8-1

Name _____ Date _____

Using Proportions (Pages 330–333)

You can write a proportion to solve many problems.

Solving a Proportion	• Choose a variable to represent what you are looking for. Then write a proportion using the facts in the problem. • Find the cross products. • Solve the equation for the variable. • Answer the question in the problem.

EXAMPLES

A If 12 rolls cost \$4.32, one roll costs r cents. Find r.

Write a proportion: $\frac{\text{rolls}}{\text{cents}} = \frac{\text{rolls}}{\text{cents}}$.

$\frac{12}{432} = \frac{1}{r}$ *Each side has rolls on top.*

$12r = 432$ *The cross products are equal.*

$r = 36$ *Divide each side by 12.*

One roll costs 36¢. Answer the question.

B How many ounces equal 6.5 pounds? 16 ounces equals 1 pound.

$\frac{c}{6.5} = \frac{16}{1}$ *Write a proportion:* $\frac{\text{oz}}{\text{lb}} = \frac{\text{oz}}{\text{lb}}$.

$1c = 16(6.5)$ *The cross products are equal.*

$c = 104$ *Simplify.*

$104 \text{ oz} = 6.5 \text{ lb}$ *Answer the question.*

Try These Together

1. Use a proportion to solve this problem. If 12 inches equals 1 foot, then 60 inches equals x feet.

HINT: Write a proportion in this form: $\frac{\text{feet}}{\text{inches}} = \frac{\text{feet}}{\text{inches}}$.

2. Use a proportion to solve this problem. If 1 meter equals 100 centimeters, then 9.6 meters equals c centimeters.

HINT: Write a proportion that uses c.

PRACTICE

Write a proportion to solve each problem. Then solve.

3. If 1 cup equals 16 tablespoons, then $2\frac{1}{2}$ cups equals t tablespoons.

4. If 1 mile equals 1,760 yards, then 1.25 miles equals y yards.

5. If 10 gallons of gasoline cost \$14.50, then 8 gallons cost x dollars.

6. If 1 yard of fabric costs \$8.99, then 4 yards cost x dollars.

7. If 30 planes can take off in 1 hour, then 200 planes can take off in h hours.

8. If Daina can mow 3 lawns in $4\frac{1}{2}$ hours, then she can mow 18 lawns in h hours.

9. **Standardized Test Practice** How many gallons are in 20 quarts if there are 4 quarts in 1 gallon?

A 0.2 **B** 5 **C** 8 **D** 80

Answers: **1.** 5 **2.** 960 **3.** 40 **4.** 2,200 **5.** \$11.60 **6.** \$35.96 **7.** $6\frac{2}{3}$ **8.** 27 **9.** B