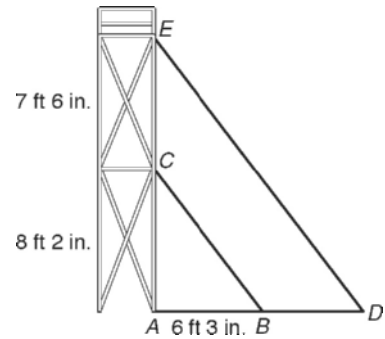


**LESSON**  
**7-5**

**Practice B**  
**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.)

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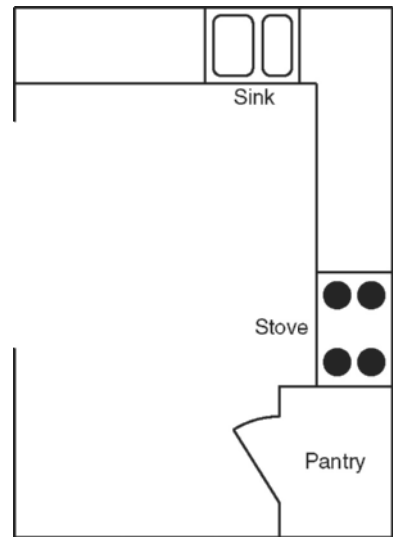
2. Find the length of the shadow of the second platform in feet and inches to the nearest inch.
3. A 5-foot-8-inch-tall technician is standing on top of the second platform. Find the length of the shadow the scaffold and the technician cast in feet and inches to the nearest inch.

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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

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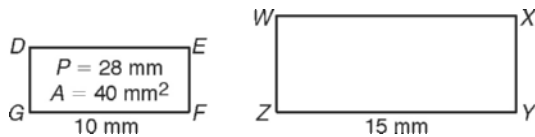


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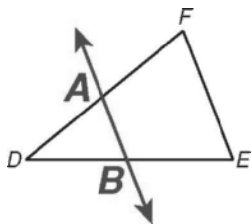
Given that  $DEFG \sim WXYZ$ , find each of the following.



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

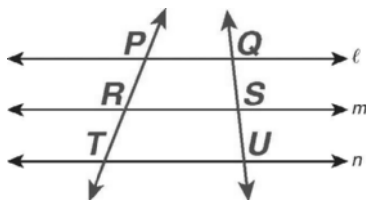
## Reading Strategies

1.



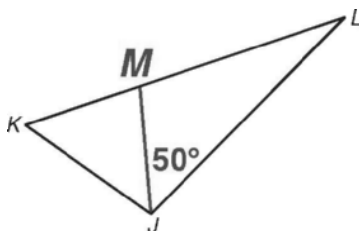
$$2. \frac{DA}{AF} = \frac{DB}{BE}$$

3.



$$4. \frac{PR}{RT} = \frac{QS}{SU}$$

5.



6.  $50^\circ$

$$7. \frac{LM}{MK} = \frac{LJ}{JK}$$

## LESSON 7-5

### Practice A

$$1. \frac{AC}{BC} = \frac{DF}{EF} \text{ so } \frac{3}{1} = \frac{DF}{7}; DF = 21 \text{ ft}$$

2. 10 ft

3. 10 yards

4. 120 yd

5. about 53 yd

6. 5 in.;  $2\frac{1}{2}$  in.

### Practice B

1. Possible answer: Because the sun's rays are parallel,  $\overline{BC} \parallel \overline{DE}$ .  $\angle ABC$  and  $\angle ADE$  are congruent corresponding angles, and  $\angle A$  is common to both triangles. So  $\triangle ABC \sim \triangle ADE$  by AA  $\sim$ .

2. 5 ft 9 in.

3. 16 ft 4 in.

4. 10 ft

5. 14 ft

6. 2 ft

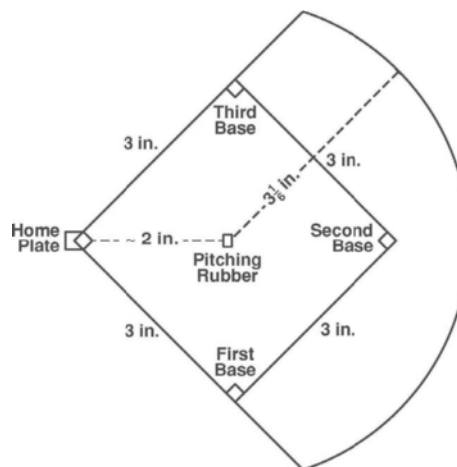
7.  $12 \text{ ft}^2$

8. 42 mm

9.  $90 \text{ mm}^2$

## Practice C

1.



2. 2 : 5 or 5 : 2

3.  $24 \text{ ft}^3$ ;  $375 \text{ ft}^3$

4. 8 : 125 or 125 : 8

5. The ratio of the volumes is the cube of the similarity ratio.

### Reteach

1. 6 m

2. 10 m

3. 7 m

4. 1 m

5. 45 in. by 28 in.

6. 22.5 in. by 14 in.

7. 15 in. by  $9\frac{1}{3}$  in.

8. 6.75 in. by 4.2 in.

9.  $P = 48 \text{ cm}$ ;  $A = 140 \text{ cm}^2$

10.  $P = 81 \text{ m}$ ;  $A = 288 \text{ m}^2$

### Challenge

1. Let  $O$  be the point where the rulers are joined. Then:  $\frac{OC}{OA} = \frac{OD}{OB} = \frac{60}{100}$ ;  $\angle O \cong \angle O$ ; and  $\triangle COD \sim \triangle AOB$  by the SAS Similarity Theorem. So, by the Polygon Similarity Postulate,  $\frac{CD}{AB} = \frac{60}{100}$ , or  $CD = 60\%$  of  $AB$ .

2. Check students' work.

3. Draw a segment whose length is 20% of the length of the given segment. Mark off this new length on the given segment five times.

4. Results of research may vary.