

Practice Exercises:

1. Consider the subtraction $5 - 12$.
 - a. Find the opposite, or additive inverse, of 12.

 - b. Rewrite the subtraction as the addition of the opposite of 12.

3. Consider the subtraction $5 - (-7)$.
 - a. Find the opposite, or additive inverse, of -7 .

 - b. Rewrite the subtraction as the addition of the opposite of -7 .

In exercises 5 - 49 odd, perform the indicated subtraction.

5. $14 - 8$

19. $23 - 23$

7. $8 - 14$

23. $0 - 13$

9. $3 - (-20)$

25. $0 - (-13)$

11. $-7 - (-18)$

27. $\frac{3}{7} - \frac{5}{7}$

13. $-13 - (-2)$

29. $\frac{1}{5} - (-\frac{3}{5})$

15. $-21 - 17$

31. $-\frac{4}{5} - \frac{1}{5}$

17. $-45 - (-45)$

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

35. $\frac{1}{2} - (-\frac{1}{4})$

43. $1.3 - (-1.3)$

37. $\frac{1}{2} - \frac{1}{4}$

45. $-2.06 - (-2.06)$

39. $9.8 - 2.2$

47. $5\pi - 2\pi$

41. $-3.1 - (-1.1)$

49. $3\pi - (-10\pi)$

In exercises 51 - 67 odd, simplify each series of additions and subtractions.

51. $13 - 2 - (-8)$

61. $-823 - 146 - 50 - (-832)$

55. $-6 - 2 + 3 - 10$

63. $1 - \frac{2}{3} - (-\frac{5}{6})$

57. $-10 - (-5) + 7 - 2$

65. $-0.16 - 5.2 - (-0.87)$

59. $-23 - 11 - (-7) + (-25)$

67. $-\frac{3}{4} - \frac{1}{4} - (-\frac{5}{8})$

In exercises 69 and 71, identify the terms in each algebraic expression.

69. $-3x - 8y$

71. $12x - 5xy - 4$

In exercises 73 - 83 odd, simplify each algebraic expression.

73. $3x - 9x$

79. $4 - 6b - 8 - 3b$

75. $4 + 7y - 17y$

81. $13 - (-7x) + 4x - (-11)$

77. $2a + 5 - 9a$

83. $-5x - 10y - 3x + 13y$

In exercises 85 and 89, find the value of each expression.

85. $-|-9 - (-6)| - (-12)$

89. $|-9 - (-3 + 7)| - |-17 - (-2)|$

In exercise 93, write each English phrase as an algebraic expression. Then simplify the expression. Let x represent the number.

93. The quotient of -2 and a number, subtracted from the quotient of -5 and the number.

Applications:

95. The peak of Mount Kilimanjaro, the highest point in Africa, is 19,321 feet above sea level. Qattara Depression, Egypt, one of the lowest points in Africa, is 436 feet below sea level. What is the difference in elevation between the peak of Mount Kilimanjaro and the Qattara Depression?

The bar graph on page 71 shows the average daily low temperature for each month in Fairbanks, Alaska. Use this information to answer questions 97 and 99.

97. What is the difference between the average daily low temperatures for March and February?

99. How many degrees warmer is February's average low temperature than January's average low temperature?

Life expectancy for the average American man is 75.2 years; for a woman, it's 80.4 years. The number line on the bottom of page 71, with points representing eight integers, indicates factors, many within our control, that can stretch or shrink one's probable life span. Use this number line to answer questions 101 - 109 odd.

101. If you have a blood relative 95 or older and you smoke cigarettes, do you stretch or shrink your life span? By how many years?

103. If you frequently feel stressed and have less than 12 years of education, do you stretch or shrink your life span? By how many years?

105. What is the difference in the life span between a person who regularly works puzzles and a person who eats red meat more than twice per week?

107. What happens to the life span for a person who takes 81 mg of aspirin per day and eats red meat more than twice per week?

109. What is the difference in the life span between a person with less than 12 years of education and a person who smokes cigarettes?