NAME _____ DATE _____ PERIOD _____

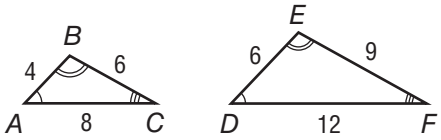
Lesson 4 Reteach

Properties of Similar Polygons

Two polygons are **similar** if they have the same shape. If the polygons are similar, then their corresponding angles are congruent and the measures of their corresponding sides are proportional. Use the symbol $\sim$ for similarity.

Example 1

Determine whether $\triangle ABC$ is similar to $\triangle DEF$. Explain.



$\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$,

$\frac{AB}{DE} = \frac{4}{6}$ or $\frac{2}{3}$, $\frac{BC}{EF} = \frac{6}{9}$ or $\frac{2}{3}$, $\frac{AC}{DF} = \frac{8}{12}$ or $\frac{2}{3}$

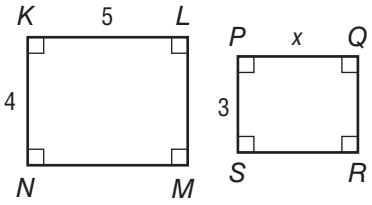
The corresponding angles are congruent, and the corresponding sides are proportional.

So, $\triangle ABC$ is similar to $\triangle DEF$, or $\triangle ABC \sim \triangle DEF$.

Example 2

Given that polygon *KLMN* $\sim$ polygon *PQRS*, find the missing measure.

Find the scale factor from polygon *KLMN* to polygon *PQRS*.



scale factor: $\frac{PS}{KN} = \frac{3}{4}$ The scale factor is the constant of proportionality.

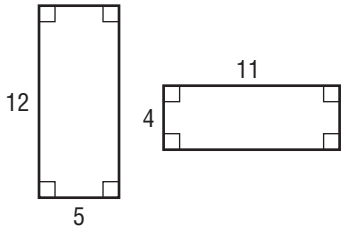
A length on polygon *PQRS* is $\frac{3}{4}$ times as long as a corresponding length on polygon *KLMN*.

$x = \frac{3}{4}(5)$ Write the equation.

$x = \frac{15}{4}$ or 3.75 Multiply.

Exercises

1. Determine whether the polygons below are similar. Explain.



2. The triangles below are similar. Find the missing measure.