Lesson Check

Do you know HOW?

1. Which is the better buy, 6 bagels for \$3.29 or 8 bagels for \$4.15?
2. What is 7 lb 4 oz converted to ounces?
3. Which is longer, 12 m or 13 yd?
4. A car is traveling at 55 mi/h. What is the car's speed in feet per second?

Do you UNDERSTAND? MATHEMATICAL PRACTICES

Vocabulary Tell whether each rate is a unit rate.

5. 20 mi every 3 h
6. 2 dollars per day

7. **Reasoning** Does multiplying by a conversion factor change the amount of what is being measured? How do you know?
8. **Reasoning** If you convert pounds to ounces, will the number of ounces be greater or less than the number of pounds? Explain.

Practice and Problem-Solving Exercises MATHEMATICAL PRACTICES

A Practice

9. **Running** Trisha ran 10 km in 2.5 h. Jason ran 7.5 km in 2 h. Olga ran 9.5 km in 2.25 h. Who had the fastest average speed? See Problem 1.
10. **Population** Bellingham, Washington, had an area of 25.4 mi^2 and a population of 74,547 during one year. Bakersfield, California, had an area of 113.1 mi^2 and a population of 295,536 during the same year. Which city had a greater number of people per square mile?

Convert the given amount to the given unit. See Problems 2 and 3.

11. 63 yd; feet
12. 168 h; days
13. 2.5 lb; ounces
14. 200 cm; meters
15. 4 min; seconds
16. 1500 mL; liters
17. 9 yd; meters
18. 5 kg; pounds
19. 79 dollars; cents
20. 3 qt; liters
21. 89 cm; inches
22. 2 ft; centimeters

23. **Maintenance** The janitor at a school discovered a slow leak in a pipe. The janitor found that it was leaking at a rate of 4 fl oz per minute. How fast was the pipe leaking in gallons per hour? See Problem 4.
24. **Shopping** Mr. Swanson bought a package of 10 disposable razors for \$6.30. He found that each razor lasted for 1 week. What was the cost per day?

B Apply

Copy and complete each statement.

25. 7 ft 3 in. = ■ in.
26. 2.2 kg = ■ lb
27. 2.5 h = ■ min
28. 2 qt/min = ■ gal/s
29. 75 cents/h = ■ dollars/day
30. 60 ft/s = ■ km/h

Choose a Method **Choose paper and pencil, mental math, or a calculator to tell which measurement is greater.**

31. 640 ft; 0.5 mi **32.** 63 in.; 125 cm **33.** 75 g; 5 oz

34. Think About a Plan A college student is considering a subscription to a social-networking Internet site that advertises its cost as "only 87 cents per day." What is the cost of membership in dollars per year?

- How many conversion factors will you need to use to solve the problem?
- How do you choose the appropriate conversion factors?

35. Recipes Recipe A makes 5 dinner rolls using 1 c of flour. Recipe B makes 24 rolls using $7\frac{1}{2}$ c of flour. Recipe C makes 45 rolls using 10 c of flour. Which recipe requires the most flour per roll?

36. Error Analysis Find the mistake in the conversion below. Explain the mistake and convert the units correctly.

$$9 \text{ yd} = ? \text{ ft}$$

$$9 \text{ yd} \cdot \frac{3 \text{ yd}}{1 \text{ ft}} = 27 \text{ ft}$$

37. Writing Suppose you want to convert kilometers to miles. Which unit should be in the numerator of the conversion factor? Which unit should be in the denominator? Explain how you know.

38. Reasoning Without performing the conversion, determine whether the number of new units will be greater or less than the number of original units.

a. 3 min 20 s converted to seconds

b. 23 cm converted to inches

c. kilometers per hour converted to miles per hour

39. Exchange Rates The table below shows some exchange rates on a particular day. If a sweater sells for $39.95 in U.S. dollars, what should its price be in rupees and pounds?

U.S. DOLLARS	1.00
INDIAN RUPEES	39.57
ALGERIAN DINARS	64.15
BRITISH POUNDS	.50

40. Estimation Five mi is approximately equal to 8 km. Use mental math to estimate the distance in kilometers to a town that is 30 mi away.

41. Reasoning A carpenter is building an entertainment center. She is calculating the size of the space to leave for the television. She wants to leave about a foot of space on either side of the television. Would measuring the size of the television exactly or estimating the size to the nearest inch be more appropriate? Explain.