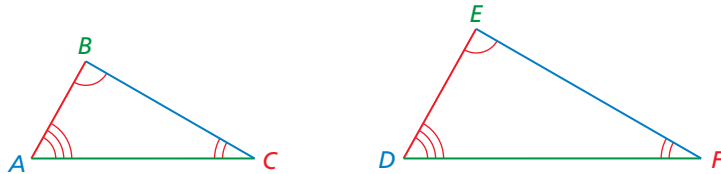


# Similar Figures

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

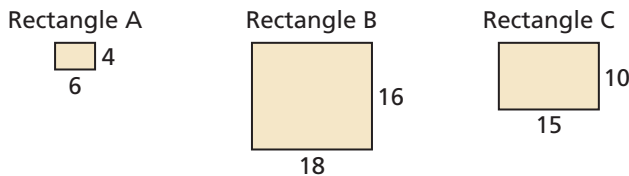
- corresponding side lengths are proportional and
- corresponding angles are congruent.

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



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

**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.

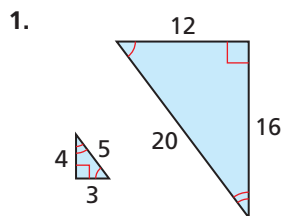
<i>Rectangle A and Rectangle B</i>	<i>Rectangle A and Rectangle C</i>
$\frac{\text{Length of A}}{\text{Length of B}} = \frac{6}{18} = \frac{1}{3}$ $\frac{\text{Width of A}}{\text{Width of B}} = \frac{4}{16} = \frac{1}{4}$	$\frac{\text{Length of A}}{\text{Length of B}} = \frac{6}{15} = \frac{2}{5}$ $\frac{\text{Width of A}}{\text{Width of C}} = \frac{4}{10} = \frac{2}{5}$
not proportional	proportional

► So, Rectangle C is similar to Rectangle A.

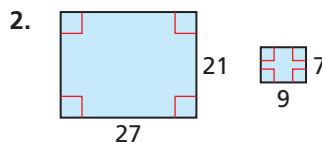
## Practice

Check your answers at [BigIdeasMath.com](http://BigIdeasMath.com).

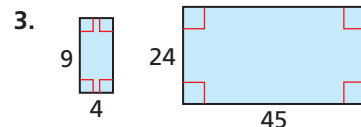
Tell whether the two figures are similar. Explain your reasoning.



yes; The corresponding angles are congruent and the corresponding side lengths are proportional.



yes; The corresponding angles are congruent and the corresponding side lengths are proportional.



no; The sides are not proportional.