

2.24

Word Problem on Proportions: Problem Type 2

• Example 1

A car uses 3 gallons of gas to travel 105 miles. At that mileage rate, how many gallons will be used on a trip of 385 mi?

Let x be the number of gallons that will be used to travel 385 mi. The problem amounts to finding the value of x satisfying the equation.

$$\begin{array}{ccc} \text{Miles} & & \text{Miles} \\ & \swarrow & \nwarrow \\ & \frac{105}{3} = \frac{385}{x} & \\ & \swarrow & \nwarrow \\ \text{Gallons} & & \text{Gallons} \end{array}$$

This equation states that the proportion of miles to gallons must be the same for the two trips.

Solving the equation for x , we get

$$x = \frac{3 \cdot 385}{105} = 11$$

So 11 gal of gas will be used for the 385-mi trip.

To verify your solution, return to the original problem and check that the two ratios are equivalent.

• • • CHECK YOURSELF 1

A car uses 8 liters (L) of gasoline in traveling 100 kilometers (km). At that rate, how many liters of gas will be used on a trip of 250 km?

• • • CHECK YOURSELF ANSWER

1. 20 L.

2.24 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

Solve each of the following applications.

- 1. Fuel consumption.** A car uses 5 gallons (gal) of gasoline on a trip of 160 mi. At the same mileage rate, how much gasoline will a 384-mi trip require?

- 2. Fuel consumption.** A car uses 12 liters (L) of gasoline in traveling 150 kilometers (km). At that rate, how many liters of gasoline will be used in a trip of 400 km?

- 3. Yearly earnings.** Sveta earns \$6500 commission in 20 weeks in her new sales position. At that rate, how much will she earn in 1 year (52 weeks)?

- 4. Investment earning.** Kevin earned \$165 interest for 1 year on an investment of \$1500. At the same rate, what amount of interest would be earned by an investment of \$2500?