Ratio and Proportion

6

SECTION 6.4

Applications of Proportions

Objective

A Use proportions to solve application problems.
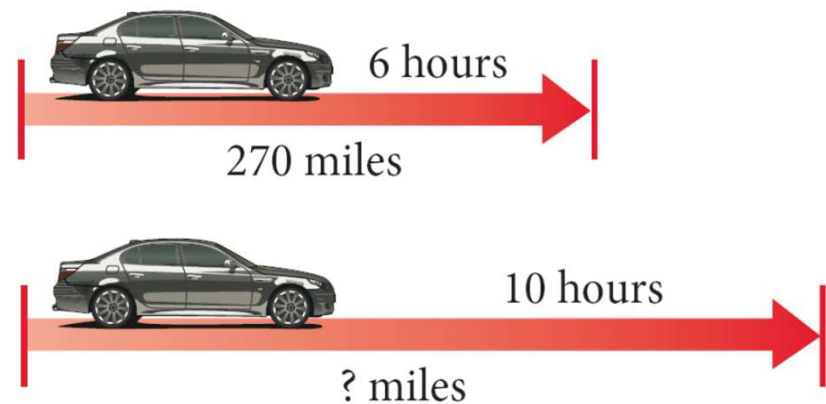
A Applications

Example 2

A woman drives her car 270 miles in 6 hours. If she continues at the same rate, how far will she travel in 10 hours?

Solution:

We let *x* represent the distance traveled in 10 hours.

Using *x*, we translate the problem into the following proportion:

Miles $\longrightarrow$ $\dfrac{x}{10} = \dfrac{270}{6}$ $\longleftarrow$ Miles
Hours $\longrightarrow$ $\phantom{\dfrac{x}{10} = \dfrac{270}{6}}$ $\longleftarrow$ Hours

6 hours

270 miles

10 hours

? miles

5

Example 2 – *Solution*

cont'd

Notice that the two ratios in the proportion compare the same quantities; that is, both ratios compare miles to hours.

In words this proportion says:

x miles is to 10 *hours as* 270 *miles is to* 6 *hours*

$$\frac{x}{10} = \frac{270}{6}$$

Example 2 – *Solution*

cont'd

Next, we solve the proportion.

$$x \cdot 6 = 10 \cdot 270$$

$$x \cdot 6 = 2{,}700$$

$$\frac{x \cdot \cancel{6}}{\cancel{6}} = \frac{2{,}700}{6}$$

$$x = 450 \text{ miles}$$

If the woman continues at the same rate, she will travel 450 miles in 10 hours.