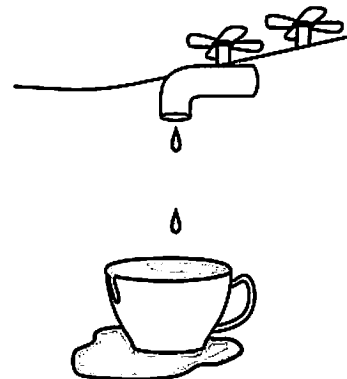




SKILL 7: PROBLEM SOLVING: Solving Proportions

Example

Ron found that a dripping faucet filled 4 cups every hour. At this rate, how many cups of water would drip from the faucet in one day?



Read Each hour, 4 cups of water drip from the faucet.

Plan One ratio is $\frac{4 \text{ cups}}{1 \text{ h}}$. So, two equal ratios that form a proportion are $\frac{4 \text{ cups}}{1 \text{ hour}}$ and $\frac{x \text{ cups}}{24 \text{ hours}}$.

$$\begin{array}{l} \text{cups} \rightarrow 4 = \frac{n}{24} \\ \text{hours} \rightarrow 1 = \frac{1}{24} \end{array}$$

Solve Find the cross products. $4 \times 24 = 1 \times n$
 $96 = n$

So, in one day, 96 cups of water would drip from the faucet.

Look Back 4 cups per hour is 40 cups in 10 hours, or 80 cups in 20 hours. The answer makes sense.

Guided Practice

1. How many quarts is 96 cups of water?

a. How many cups are there in one quart? _____

b. Write a proportion. $\text{cups} \rightarrow \frac{\square}{\square} = \frac{\square}{\square}$
 $\text{quarts} \rightarrow \frac{\square}{\square} = \frac{\square}{\square}$

c. Find the missing value in the proportion. _____

2. Lea found she walked 10 feet in 6 steps. At this rate, how many steps would she need to walk one mile? (There are 5,280 feet in a mile.)

$$\begin{array}{l} \text{steps} \rightarrow \frac{\square}{\square} = \frac{\square}{\square} \\ \text{feet} \rightarrow \frac{\square}{\square} = \frac{\square}{\square} \end{array}$$

a. Write a proportion you can use to find the answer.

b. How many steps would Lea need to walk one mile? _____

SKILL 7: Practice

Use a proportion to find each missing number.

1. 91 days = _____ weeks 2. 9 dozen items = _____ items
3. 2400 minutes = _____ hours 4. 3 tons = _____ pounds

Solve each problem.

5. Kurt gets an \$800 paycheck every 2 weeks. At this rate, how much does he earn in 1 year (52 weeks)? _____
6. A newborn baby's heart beats about 7 times every 3 seconds. At this rate, how many times does a baby's heart beat in 60 seconds? _____
7. During a test, 3 out of 100 cars selected at random were found to be defective. Use this ratio to estimate the number of defective cars if 1,500 cars are tested. _____
8. At Super Stores a 12-exposure roll of film costs \$2.34 and a 20-exposure roll costs \$3.80. Which roll of film costs less per exposure? _____
9. Sleeping 8 hours a day is the same as sleeping about 10 days a month.
- a. About how many days is this per year? _____
- b. About how many days in this in a 75-year lifetime? _____



10. Four quarts of water weighs about 8 pounds. About how much does 2 quarts of water weigh?

A 1 lb C 16 lb
B 4 lb D 2 lb

Skill 7

11. Which ratio is **not** equal to $\frac{3}{15}$?
Skill 2

F $\frac{6}{30}$

H $\frac{1}{5}$

G $\frac{30}{150}$

J $\frac{45}{9}$