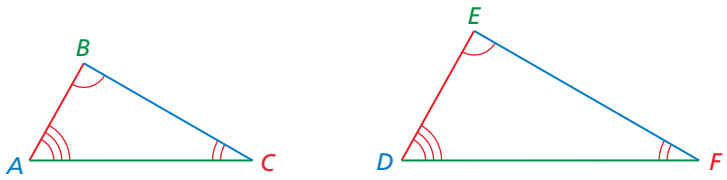
Name _____ Date _____

Similar Figures

Figures that have the same shape but not necessarily the same size are called **similar figures**. Two figures are similar when

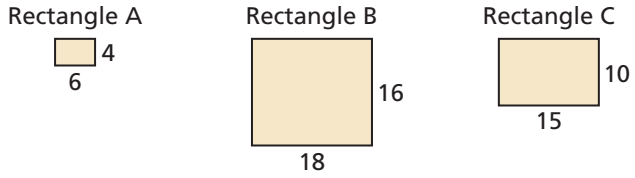
- corresponding side lengths are proportional and
- corresponding angles are congruent.

In the figure below, Triangle ABC is similar to Triangle DEF.



Side Lengths	*Angles*	*Figures*
$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$	$\angle A \cong \angle D$ $\angle B \cong \angle E$ $\angle C \cong \angle F$	$\triangle ABC \sim \triangle DEF$

Example 1 **Which rectangle is similar to Rectangle A?**



Each figure is a rectangle, so corresponding angles are congruent.

Check to see whether corresponding side lengths are proportional.

Rectangle A and Rectangle B

$\frac{\text{Length of A}}{\text{Length of B}} = \frac{6}{18} = \frac{1}{3}$ $\frac{\text{Width of A}}{\text{Width of B}} = \frac{4}{16} = \frac{1}{4}$

not proportional

Rectangle A and Rectangle C

$\frac{\text{Length of A}}{\text{Length of B}} = \frac{6}{15} = \frac{2}{5}$ $\frac{\text{Width of A}}{\text{Width of C}} = \frac{4}{10} = \frac{2}{5}$

proportional

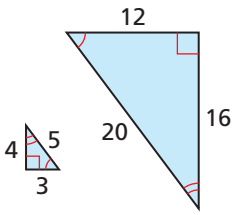
▶ So, Rectangle C is similar to Rectangle A.

Practice

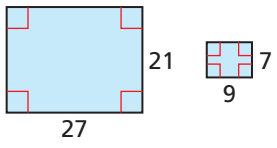
Check your answers at BigIdeasMath.com.

Tell whether the two figures are similar. Explain your reasoning.

1.



2.



3.