

11-6 Study Guide and Intervention *(continued)*

Similar Triangles

Find Unknown Measures If some of the measurements are known, proportions can be used to find the measures of the other sides of similar triangles.

Example

INDIRECT MEASUREMENT

$\triangle ABC \sim \triangle AED$ in the figure at the right.
Find the height of the apartment building.

Let $BC = x$.

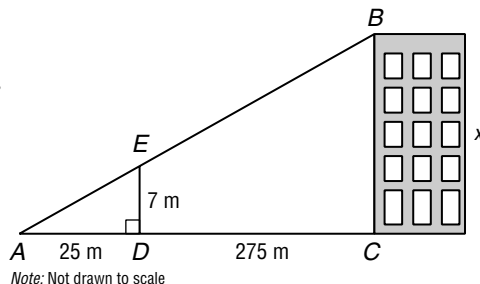
$$\frac{ED}{BC} = \frac{AD}{AC}$$

$$\frac{7}{x} = \frac{25}{300} \quad ED = 7, AD = 25, AC = 300$$

$$25x = 2100 \quad \text{Find the cross products.}$$

$$x = 84$$

The apartment building is 84 meters high.



Exercises

For each set of measures, find the measures of the missing sides if $\triangle ABC \sim \triangle DEF$.

1. $c = 15, d = 8, e = 6, f = 10$

2. $c = 20, a = 12, b = 8, f = 15$

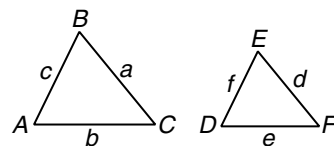
3. $a = 8, d = 8, e = 6, f = 7$

4. $a = 20, d = 10, e = 8, f = 10$

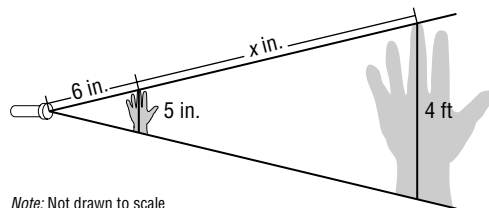
5. $c = 5, d = 10, e = 8, f = 8$

6. $a = 25, b = 20, c = 15, f = 12$

7. $b = 8, d = 8, e = 4, f = 10$



8. **INDIRECT MEASUREMENT** Bruce likes to amuse his brother by shining a flashlight on his hand and making a shadow on the wall. How far is it from the flashlight to the wall?



9. **INDIRECT MEASUREMENT** A forest ranger uses similar triangles to find the height of a tree. Find the height of the tree.

