13 + 25$ 350

2. $456 + 29 + 44 + 21$ 550   (2-1)

3. $0.2 + 16.4 + 2.8 + 0.6$ 20

4. $3.75 + 4.85 + 1.25 + 3.15$ 13

5. $6\frac{3}{8} + 1\frac{2}{7} + 4\frac{5}{8} + 3\frac{5}{7}$ 16

6. $25\frac{3}{4} + \frac{4}{5} + \frac{1}{4} + 2\frac{1}{5}$ 29

7. $8 + 3m + 4$ $3m + 12$

8. $15 + 5f + 7$ $5f + 22$

9. $9 + 6w + 3$ $6w + 12$

10. $5(7u)$ $35u$

11. $(8n)(11)$ $88n$

12. $(4b)9$ $36b$

13. $(3p)(4q)(5r)$ $60pqr$

14. $(2x)(5k)(7l)$ $70klx$

15. $(10w)(3h)(2m)$ $60hmw$

Simplify. If necessary, draw a number line to help you.

    (2-2)

16. $(-4 + 8) + 9$ 13

17. $(-7 + 10) + (-3)$ 0

18. $[16 + (-21)] + 4$ -1

19. $[-5 + (-13)] + 6$ -12

20. $[0 + (-7)] + [-8 + (-22)]$ -37

21. $[27 + (-7)] + [1 + (-1)]$ 20

22. $-3 + (-4) + (-9)$ -16

23. $(-5) + (-8) + (-6)$ -19

24. $-7.2 + (-3.5) + 10.7$ 0

25. $5.4 + (-3.1) + (-7.9)$ -5.6

Add.

    (2-3)

26. $9 + 8 + (-3) + 4$ 18

27. $-6 + (-7) + 10 + 2$ -1

28. $112 + (-32) + (-40) + (-25)$ 15

29. $-265 + (-88) + 105 + 95$ -153

30. $-[24 + (-8)] + [-(-4 + 6)]$ -18

31. $[-9 + (-2)] + [-(-9 + 2)]$ -4

Evaluate each expression if $x = 2$, $y = -5$, and $z = 3$.

    (2-3)

32. $-8 + x + (-y)$ -1

33. $-z + y + (-4)$ -12

34. $1 + (-x) + z$ 2

35. $|x + y + z|$ 0

36. $x + (-z) + (-12)$ -13

37. $-|z + (-y) + x|$ -10

    (2-4, 2-5)

Simplify.

38. $48 - 218$ -170

39. $53 - (-47)$ 100

40. $-18 - (-5)$ -13

41. $-27 - 56$ -83

42. $133 - (62 - 59)$ 130

43. $186 - (40 - 69)$ 215

44. $(33 - 44) - (66 - 77)$ 0

45. $(54 - 32) - (-8 + 13)$ 17

46. $[14 - (-8) - [6 - (-3)]$ 13

47. $-18 - 7 - [-6 - (-11)]$ -30

48. $6 + x - (6 - x) - x$ x

49. $y - (-4) - [y + (-4)] - 4$ 4

50. $30\left(\frac{1}{6} + \frac{1}{3}\right)$ 15

51. $\frac{1}{5}(24) + \frac{1}{5}(16)$ 8

52. $\frac{1}{4}(16 + 12)$ 7

53. $(0.25)(34) + (0.75)(34)$ 34

54. $(37 \times 22) - (7 \times 22)$ 660

55. $(16 \times 58) - (6 \times 58)$ 580

56. $14m + 7m$ $21m$

57. $15q + (-8)q$ $7q$

58. $53n - 110n$ $-57n$

59. $79a - 37a$ $42a$

60. $3u + 7u + 8$ $10u + 8$

61. $7(c + 3) + 6$ $7c + 27$

Simplify.

62. $26 + 4(h + 3)$ 4h + 38

63. $8(j - 4) + 17$ 8j − 15

64. $23 + 6(t - 2)$ 6t + 11 (2-5, 2-6)

65. $5x + 9 + 3x + 11$ 8x + 20

66. $(-5)m + 3 + 13m + 17$ 8m + 20

67. $14u - 8 - 12u + 13$ 2u + 5

68. $4h + 8k + (-2)h + 12k$ 2h + 20k

69. $9f + 3g - 7f + 7g$ 2f + 10g

70. $10x + 14y - 6x - 3y$ 4x + 11y

71. $(-27)(-5)$ 135

72. $38(-2)$ −76

73. $(-4)45$ −180

74. $(-8)(-6)(30)$ 1440

75. $(-5)(-9)(-3)$ −135

76. $(-13)(-14)(0)$ 0

77. $5(-4)(-12)(-2)$ −480

78. $-3(-2 - 9)$ 33

79. $(-17 + 6)(-1)$ 11

80. $(-6 \times 13) + (-6 \times 15)$ −168

81. $[27 \times (-5)] - (27 \times 5)$ −270

82. $-16 \times (-1) - [-16 \times (-11)]$ −160

83. $7(-m + 6p)$ −7m + 42p

84. $-5(2u - h)$ −10u + 5h

85. $-4(6n - 9v)$ −24n + 36v

86. $-x + 7 + 6x - 5$ 5x + 2

87. $4 - t - 8 - 7t$ −8t − 4

88. $-l + 9 + 6l - 4$ 5l + 5

89. $3(x + 4y) + (-4)(8x - y)$ −29x + 16y

90. $-4(2u + v) + 5(u - v)$ −3u − 9v

91. $-2(3c + d) - 3(5d - c)$ −3c − 17d

92. $7(e - f) - 3(2e - 3f)$ e + 2f

Write an equation to represent the given relationship among integers. (2-7)

93. The sum of three consecutive integers is 75. $x + (x + 1) + (x + 2) = 75$

94. The sum of three consecutive odd integers is 87. $x + (x + 2) + (x + 4) = 87$

95. The sum of three consecutive even integers is 138. $x + (x + 2) + (x + 4) = 138$

96. The product of two consecutive integers is 156. $x(x + 1) = 156$

97. The greater of two consecutive odd integers is eight more than three times the lesser. $x + 2 = 3x + 8$

98. The smaller of two consecutive even integers is one less than half of the greater. $x = \frac{1}{2}(x + 2) - 1$

Simplify each expression. (2-8, 2-9)

99. $-\frac{1}{11}(55)$ −5

100. $-5000\left(\frac{1}{50}\right)$ −100

101. $-\frac{1}{9}(-63)$ 7

102. $112\left(-\frac{1}{7}\right)\left(-\frac{1}{2}\right)$ 8

103. $-\frac{1}{5}(80)\frac{1}{4}$ −4

104. $6uv\left(-\frac{1}{6}\right)$ −uv

105. $44xy\left(\frac{1}{4}\right)$ 11xy

106. $\frac{1}{m}(3mn),\ m \neq 0$ 3n

107. $(8fg)\left(\frac{1}{f}\right),\ f \neq 0$ 8g

108. $\frac{1}{5}(-35a + 15)$ −7a + 3

109. $(27h - 18)\frac{1}{3}$ 9h − 6

110. $-\frac{1}{4}(-32e + 40f)$ 8e − 10f

111. $(42x - 63y)\left(-\frac{1}{7}\right)$ −6x + 9y

112. $\frac{1}{12}(-480 - 144m)$ −40 − 12m

113. $(-50p - 100q)\left(-\frac{1}{10}\right)$ 5p + 10q

114. $-392 \div 56$ −7

115. $216 \div (-27)$ −8

116. $55 \div \left(-\frac{1}{5}\right)$ −275

117. $0 \div (-29)$ 0

118. $\frac{-36}{-\frac{1}{6}}$ 216

119. $\frac{8}{-\frac{1}{5}}$ −40

120. $\frac{-12}{\frac{1}{4}}$ −48

121. $\frac{0}{-\frac{1}{3}}$ 0

122. $\frac{168m}{-12} -14m$

123. $\frac{252a}{-8} - \frac{63}{2}a$

124. $\frac{-756x}{7x}, x \neq 0 -108$

125. $\frac{-253u}{-23u}, u \neq 0$ — 11

126. $-\frac{c}{17}(-17) \, c$

127. $-9 \cdot \frac{x}{9} -x$

128. $\frac{8w}{7} \cdot 7 \; 8w$

129. $-\frac{5h}{3}(-3) \; 5h$

Chapter 3

Solve. Check your answers.

1. $a - 13 = 17 \{30\}$

2. $c + 8 = 22 \{14\}$

3. $s - 20 = -12 \{8\}$

4. $y + 14 = -33 \{-47\}$

5. $15 + h = 0 \{-15\}$

6. $0 = k - 13 \{13\}$

7. $f - 4 = |16| \{20\}$

8. $g + 7 = |-2| \{-5\}$

9. $-x + 6 = 9 \{-3\}$

10. $23 - y = 47 \{-24\}$

11. $-5 - m = 7 \{-12\}$

12. $13 = -q + 8 \{-5\}$

13. $(e + 4) + 3 = 9 \{2\}$

14. $6 = 10 + (n + 3) \{-7\}$

15. $-5 + (1 + z) = 8 \{12\}$

16. $13u = 338 \{26\}$

17. $-396 = 22a \{-18\}$

18. $-12x = -444 \{37\}$

19. $126 = -9w$ {−14}

20. $\frac{1}{7}t = 13 \{91\}$

21. $\frac{1}{8}h = -8 \{-64\}$

22. $11 = -\frac{1}{4}v \{-44\}$

23. $-10 = -\frac{1}{5}m$ {50}

24. $-42 = \frac{n}{7} \{-294\}$

25. $-\frac{c}{4} = 32 \{-128\}$

26. $-\frac{m}{27} = 0 \{0\}$

27. $-\frac{m}{3} = -40$ {120}

28. $4x = -\frac{2}{7} \left\{-\frac{1}{14}\right\}$

29. $-\frac{3}{2} = -9z \left\{\frac{1}{6}\right\}$

30. $\frac{1}{4}v = 2\frac{3}{4} \{11\}$

31. $3\frac{1}{2} = \frac{1}{2}u \{7\}$

32. $5k + 8 = 43 \{7\}$

33. $7h - 6 = 36 \{6\}$

34. $-3 + 3m = -45 \{-14\}$

35. $2n + 8n = 80 \{8\}$

36. $9v - 5v = 44 \{11\}$

37. $3c - 8c = 65 \{-13\}$

38. $\frac{n}{5} + 9 = -11 \{-100\}$

39. $-\frac{x}{3} - 2 = 7 \{-27\}$

40. $\frac{5}{6}u + 15 = 0 \{-18\}$

41. $x - 5 - 6x = -25 \{4\}$

42. $0 = y - 14 - 3y \{-7\}$

43. $e + 3e + 4e = 48 \{6\}$

44. $5(k + 3) = -10 \{-5\}$

45. $-\frac{4}{3}(n - 6) = 12 \{-3\}$

46. $2(v + 7) - 9 = 19 \{7\}$

Solve each problem using the five-step plan to help you.

47. The sum of 37 and three times a number is 67. Find the number. 10

48. Four times a number, decreased by 24, is −20. Find the number. 1

49. The perimeter of a rectangle is 108. If the length is 33, find the width. 21

50. A large bucket holds 3 L more than twice as much as a small bucket. It took 2 small buckets and 5 large buckets to fill a 63 L tank. How much does a large bucket hold? 11 L

51. The lengths, in meters, of the sides of a triangle are consecutive even integers. The perimeter is 18 m. How long are the sides? 4 m, 6 m, 8 m

52. Bruce's savings account contains $122 more than his younger brother's account. Together, they have $354. Find the amount in each account. Bruce, $238; brother, $116

Chapter 1

Use the five-step plan to solve each problem.

(1-7)

1. A train is traveling at an average speed of 90 km/h. How far will it travel in 2.5 h? 225 km

2. If a number is decreased by 27, the result is 36. Find the number. 63

3. A football team finished its 12-game season with no ties. The team won twice as many games as it lost. How many games did the team win? 8 games

4. A store sold 102 record albums during a two-day sale. Twice as many albums were sold the second day as the first. How many albums were sold the first day? 34 albums

5. If three times a number is increased by 11, the result is 68. Find the number. 19

6. A bank contains 57 nickels, dimes, and quarters. There are 8 more dimes than quarters and 5 more nickels than dimes. How much money is in the bank? $6.25

Chapter 2

(2-3)

Solve.

1. A football team gained 23 yd on one play. However, the ball was brought back to the line of scrimmage and then the team was given a 15 yd penalty. How far was the ball from where it would have been had no penalty been assessed? 38 yd

2. An elevator left the twenty-sixth floor of a building and went up eight floors, then down twelve, and back up four. On what floor was the elevator then? 26th floor

3. At the beginning of the month the Cranes had $250 in their vacation fund. They were able to add $10 per week for four weeks. Then they had to take out $85 for emergency household repairs. How much was in the fund at the end of the month? $205

4. A neighborhood association collected $85 in dues, earned $280 at a garage sale, and got $124 in donations. The association needs $500 to build a playground. How much more must it collect? $11

5. An 8:00 A.M. flight from Boston to Minneapolis took three hours. The time in Minneapolis is one hour earlier than Boston. What time was it in Minneapolis when the flight arrived? 10:00 A.M.

6. A train is traveling at the rate of 100 km/h. A conductor is walking toward the back of the train at 5 km/h. What is the conductor's speed relative to the ground? 95 km/h

Solve.

1. Neon freezes at −248.61° C and boils at −246.09° C. Find the difference between the boiling point and the freezing point. 2.52° C

2. The highest point in California is Mount Whitney at 4418 m above sea level. The lowest point is Death Valley at 86 m below sea level. Find the difference in altitude. 4504 m

3. A candidate goes door to door along Main Street from a point 16 blocks west of campaign headquarters to a point 12 blocks east of headquarters. How many blocks has she gone? 28 blocks

4. Find the difference in degrees of longitude between Chicago at about 88° W and Rome at about 12° E. 100°

5. Mount Everest at 8848 m above sea level is 9245 m higher than the Dead Sea. Find the altitude of the Dead Sea. 397 m below sea level

6. One winter day the temperature in Marshview reached a record high of 18.3° C. That was 22.7° C higher than the average temperature for that day. Find the average temperature. −4.4° C

Chapter 3

Solve.

1. A number increased by 13 is −5. Find the number. −18

2. A glass of milk costs 70¢. If a glass of milk and a sandwich cost $2.50, how much does the sandwich cost? $1.80

3. Fifteen less than a number is 43. Find the number. 58

4. A plane flew 145 km/h faster when it was flying with the wind than it would have flown in still air. If its speed with the wind was 970 km/h, find the speed of the plane in still air. 825 km/h

5. The Booster Club had $425 in its treasury. The members earned $642 selling refreshments. They donated $320 to the football team for bus rentals. How much money did they have left? $747

6. Seventy-six tickets were sold in advance for a museum field trip. Thirteen tickets were sold the day of the trip. Seven people had to return their tickets and did not go. How many people went altogether? 82 people

Solve.

1. The opposite of seven times a number is 238. Find the number. −34

2. One fourth of a number is 73. Find the number. 292

3. A 2.5 kg bag of apples costs $1.40. Find the cost per kilogram of the apples. 56¢