10. Multiply.

a. $\frac{0}{-2}$

b. $\frac{12}{0}$

Example 10 Division with 0

Divide.

a. $\frac{0}{-7}$ **b.** $\frac{9}{0}$

Solution

a. $\frac{0}{-7} = 0$ **b.** $\frac{9}{0}$ is undefined.

Now work margin exercise 10.

Margin Exercise Answers

1. a. 15 **b.** −20 **c.** 5.9 **2. a.** 8 **b.** −7 **c.** −2.3 **3.** 16 **4.** 60 ft **5. a.** −11 **b.** 0 **c.** 38 **d.** −4 **e.** 1 **f.** 5.0 **6.** −19 °F **7. a.** −27 **b.** −2 **c.** −90 **d.** 42 **e.** $\frac{2}{15}$ **f.** 0.086 **8.** 11,242 sq ft **9. a.** −20.8 **b.** 5 **c.** −19 **10. a.** 0 **b.** undefined

1.2 Exercises

Concept Check

Fill-in-the-Blank. Complete each sentence using information found in this section.

1. If there is no sign in front of a number, the number is understood to be _____.
2. To add two real numbers with _____ signs, subtract their absolute values and use the sign of the number with the larger absolute value.
3. The _____ of a geometric figure is the distance around the figure.
4. Subtraction with real numbers is defined in terms of _____.
5. The _____ of a rectangle is found by multiplying its length by its width.
6. The quotient of two numbers with unlike signs is _____.

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

7. The sum of a positive number and a negative number is always positive.
8. The sum of two positive numbers can equal zero.
9. The expression "15 – 7" can be thought of as "fifteen plus negative seven."
10. If two numbers have the same sign, both the product and the quotient will be negative.
11. The mean of a set of numbers is always positive.

Practice

Simplify.

1. $(-16) + 20$

2. $(-2) + (-9)$

3. $(-8) + (-6) + 5$

4. $\left(-\frac{3}{8}\right) + \frac{7}{8}$

5. $12 - 15$

6. $-4 - (-8)$

7. $(-9) - (-9)$

8. $0 - (-12)$

9. $-\frac{4}{13} - \frac{3}{13}$

10. $\frac{3}{5} - \frac{9}{5}$

11. $(-1.7) + (-5.2)$

12. $(8.5) + (-7.9)$

13. $-7 - (-2) + 6$

14. $-18 - 22 - 41$

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

16. $9 - (-3) + (-2)$

17. $-\frac{7}{6} + \left(-\frac{5}{6}\right) - \frac{1}{6}$

18. $\left(-\frac{9}{16}\right) + \left(-\frac{7}{8}\right)$

19. $\frac{1}{8} - \left(-\frac{1}{2}\right) + \frac{1}{4}$

20. $\frac{4}{5} + \left(-\frac{2}{3}\right) - \frac{1}{6}$

21. $-\frac{3}{8} - \frac{5}{6} + \left(-\frac{1}{2}\right)$

22. $(-8)(-7)$

23. $(-3)(17)$

24. $(-8)(-1)(-5)(6)(-2)$

25. $(12)\left(-\frac{5}{6}\right)$

26. $\frac{3}{8} \cdot \frac{5}{2}$

27. $-\frac{5}{16} \cdot \frac{3}{4}$

28. $6(5.3)$

29. $\left(-\frac{3}{10}\right)\left(\frac{5}{6}\right)\left(-\frac{8}{7}\right)\left(\frac{1}{2}\right)\left(-\frac{1}{4}\right)$

30. $(-0.8)(4.9)$

31. $(11.7)(2.06)(-1.3)$

32. $(-20) \div (-10)$

33. $\frac{-39}{-13}$

34. $\frac{-91}{-7}$

35. $\frac{52}{13}$

36. $\frac{6}{16} \div 0$

37. $60 \div (-15)$

38. $0 \div \frac{11}{12}$

39. $\frac{28.7}{-7}$

40. $-68.05 \div 5$

41. $-88.64 \div (-8)$

42. $-6.084 \div (-9)$

43. $18 \div 3 \cdot 6 + 3$

44. $7(4-2) \div 7 + 3$

45. $10 \div 2 - 4 \cdot 3^2$

46. $2^2 \cdot 3 \div 3 + 6 \div 3$

47. $-6 \cdot 3 \div (-1) + 4 - 2$

48. $5(-2)\div(-5)+5-3$

49. $\left(4^2+6\right)-2\cdot 19$

50. $\left(5^2-4^2\right)^2-11$

51. $\left[(4+14)\div(3\cdot 3)\right]-5$

52. $\left[8-(5\cdot 6-2)\right]+3$

53. $\left(12\cdot 4\div 2^3\right)-\left[\left(3\cdot 2^3\right)\div(4\cdot 6)\right]$

54. $\left[(3\cdot 0)\div(2\cdot 1)\right]-\left(24-6^2\right)\div\left(4^2-3\cdot 4\right)$

55. $\left(3\cdot 2^3\right)\div(3\cdot 4)+(2\cdot 3+4)\div(6-1)$

56. $-6+(-2)(12\cdot 2\div 3)4$

57. $14-\left[11\cdot 4-\left(2\cdot 3^2+1\right)\right]$

58. $6+3\left[-4-2(3-1)\right]$

59. $7-\left[4\cdot 3-(4-3\cdot 2)\right]$

60. $-2\left[6+4(1+7)\right]\div 4$

61. $\dfrac{(-3)(-6)}{5-(-4)}-2$

62. $\dfrac{4-(-10)}{-2-5}\div(-2)$

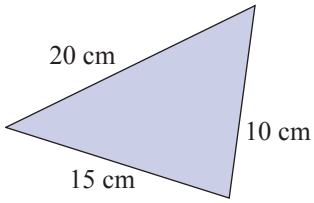
63. $\dfrac{16-(-4)}{-3+9}\div\dfrac{10^2+10}{-5\cdot 11}$

64. $\dfrac{3^3-(-27)}{2\cdot 3^2}+\dfrac{-6\cdot 5}{-2\cdot 5}$

Applications

Calculate the perimeter of each geometric figure. See Example 4.

65.



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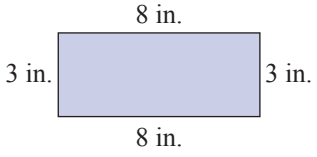

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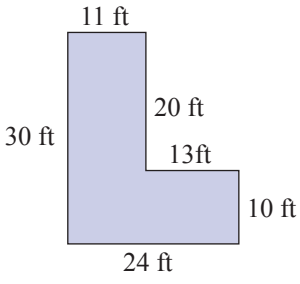

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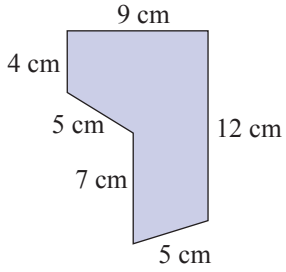

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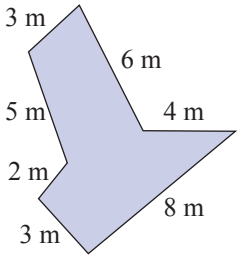

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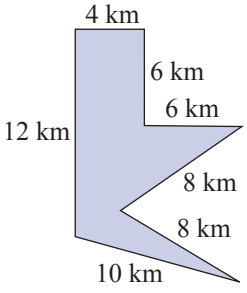
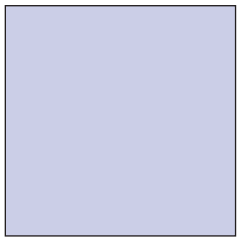


Calculate the area of each rectangle. See Example 8.

71.



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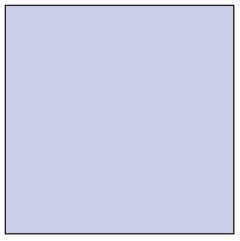

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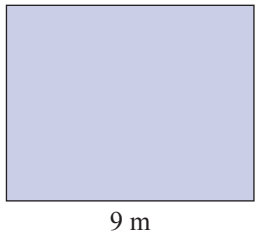

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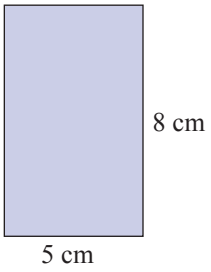

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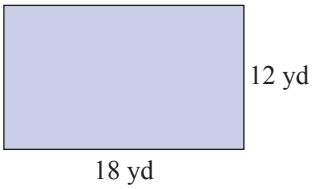

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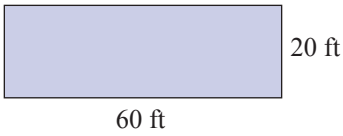


Solve.

77. During the first hour of trading, a stock trader has stock worth $1973.27. During the second hour, the trader loses $797.53. During the third hour, he gains $925.87. What was the net worth of the trader's stock after the first three hours of trading?

78. A college student opens a checking account with a deposit of $1000.00. She withdraws $252.68 to pay for textbooks. Later that evening, she writes a check for $116.89 for groceries. The next day, she deposits a graduation gift of $75.25 cash. What is her final account balance?

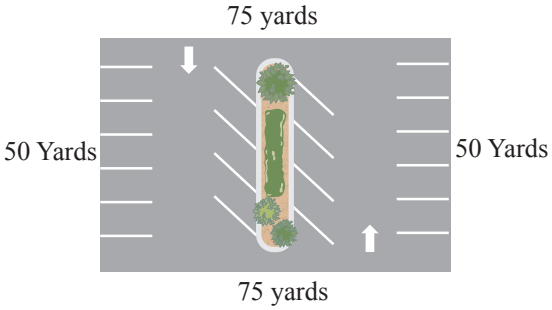
79. In a 5-day week the NASDAQ stock market posted a gain of 38 points, a loss of 65 points, a loss of 32 points, a gain of 10 points, and a gain of 15 points. If the NASDAQ started the week at 2050 points, what was the market at the end of the week?

80. In ten running plays in a football game, the tailback gained 5 yards, lost 3 yards, gained 15 yards, gained 7 yards, gained 12 yards, lost 4 yards, lost 2 yards, gained 20 yards, lost 5 yards, and gained 6 yards. What was his cumulative yardage in the game?

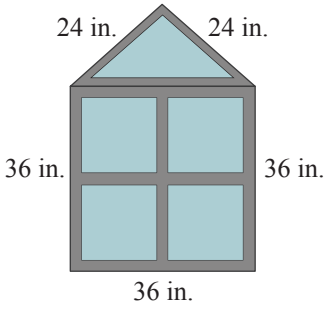
81. A hiker, beginning at an altitude of 970 ft, ascends a peak 5260 ft. Next, he descends 3130 ft and climbs another peak 1570 ft. After a brief rest, he continues his ascent another 2190 ft. Finally he descends 4040 ft. What is his final altitude?

82. A commercial fishing boat casts a net and brings in 258 fish. The fishermen find that 77 of the fish are too small to sell and throw them back. They cast their net again and bring in 401 more fish. Of these, 98 are too small to sell. How many fish do the fishermen have left to sell?

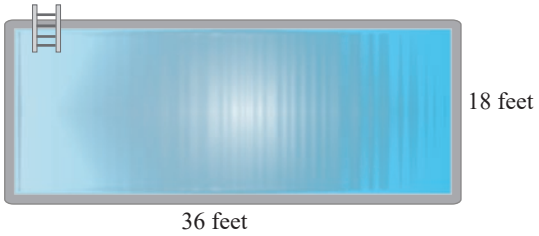
83. Find the perimeter of a parking lot that is in the shape of a rectangle 50 yards wide and 75 yards long.



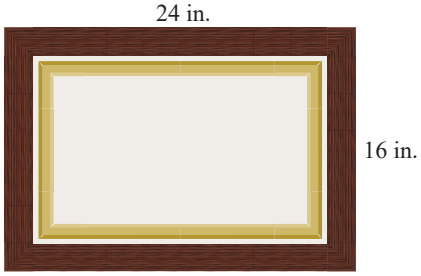
84. A window is in the shape of a triangle placed on top of a square. The length of each of two equal sides of the triangle is 24 inches and the third side is 36 inches long. The length of each side of the square is 36 inches long. Find the perimeter of the window.



85. A rectangular pool measures 36 feet long by 18 feet wide. Find the area of the pool in square feet.



86. A painting is mounted in a rectangular frame (16 inches by 24 inches) and hung on a wall. How many square inches of wall space will the framed painting cover?



87. Cheyenne has been commissioned by her city to paint a mural on the side of a brick building and must calculate the area of the wall so she can plan and scale her mural. The side of the building measures 120 feet tall and 84 feet wide. Find the area of the mural.

88. A rectangular lot for a house measures 210 feet long by 175 feet wide. Find the area of the lot in square feet.