

Additional Examples

Lesson 4-3

1 EXAMPLE What percent of 90 is 27?

$$\text{percent} \left\{ \begin{array}{l} \frac{n}{100} = \frac{27}{90} \leftarrow \text{part} \\ \qquad \qquad \qquad \leftarrow \text{whole} \end{array} \right.$$

$$90n = 2700 \quad \text{Find the cross products.}$$

$$n = 30 \quad \text{Divide each side by 90.}$$

30% of 90 is 27.

2 EXAMPLE Find 25% of 480.

$$\frac{25}{100} = \frac{n}{480} \leftarrow \begin{array}{l} \text{part} \\ \text{whole} \end{array}$$

$$12,000 = 100n \quad \text{Find the cross products.}$$

$$120 = n \quad \text{Divide each side by 100.}$$

25% of 480 is 120.

Additional Examples

Lesson 4-3

3 EXAMPLE Water covers about $361,736,000 \text{ km}^2$, or about 70.8% of the earth's surface area. Approximately what is the total surface area of the earth?

Relate: 70.8% of the total surface area is $361,736,000 \text{ km}^2$.

Define: Let t = the total surface area.

Write: $\frac{70.8}{100} = \frac{361,736,000}{t}$ ← part
← whole

$$70.8t = 36,173,600,000 \quad \text{Find cross products.}$$

$$t = 510,926,553.7 \quad \text{Divide each side by 70.8.}$$

The total surface area of the earth is approximately $510,926,554 \text{ km}^2$.

4 EXAMPLE What percent of 140 is 84?

Relate: What percent of 140 is 84?

Define: Let p = the decimal form of the percent.

Write: $p \cdot 140 = 84$
 $140p = 84$

$$p = 0.6 \quad \text{Divide each side by 140.}$$

$$p = 60\% \quad \text{Write the decimal as a percent.}$$

60% of 140 is 84.

5 EXAMPLE What percent of 60 is 114?

Relate: What percent of 60 is 114?

Define: Let n = the decimal form of the percent.

Write: $n \cdot 60 = 114$

$$60n = 114$$

$$n = 1.90 \quad \text{Divide each side by 60.}$$

$$n = 190\% \quad \text{Write the decimal as a percent.}$$

190% of 60 is 114.

6 EXAMPLE a. Estimate the number that is 19% of 323.

$19\% \approx \frac{1}{5}$ $\frac{1}{5} = 20\%$. So $\frac{1}{5}$ is a good approximation of 19%.

$323 \approx 325$ 325 and 5 are compatible numbers.

$$\frac{1}{5} \cdot 325 = 65$$

65 is approximately 19% of 323.

b. What is 73% of 125? Use fractions to estimate the answer.

$73\% \approx \frac{3}{4}$ $\frac{3}{4} = 75\%$. So $\frac{3}{4}$ is a good approximation of 73%.

$125 \approx 124$ 124 and 4 are compatible numbers.

$$\frac{3}{4} \cdot 124 = 93$$

93 is approximately 73% of 125.

7 EXAMPLE A candidate for mayor sent out surveys to 8056 people in his city. After two weeks, about 18% of the surveys were returned. How many surveys were returned?

Relate: **What** is 18% of 8056?

Define: Let n = the unknown number.

Write: $n = 0.18 \cdot 8056$

$$n = 0.18 \cdot 8056$$

$$n = 1450.08 \quad \text{Simplify.}$$

About 1450 surveys were returned.