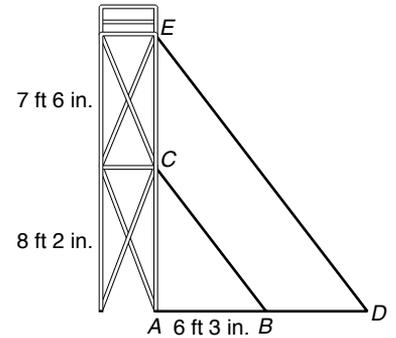


**LESSON**

**Practice B**

**7-5** *Using Proportional Relationships*

Refer to the figure for Exercises 1–3. A city is planning an outdoor concert for an Independence Day celebration. To hold speakers and lights, a crew of technicians sets up a scaffold with two platforms by the stage. The first platform is 8 feet 2 inches off the ground. The second platform is 7 feet 6 inches above the first platform. The shadow of the first platform stretches 6 feet 3 inches across the ground.



1. Explain why  $\triangle ABC$  is similar to  $\triangle ADE$ .  
(Hint: The sun's rays are parallel.)

\_\_\_\_\_

\_\_\_\_\_

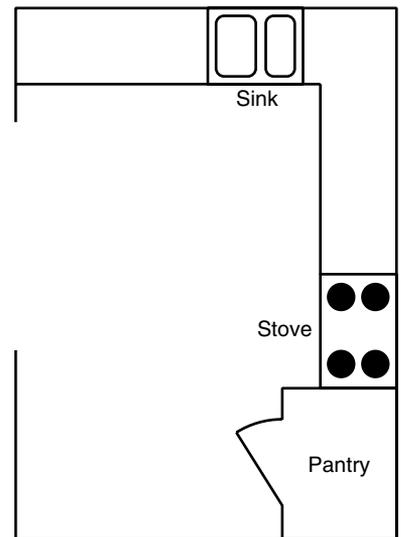
\_\_\_\_\_

2. Find the length of the shadow of the second platform in feet and inches to the nearest inch.
3. A 5-foot-8-inch-tall technician is standing on top of the second platform. Find the length of the shadow the scaffold and the technician cast in feet and inches to the nearest inch.

\_\_\_\_\_

\_\_\_\_\_

Refer to the figure for Exercises 4–6. Ramona wants to renovate the kitchen in her house. The figure shows a blueprint of the new kitchen drawn to a scale of 1 cm : 2 ft. Use a centimeter ruler and the figure to find each actual measure in feet.



4. width of the kitchen
5. length of the kitchen

\_\_\_\_\_

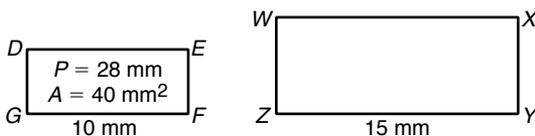
\_\_\_\_\_

6. width of the sink
7. area of the pantry

\_\_\_\_\_

\_\_\_\_\_

Given that  $DEFG \sim WXYZ$ , find each of the following.



8. perimeter of  $WXYZ$  \_\_\_\_\_

9. area of  $WXYZ$  \_\_\_\_\_

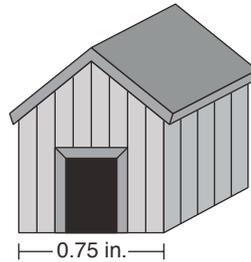
**LESSON**

**Review for Mastery**

**7-5 Using Proportional Relationships**

A **scale drawing** is a drawing of an object that is smaller or larger than the object's actual size. The drawing's scale is the ratio of any length in the drawing to the actual length of the object.

The scale for the diagram of the doghouse is 1 in : 3 ft.  
Find the length of the actual doghouse.



First convert to equivalent units: 1 in : 36 in. (3 ft × 12 in./ft).

$$\begin{array}{l} \text{diagram length} \rightarrow \frac{1}{36} = \frac{0.75}{x} \quad \leftarrow \text{diagram length} \\ \text{actual length} \rightarrow \end{array}$$

$$1x = 36(0.75) \quad \text{Cross Products Property}$$

$$x = 27 \text{ in.} \quad \text{Simplify.}$$

The actual length of the doghouse is 27 in., or 2 ft 3 in.

The scale of the cabin shown in the blueprint is 1 cm : 2 m. Find the actual lengths of the following walls.

1.  $\overline{HG}$

\_\_\_\_\_

2.  $\overline{GL}$

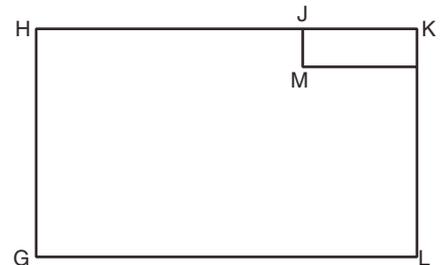
\_\_\_\_\_

3.  $\overline{HJ}$

\_\_\_\_\_

4.  $\overline{JM}$

\_\_\_\_\_



A rectangular fitness room in a recreation center is 45 feet long and 28 feet wide. Find the length and width for a scale drawing of the room, using the following scales.

5. 1 in : 1 ft

\_\_\_\_\_

6. 1 in : 2 ft

\_\_\_\_\_

7. 1 in : 3 ft

\_\_\_\_\_

8. 1 in : 6 ft 8 in.

\_\_\_\_\_