Chapter 2 Summary

Section 2.1

• Using inequality symbols to compare integers
• Interpreting the opposite symbol
• Computing absolute values of integers

Section 2.2

• Addition of two integers
• Properties of addition
• Addition involving lists of integers
• Verifying solutions to equations involving addition
• Finding the next term in an arithmetic sequence

Section 2.3

• Subtraction of two integers
• Subtraction involving lists of integers
• Verifying solutions to equations involving subtraction
• Finding the common difference in an arithmetic sequence
• Interpreting written phrases involving subtraction

Section 2.4

• Multiplication of two integers
• Properties of multiplication
• Multiplication involving lists of integers
• Verifying solutions to equations involving multiplication
• Finding the next term in a geometric sequence
• Using the distributive property in computation with integers

Section 2.5

• Division of two integers
• Understanding quotients involving 0; Undefined and indeterminate expressions
• Verifying solutions to equations involving division
• Finding the common ratio in a geometric sequence
• Interpreting written phrases involving division
• Finding the average of a list of integers
Section 2.6

• Computing exponents applied to integers
• Using the order of operations to compute expressions involving integers
• Verifying solutions to equations involving more than one operation

Chapter 2 Review Exercises

Determine the appropriate inequality symbols which will make each statement true (more than one symbol may apply).

1. \(-8 \text{ ___} -6\)
2. \(-10 \text{ ___} -10\)
3. \(-199 \text{ ___} -200\)
4. \(0 \text{ ___} -7\)

Write the simplified form for each opposite or absolute value.

5. \((-8)\)
6. \(-(12)\)
7. \(|-6|\)
8. \(|-4|\)
9. \(|-14|\)
10. \(|-0|\)

Write the simplified form for each expression. If a computation is involved, perform the computation and simplify your answer.

11. \(|-8| - |-16|\)
12. \(|-12| \cdot |-5|\)
13. \((-7) \cdot |-8|\)
14. \(|-36| \div |-9|\)
15. \(|-30| \div |-3|\)
16. \(5 \cdot |-4| + 7 \cdot |-6|\)

For the following statements, find all integers \(x\) which will make the statement true.

17. \(|x| = 12\)
18. \(|x| = -13\)
19. \(|-x| = 6\)
20. \(|-x| = -22\)

Find the sum of the two integers. Remember to draw number lines whenever necessary.

21. \(-65 + 38\)
22. \(-52 + 61\)
23. \((-9) + (-8)\)
24. \(|-15| + 7\)
Find the indicated sums. Remember you can rearrange numbers in a more convenient order, if desired.

25. \(13 + (-8) + (-36) + 14\)
26. \(14 + (-37) + (-9) + 6\)
27. \(-|12| + |-9| + (-13) + 5\)
28. \(-|12| + |-15| + (-11) + 6\)

Determine whether or not the given integer value is a solution to the equation.

29. \(x + 5 = -7; x = -12\)
30. \(t + (-6) = -11; t = -5\)
31. \(y - (-8) = -11; y = -3\)
32. \(a - 3 = -5; a = -2\)
33. \(4v = -36; v = -9\)
34. \(-5t = -25; t = -5\)
35. \(\frac{x}{-8} = 12; x = -96\)
36. \(\frac{b}{-5} = -15; b = 3\)
37. \(4x - 3 = 6x - 9; x = 3\)
38. \(\frac{x}{4} - 3 = \frac{x}{2}; x = -12\)

Find the common difference and the next term in each arithmetic sequence.

39. 3, 7, 11, ...
40. -4, -1, 2, ...
41. -1, -6, -11, ...
42. -15, -23, -31, ...

Subtract the two integers.

43. \(-15 - 18\)
44. \(-12 - (-7)\)
45. \(-15 - 18\)
46. \(-12 - (-7)\)

Compute each expression.

47. \(5 - 8 + (-7) - 12 - (-6)\)
48. \(-7 - 13 + (-5) - 14 - (-11)\)
49. \(-9 + (-7) - |6| - |-15|\)
50. \(|-19| - |-24| - |-9|\)

Convert each written phrase to a mathematical computation, then compute the required quantity.

51. Subtract -8 from 12.
52. Diminish 12 by 46.
53. The difference of -16 and -5.
54. 17 less than -9.
56. Divide 15 into -345.
57. Divide 1125 by -25.
58. Find the quotient of -752 and -16.
Multiply the two integers.

59. \((-13) \cdot 7\) 
60. \(-12 \cdot 8\)
61. \(-8 \cdot (-9)\) 
62. \(-47 \cdot 0\)

Give the property name which justifies each statement.

63. \(-19 \cdot 13 = 13 \cdot (-19)\) 
64. \(-15 \cdot 0 = 0 \cdot (-15) = 0\)
65. \(-32 \cdot 1 = 1 \cdot (-32) = -32\) 
66. If \(-8x = 0\), then \(x = 0\).

Multiply the following integers.

67. \((-4)(5)(-6)\) 
68. \((-4)(-5)(-2)\)
69. \((-1)(-5)(3)(-2)\) 
70. \((-3)(-2)(-1)(-8)\)

Find the common ratio and the next term in each geometric sequence.

71. 4, 8, 16, … 
72. 3, \(-6\), 12, …
73. \(-4\), 12, \(-36\), …
74. 5, \(-5\), 5, …

Divide the two integers. If a quotient is undefined or indeterminate, be sure to state so.

75. \(-72 \div 4\) 
76. \(-78 \div (-3)\)
77. \(-26 \div 0\) 
78. \(-150 \div 5\)

Find the average of each set of numbers.

79. 5, \(-15\), 12, \(-46\) 
80. 23, 47, \(-13\), \(-12\), 15

Compute each exponent.

81. \((-8)^2\) 
82. \(-12^2\)
83. \(-(3)^4\) 
84. \(-(2)^7\)
Compute the following expressions. Remember to use order of operations in computing the values.

85. \(2 \cdot 6 - 7(13 - 8)\)
87. \(-6(-2)^6 - 5(-4)^2\)
89. \(-14 - 6(4 - 6 \cdot 3)\)
91. \(\frac{4^2 - (-3)^2}{15 - 2 \cdot 11}\)
86. \((-12)(-5) - 25(-7)\)
88. \((-5)^2 - 12(15 - 9)\)
90. \(-\left(12 - 4^2\right)^2\)
92. \(-6(-4 - 5) + 4(3 - 8)^2\)

Answer the following questions.

93. What number must be subtracted from \(-12\) to yield \(-37\)?
94. What number must be divided by \(-5\) to yield \(-60\)?
95. If the sum of \(-12\) and \(-13\) is divided by the sum of 7 and \(-12\), what is the result?
96. If the sum of \(-19\) and \(-16\) is divided by the difference of 7 and 12, what is the result?
97. A start-up company loses $43,200 during its first year. How much did they lose (on average) each month?
98. Kim is a frequent trader of stocks. During one month he had gains of $5780 and $1760, and losses of $2330, $2970, and $4470. What was his average gain (or loss) for each trade that month?
99. A small business has monthly losses of $475 (on average) for its first two years. What were its total losses during the first two years?