2.5b - Similar Figures

Key Idea

Similar Figures

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

Triangle *ABC* is similar to Triangle *DEF*.

Words Two figures are similar when
- corresponding side lengths are proportional and
- corresponding angles are congruent.

Symbols *Side Lengths*   *Angles*   *Figures*

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$$

$\angle A \cong \angle D$ $\triangle ABC \sim \triangle DEF$
$\angle B \cong \angle E$
$\angle C \cong \angle F$

The figures are similar. Find *x*.

2.

6 ft   *x*
6 ft
9 ft

3.

14 cm
x   7 cm
12 cm

Sketch two figures that look similar. Describe how you would determine whether your figures are actually similar.

An artist draws a replica of a painting that is on the Berlin Wall. The painting includes a red trapezoid. The shorter base of the similar trapezoid in the replica is 3.75 inches. What is the height _h_ of the trapezoid in the replica?

12 in.

15 in.

Painting

_h_

3.75 in.

Replica

Exit Ticket: Find the perimeter and area of a rectangle with dimensions 3 inches by 4 inches. If you double the dimensions, what will be the new perimeter and area?

Complete the following exercises.

1. How does quadrupling the side lengths of a triangle affect its perimeter?

2. How does doubling the base of a triangle affect its area?