Lesson 10-7

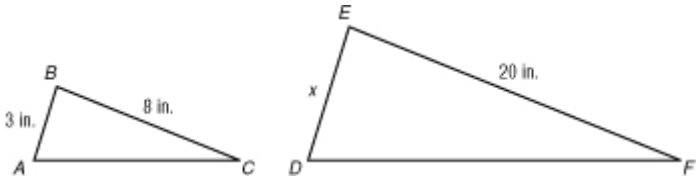
Example 1 Identify Similar Figures
Are the rectangles *ABCD* and *EFGH* shown below similar figures?

Find the ratios of the corresponding sides to see if they form a constant ratio.

$\frac{AB}{EF} = \frac{6}{15}$ or $\frac{2}{5}$ $\qquad\qquad$ $\frac{BC}{FG} = \frac{2}{5}$

So, the two rectangles are similar figures.

Example 2 Find Side Measures of Similar Triangles
If $\triangle ABC \sim \triangle DEF$, find the length of $\overline{DE}$.



Since the two triangles are similar, the ratios of their corresponding sides are equal. So, you can write and solve a proportion to find *DE*.

$\frac{BC}{EF} = \frac{AB}{DE}$	Write a proportion.
$\frac{8}{20} = \frac{3}{n}$	Let *n* represent the length of $\overline{DE}$. Then substitute.
$8n = 20(3)$	Find the cross products.
$8n = 60$	Simplify.
$n = 7.5$	Divide each side by 8.

The length of $\overline{DE}$ is 7.5 inches.

Example 3 Use Indirect Measurement

Jeremy wants to resize a 8-inch wide by 12-inch long poster for his locker. The new poster is to fit in a space that is 9 inches long. What will be the width of the new poster in inches?

$\frac{9}{12} = \frac{x}{8}$ Write a proportion.

$72 = 12x$ Find the cross products.

$6 = x$ Divide each side by 12.

So, the width of the new poster is 6 inches.