

Practice

For use with pages 5–9

Evaluate the expression when $y = 6$.

1. $\frac{24}{y}$

2. $5y$

3. $20 - y$

4. $19 + y$

5. $y + 13$

6. $54 - y$

7. $7y$

8. $\frac{36}{y}$

Evaluate the expression when $m = 7$, $n = 9$, and $q = 10$.

9. nq

10. $\frac{18}{n}$

11. $m + q$

12. $29 - m$

13. $58 - m$

14. $41 + n$

15. $16q$

16. $\frac{36}{n}$

17. You are dividing 130 students into g equally sized groups for a field trip.
Write a variable expression to find the number of students in each group.

Write a variable expression to represent the phrase.

18. A number added to 27

19. 29 decreased by a number

20. 6 fewer than a number

21. The sum of 16 and a number

22. The product of a number and 7

23. 42 divided by a number

24. The quotient of 56 and a number

25. A number multiplied by 12

**In Exercises 26–29, use the following information. You belong to a book club.
Your yearly book budget is \$350. Each book in the book club costs \$7.**

26. Complete the table.

Books	Cost (dollars)	Amount left (dollars)
1	7	343
2	14	336
3	?	?
4	?	?

27. Write a variable expression for the cost of b books.
28. Write a variable expression for the amount of your budget after b books.
29. How many books will you be able to buy before the \$350 is spent?

Practice

For use with pages 63–68

Evaluate the expression using mental math. Justify each of your steps.

1. $4(19)(-25)$

2. $17 + 32 + 23$

3. $6.8 + 9.7 + 2.2$

4. $3.06 + 5.37 + 4.94$

5. $10(-8)(-10)(4)$

6. $-15(-9)(4)(5)$

Evaluate the expression when $a = 10$, $b = -4$, and $c = -2$.

7. a^2bc^2

8. $23 \cdot 5c^2$

9. $3bc^2$

10. $a^2b \cdot 6$

11. $9a^2 + 9b \cdot 25$

12. $3b + 5a + (-6c)$

Simplify the expression.

13. $s + 7 + 96$

14. $-33 + j + 14$

15. $-21(3t)$

16. $32r(-6)$

17. $5.36 + p + 6.47$

18. $-2.05x(3.01)$

19. Identify the property illustrated by the statement
- $(14 \cdot 7) \cdot x = 14 \cdot (7 \cdot x)$
- .

20. Identify the property illustrated by the statement
- $18^3 + 0 = 18^3$
- .

Use a conversion factor to perform the indicated conversion.

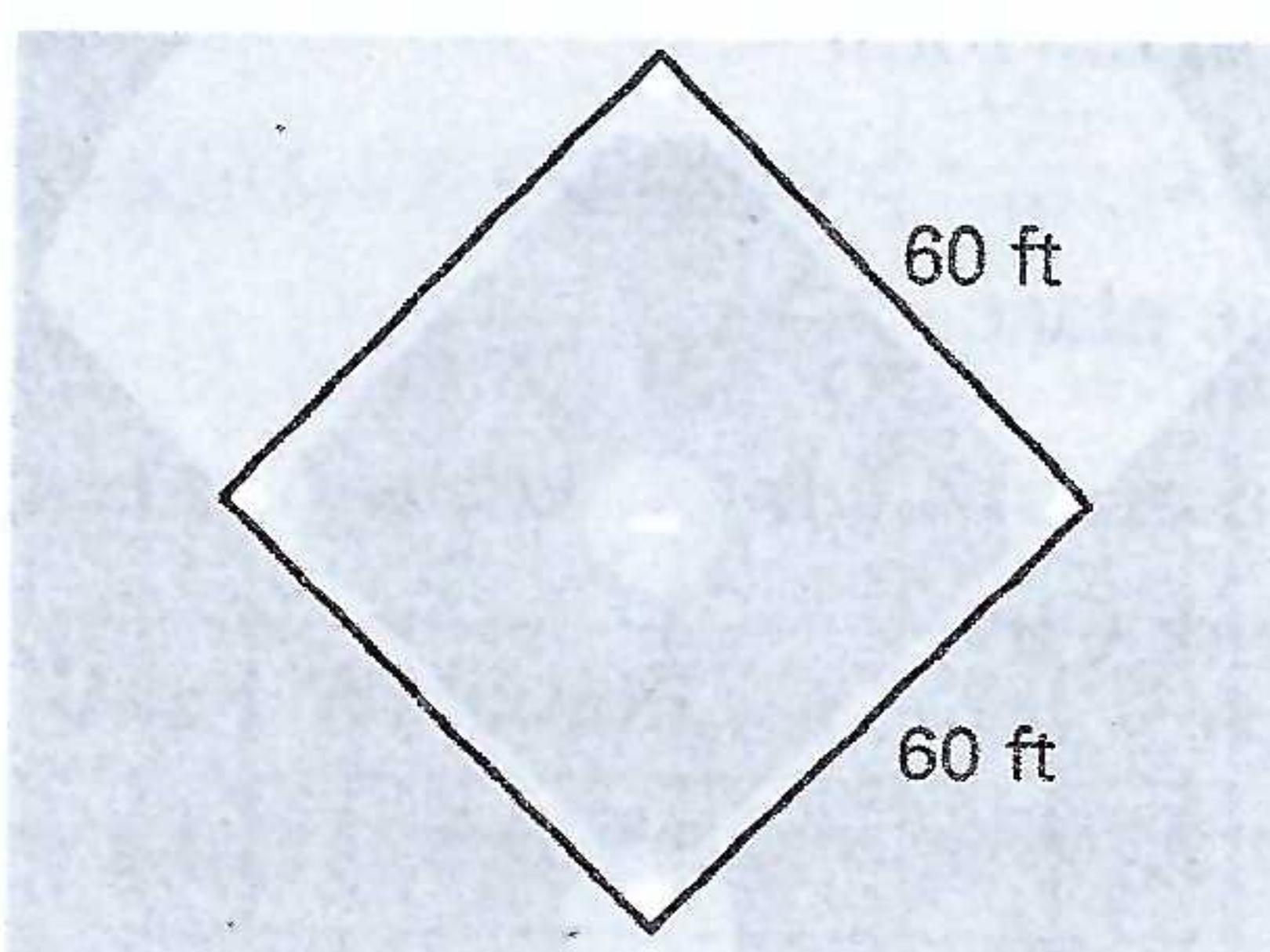
21. 27 yards to feet

22. 160 kilometers to meters

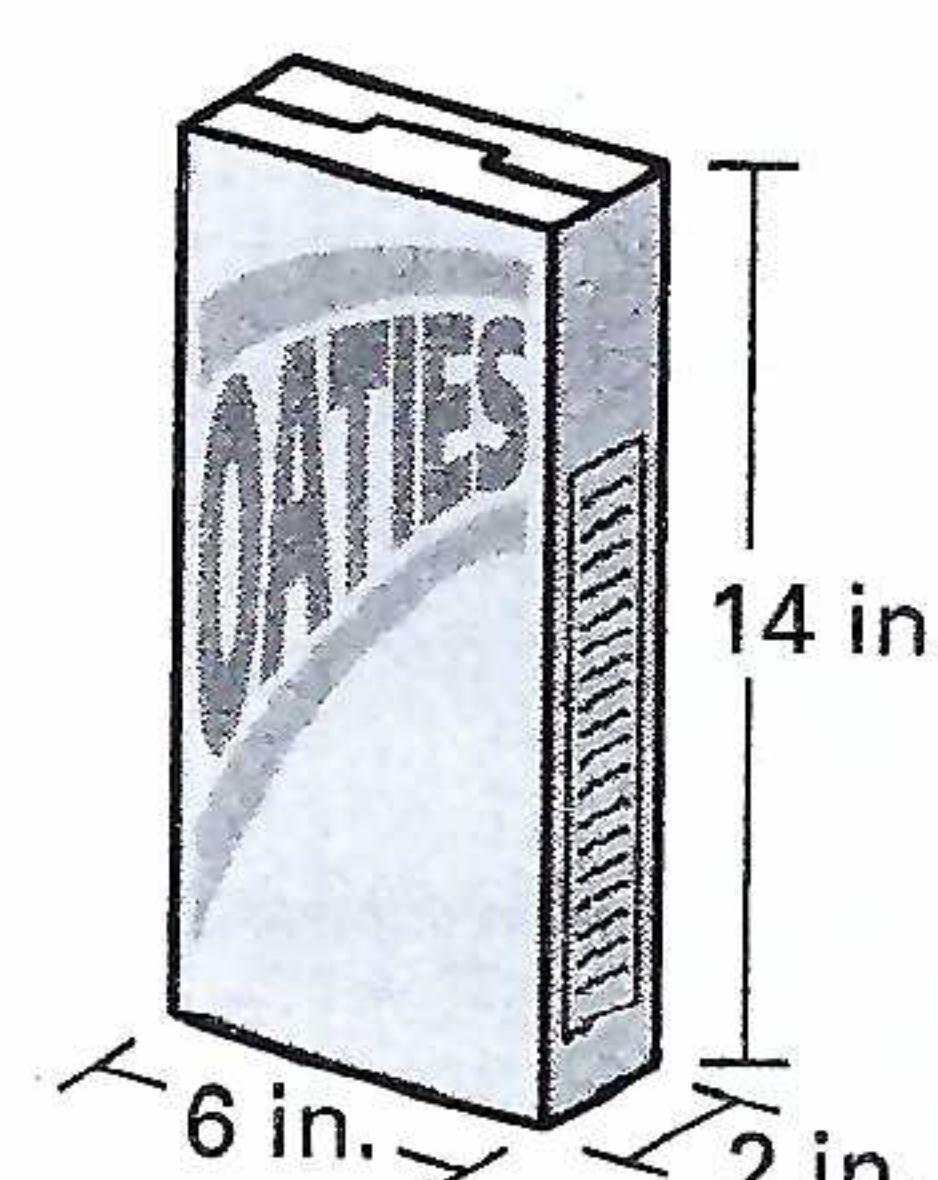
23. 540 seconds to minutes

24. 112 ounces to pounds

25. The area of the infield of a college softball field is 3600 square feet. Use a conversion factor to find the area of the infield of a college softball field in square yards.



26. During the summer, you work 5 hours a day as a lifeguard at a beach and earn \$8 each hour. Use properties of multiplication to find how much money you earn during a 6-day work week.
27. The cereal box at the right is 14 inches high, 6 inches long, and 2 inches wide. The formula for the volume of a box is $V = lwh$. Find the volume of the box in cubic inches.



LESSON**2.2****Practice**

For use with pages 73–77

Use the distributive property to evaluate the expression.

1. $15(7 + 20)$

2. $10(6.4 + 8.9)$

3. $-5(24 - 17)$

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

5. $(29 - 14)(-3)$

6. $12(11.3 + 7.8)$

Evaluate the expression using the distributive property and mental math.

7. $312(-4)$

8. $487(6)$

9. $17.98(3)$

10. $8(1.25)$

11. $-7(82)$

12. $191(-5)$

Use the distributive property to write an equivalent variable expression.

13. $11(s + 9)$

14. $-21(x - 7)$

15. $13(20 - a)$

16. $-8(17 + b)$

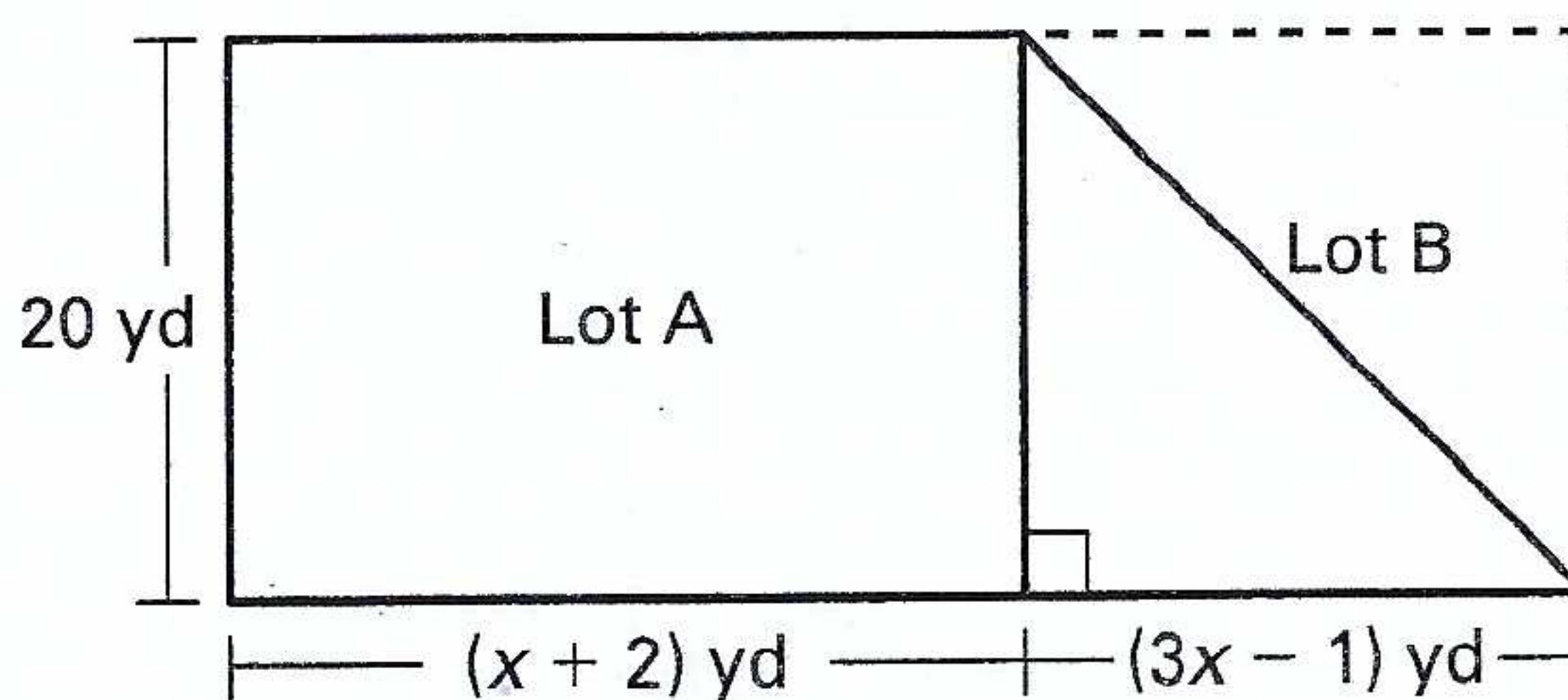
17. $(r + 1.68)(-0.1)$

18. $3.25(5.02 - t)$

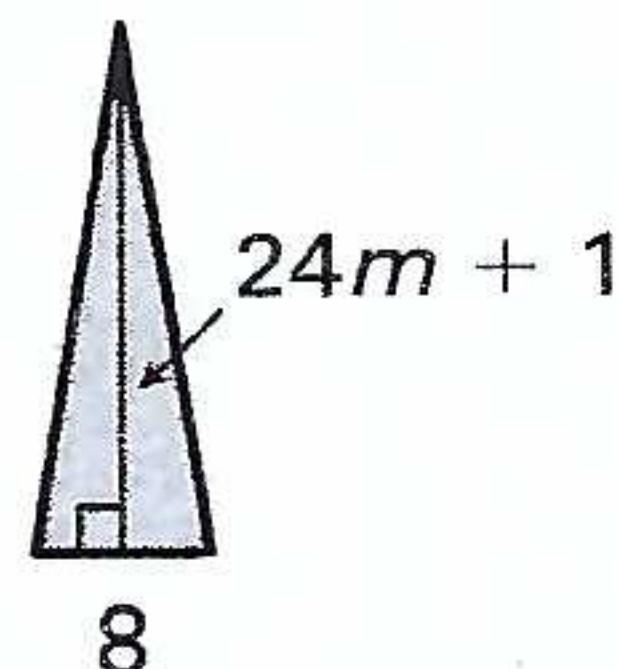
19. You and a friend go to a restaurant. You each order a salad, a cup of soup, and a drink. Each salad costs \$5.99, each cup of soup costs \$3.90, and each drink costs \$1.15. Use the distributive property to find the total cost of the meal.

20. There are several rectangular parcels of land for sale in a neighborhood. The Gonzalez family wants to purchase Lot A and half of the neighboring lot.

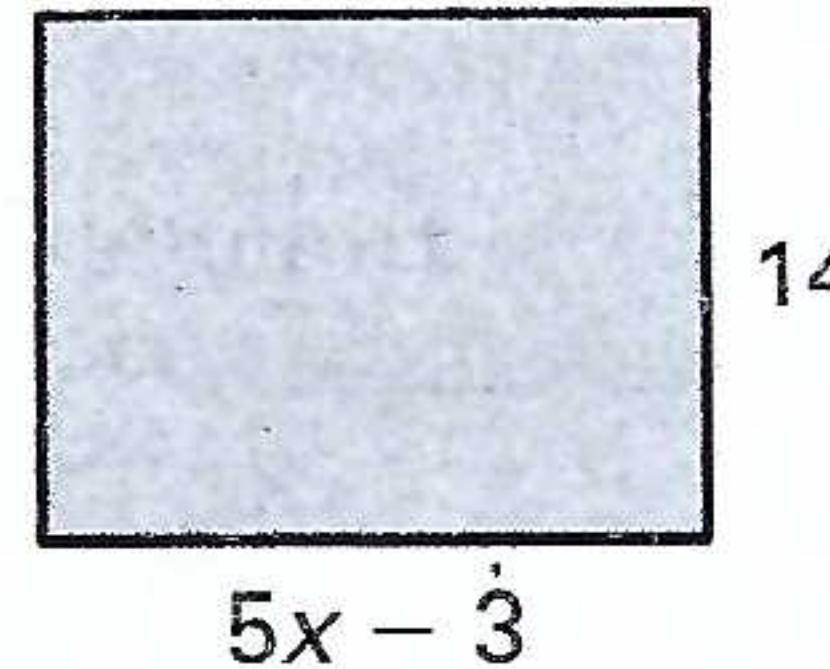
- Use the distributive property to find the area, in square yards, of Lot A.
- Use the distributive property to find the area, in square yards, of half of Lot B.
- Find the total area of the land the Gonzalez family wishes to purchase.

**Find the area of the rectangle or triangle.**

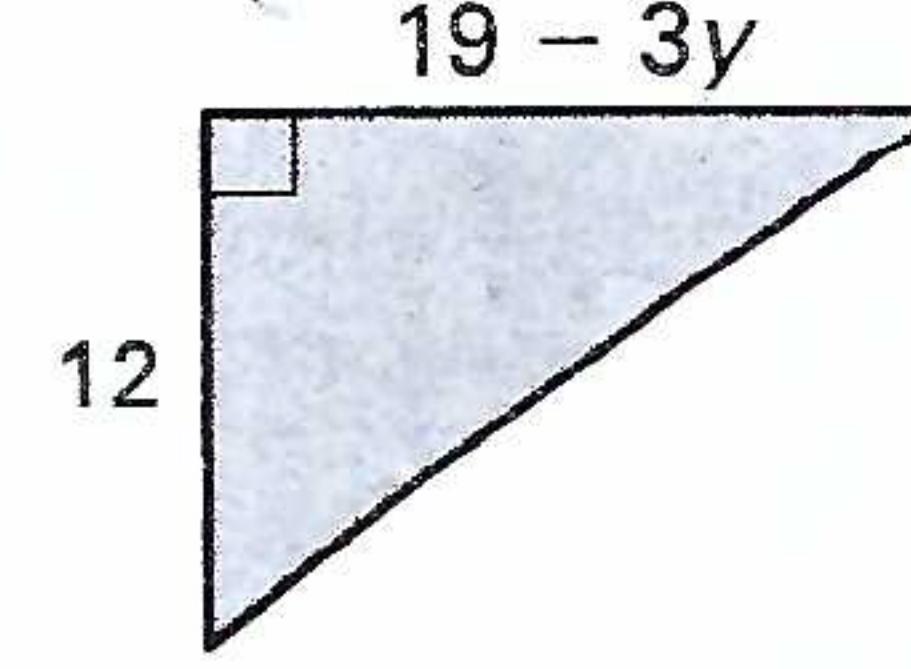
21.



22.



23.



Practice

For use with pages 102-107

12.

Perform the indicated operation.

1. $-7.06 + 5.22$ 2.24

4. $-6.47 - 10.16$ -16.63

7. $-16.04(-5.25)$ 80.70

10. $42.125 \div (-6.74)$

2. $-8.17 + (-12.91)$ -21.08

5. $-15.23 - (-9.57)$

8. $-21.9(14.8)$

11. $-96.38 \div (-12.2)$

3. $13.07 - 20.01$

6. $-4.34 - 11.59$

9. $18.05(-3.12)$

12. $-42.822 \div 14.04$

Solve the equation. Check your solution.

13. $21.3 + r = -19.79$

14. $13.49 = -8.56 + a$

15. $-20.57 = m + 3.78$

16. $v - 17.06 = 29.08$

17. $-14.88 = d - 34.76$

18. $-31.45 = p - 12.96$

19. $30.75b = -73.8$

20. $70.448 = -25.16f$

21. $-42.12 = -7.8t$

22. $-13.25 = \frac{k}{-6}$

23. $24.36 = \frac{w}{-7.9}$

24. $\frac{c}{-20.18} = -7.35$

25. You deposit a check for \$236.79 into your savings account. Your account has a balance of \$319.23 after the deposit. Find the balance of your savings account before the deposit.

26. The table shows the daily low temperature in degrees Celsius for a 5-day period.

- Find the sum of the temperatures.
- Find the average low temperature for the 5-day period.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature (°C)	-5.24	-8.3	-9.47	-9.08	-5.13

Simplify the expression.

27. $-9.87x - 18.13x$

28. $27.33x - 39.42x$

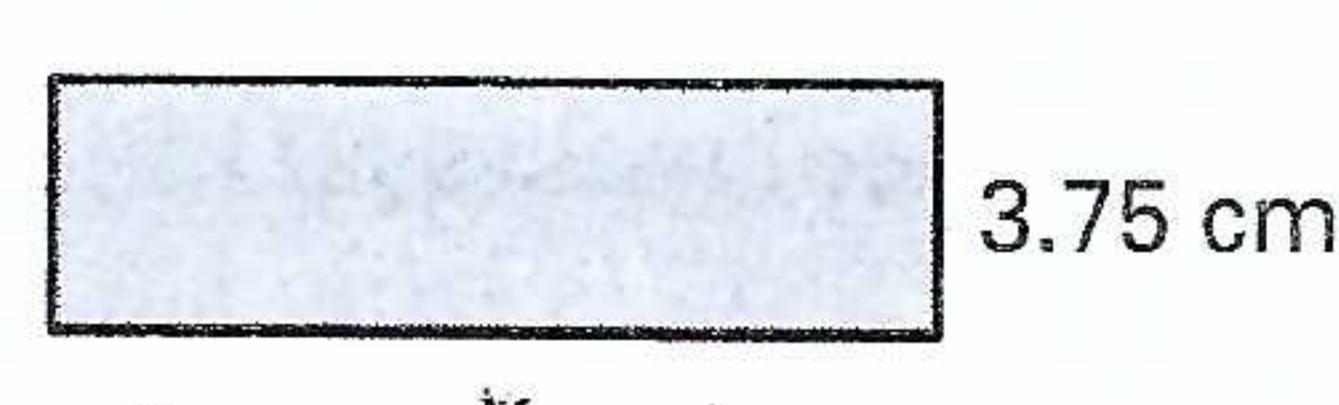
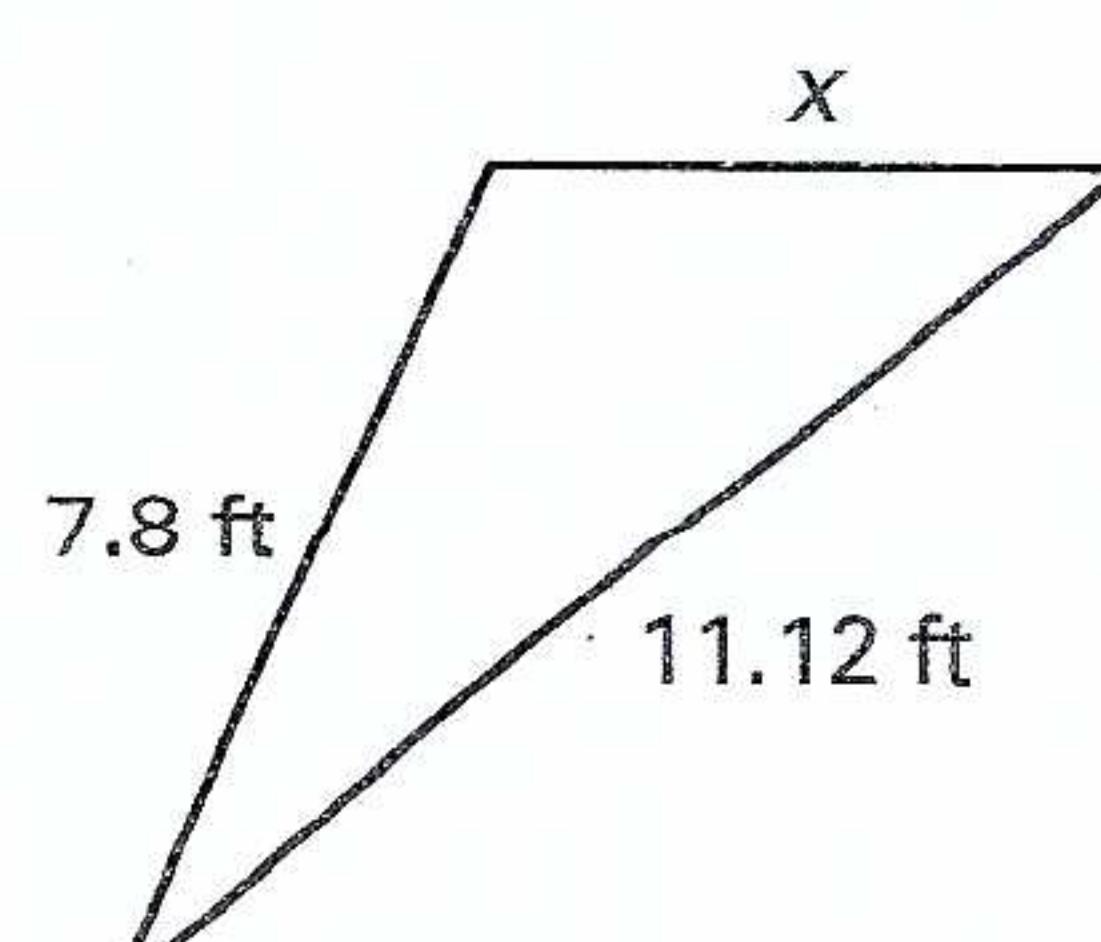
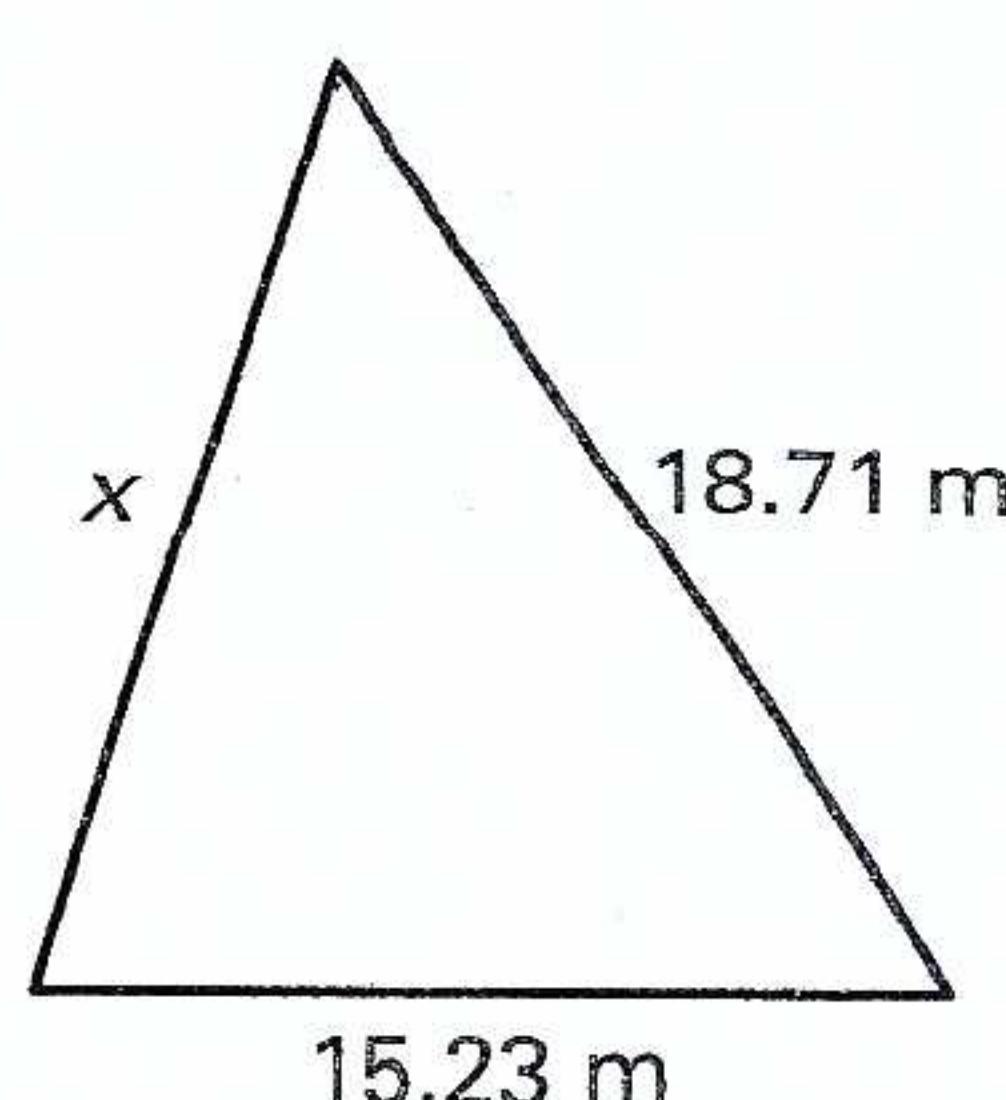
29. $-56.08x + 26.68x$

Find the value of x for the given triangle or rectangle.

30. Perimeter = 50.35 m

31. Perimeter = 24.31 ft

32. Area = 49.65 cm²



4.1**Practice**

For use with pages 173-178

Write all the factors of the number.

1. 28

2. 34

3. 44

4. 46

5. 59

6. 65

Tell whether the number is **prime** or **composite**.

7. 97

8. 127

9. 111

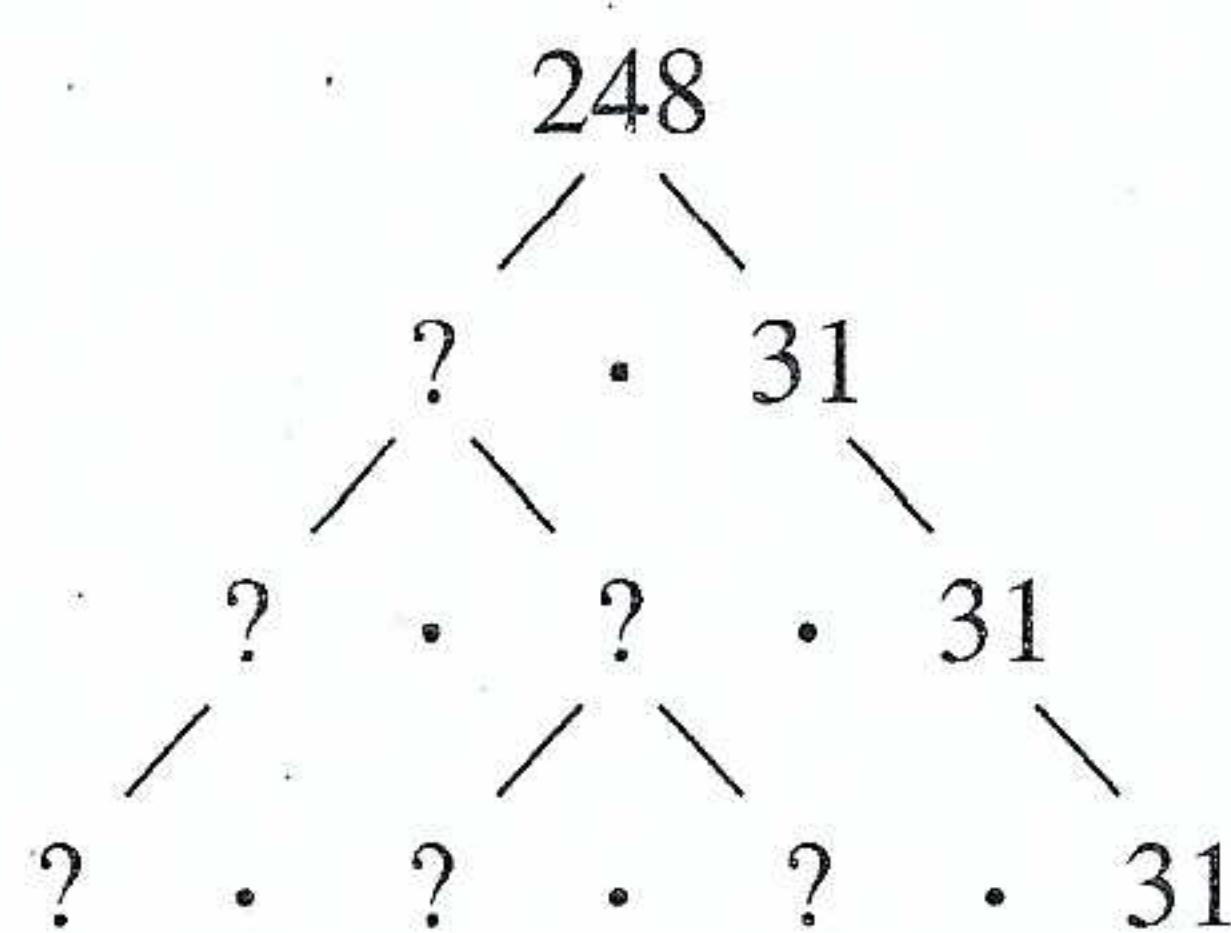
10. 99

11. 133

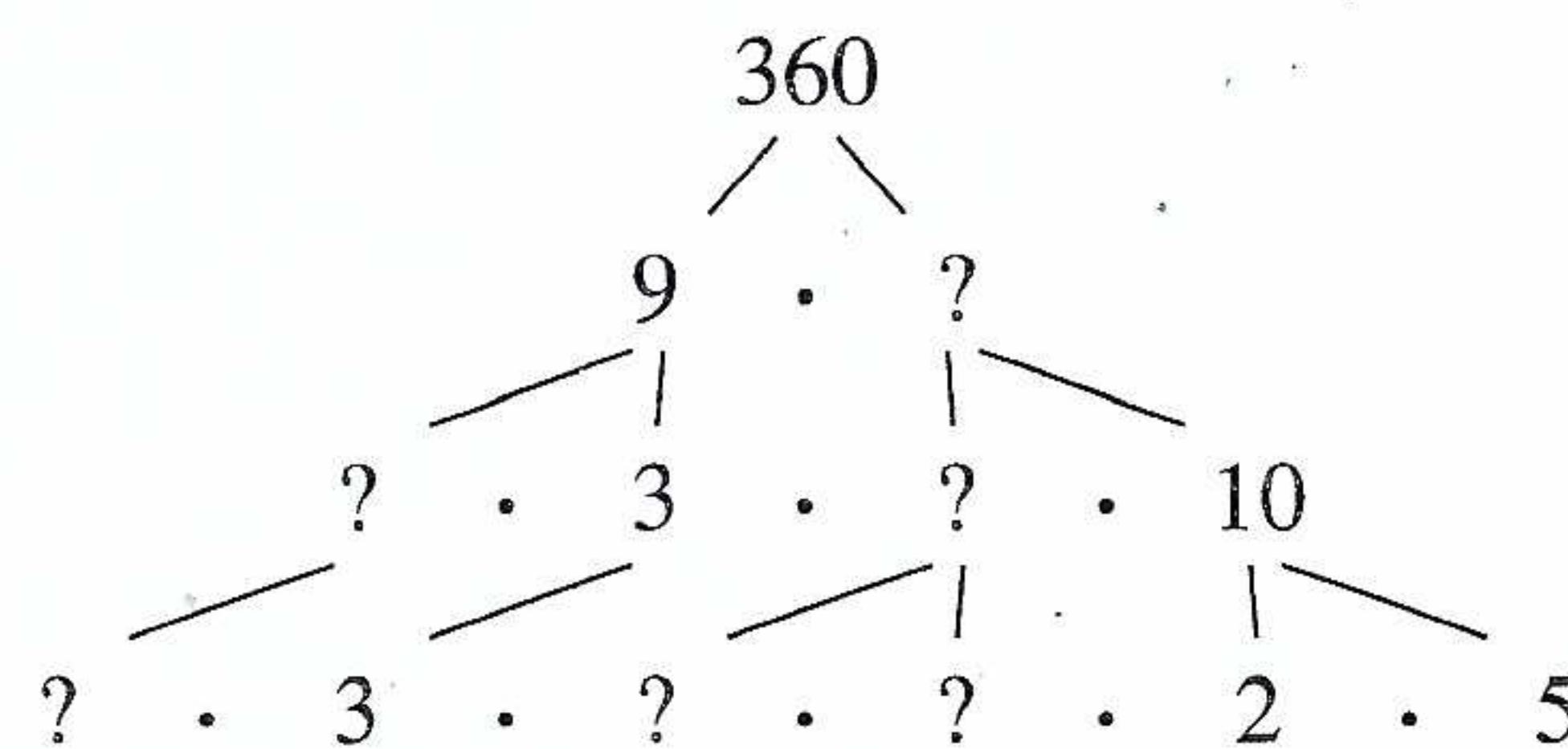
12. 149

Complete the factor tree. Then write the prime factorization of the number.

13.



14.



Write the prime factorization of the number.

15. 56

16. 69

17. 57

18. 77

19. 91

20. 85

21. 93

22. 114

23. 108

Factor the monomial.

24. $16x^2y$

25. $32b^5c^4$

26. $17r^2s^3$

27. $24z^2$

28. $40g^3h$

29. $57cd^4$

30. Exercise 14 shows a factor tree for 360. Make another factor tree for 360, without using 9 as a factor in the first part of the tree. Compare the results of the trees.

31. You are arranging 70 plants in a rectangular garden with the same number of plants in each row. How many ways can you arrange the garden?

32. A dog kennel groups the dogs in order to determine at what time they will be given a treat. Each group should have the same number of dogs. There are 120 dogs in the kennel. How many groups are possible?

4.3**Practice**

For use with pages 184–188

Tell whether the fraction is in simplest form.

1. $\frac{13}{39}$

2. $\frac{25}{42}$

3. $\frac{15}{51}$

Write two fractions that are equivalent to the given fraction.

4. $\frac{5}{14}$

5. $\frac{7}{16}$

6. $\frac{18}{20}$

7. $\frac{22}{34}$

8. $\frac{14}{35}$

9. $\frac{12}{46}$

Write the fraction in simplest form.

10. $\frac{21}{24}$

11. $\frac{28}{30}$

12. $\frac{39}{52}$

13. $\frac{45}{72}$

14. $\frac{35}{42}$

15. $\frac{14}{63}$

16. You spend 3 hours every day practicing the piano. What fraction of a day do you spend practicing the piano? Give your answer in simplest form.

17. You and a friend are taking a 300-mile car trip. You have already traveled 120 miles.

a. What fraction of the trip has been completed? Give your answer in simplest form.

b. What fraction of the trip is left? Give your answer in simplest form.

Write the fraction in simplest form.

18. $\frac{60x^3y}{40x^2y^2}$

19. $\frac{135mn^4}{50n^2}$

20. $\frac{28s}{35s^2t^3}$

21. $\frac{63v^4r}{25r^2}$

22. $\frac{75a^3b}{245ab^3}$

23. $\frac{28g^3h}{56g^3h^2}$

Use a number line to determine whether the fractions are equivalent.

24. $\frac{3}{8}, \frac{8}{24}$

25. $\frac{1}{7}, \frac{8}{14}$

26. $\frac{4}{5}, \frac{16}{20}$

Write the fractions in simplest form. Tell whether they are equivalent.

27. $\frac{39}{72}, \frac{26}{48}$

28. $\frac{42}{56}, \frac{63}{84}$

29. $\frac{68}{102}, \frac{80}{96}$

Practice

For use with pages 206–211

Write the number in scientific notation.

1. 1250

2. $205,000$

3. 0.0035

4. 0.00058

5. $5,220,000$

6. 0.000064

Write the number in standard form.

7. 5.3×10^2

8. 7.2×10^{-2}

9. 4.3×10^{-3}

10. 1.2×10^5

11. 9.45×10^{-5}

12. 6.32×10^6

Complete the statement using $<$, $>$, or $=$.

13. 1.8×10^2 ? 1800

14. 43,000 ? 4.3×10^3

15. 6.9×10^{-3} ? 0.0068

16. 1.8×10^{-4} ? 0.0018

Find the product. Write your answer in scientific notation.

17. $(6 \times 10^2)(3 \times 10^3)$

18. $(4.5 \times 10^3)(2 \times 10^4)$

19. $(4 \times 10^{-3})(2.4 \times 10^7)$

20. $(2.5 \times 10^{-2})(5 \times 10^{-3})$

21. The sun has a diameter of 1.39×10^6 kilometers. The diameter of Earth is 1.28×10^4 kilometers. How many times larger is the sun's diameter than the Earth's diameter? Give your answer in scientific notation.

Order the numbers from least to greatest.

22. $2400; 2.5 \times 10^2; 2.3 \times 10^3$

23. $4.8 \times 10^5; 481,000; 4.7 \times 10^5$

24. $0.036; 3.5 \times 10^{-2}; 3.7 \times 10^{-2}$

25. $8.3 \times 10^{-4}; 0.0084; 8.2 \times 10^{-4}$

Write the number in scientific notation.

26. Volume (in cubic kilometers) of water in Lake Michigan: 4920

27. Approximate density (in grams per milliliter) of one helium atom: 0.0001787

Write the number in standard form.

28. Floor area (in square meters) of the Sears Tower in Chicago: 4.16×10^5

29. Approximate width (in meters) of a United States dollar bill: 6.6294×10^{-2}

30. Volume (in cubic meters) of a mole of helium atoms: 2.1×10^{-5}

5.4**Practice**

For use with pages 246–247

Convert the temperature to degrees Celsius.

1. 53.6°F

2. 41°F

3. 86°F

4. 112°F

5. 24.8°F

6. 194°F

7. 14°F

8. -13°F

Convert the temperature to degrees Fahrenheit.

9. 16°C

10. 50°C

11. -6°C

12. 5.5°C

13. 30°C

14. 0°C

15. -20°C

16. -55°C

- 17. Average Temperature** The average temperature in Phoenix, Arizona, for the month of July is about 94°F . Convert this temperature to degrees Celsius.

- 18. Mars** The average recorded temperature on Mars is -63°C . Convert this temperature to degrees Fahrenheit.

- 19. Human Being** The normal body temperature of a resting human being is 98.6°F . Convert this temperature to degrees Celsius.

- 20. Challenge** The boiling point of fluorine is -306.62°F . The boiling point of argon is -185.85°C . The boiling point of oxygen is -297.31°F . The boiling point of nitrogen is -195.79°C . In degrees Fahrenheit and in degrees Celsius, determine the difference between the lowest and highest boiling points. Which difference is greater? *Explain* why this difference is greater.