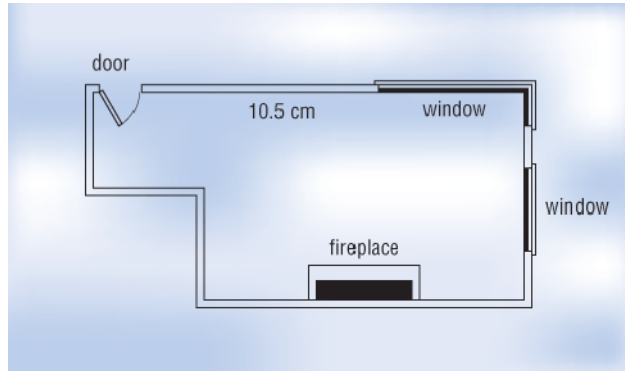


Lesson 7-3

Example 1

ARCHITECTURE This is a scale drawing of a room in a house. Find the actual distance along the wall between the windows and the door.



Solution

The ratio of the scale drawing to the actual size of the room is 3 cm:1 m. The scale distance between the window and the door is given as 10.5 cm. Write and solve a proportion.

Let x = the actual distance in meters.

$$\frac{3 \text{ cm}}{1 \text{ m}} = \frac{10.5 \text{ cm}}{x} \quad \frac{\text{scale distance}}{\text{actual distance}}$$

$$3x = 10.5$$

$$x = 3.5$$

The actual distance between the window and the door is 3.5 meters.

Example 2

ENGINEERING The distance between the front wheels of a model car is 3.8 centimeters. What is the actual distance on the car if the scale is 1:20?

Solution

Write and solve a proportion. Let d = the actual distance in centimeters.

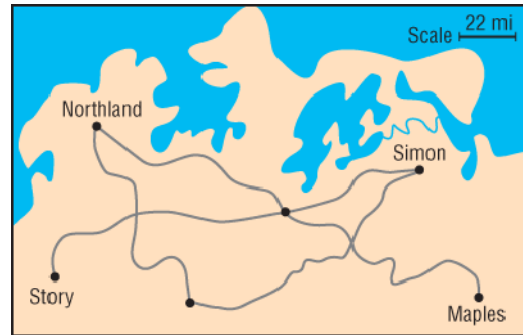
$$\frac{1}{20} = \frac{3.8}{d} \quad \frac{\text{scale distance}}{\text{actual distance}}$$

$$d = 76$$

The actual distance between the front wheels is 76 cm or 0.76 m.

Example 3

SATELLITE PHOTOGRAPHY The map to the right was made from a satellite photo. Using the scale bar, estimate the driving distance from Northland to Maples on the map.

**Solution**

Cut a piece of string that is as long as the route between the two points on the map. Then compare the string's length with the scale length. The string's length is equal to nearly 10 scale lengths.

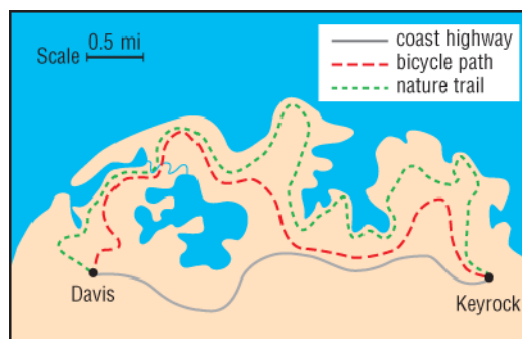
Multiply the number of scale lengths it takes to cover the distance by the actual distance given for the scale length.

$$10 \times 22 = 220 \text{ miles}$$

Therefore, the actual distance between the two cities is 220 miles.

Example 4

Davis and Keyrock are two villages along the coast. From the map below, we can see that the distance along the coast highway between the towns is about 3 miles. Is the bike path between Davis and Keyrock also 3 miles?

**Solution**

No. The bike path is closer to the actual coast than the highway. Using a piece of string, we can estimate that the distance along the bike path is approximately 4 miles.