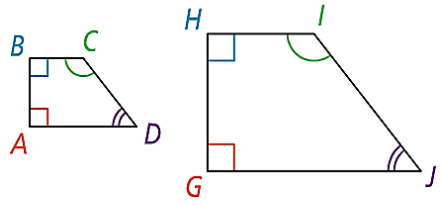
Math 2
Unit 4A Day 4 Notes – Similar Polygons

Name: Key
Date: _____

$ABCD \sim GHIJ$



Similar figures: have the same shape but different sizes.

The ~ symbol means: "is similar to"

Two polygons are **similar polygons** if: the angles **are congruent** and if the sides **are proportional.**

Similarity Statements:

1. $\Delta MNP \sim \Delta SRT$

- What are the pairs of congruent angles?

  $\angle M \cong \angle S$ $\angle N \cong \angle R$ $\angle P \cong \angle T$

- What is the extended proportion for the ratios of corresponding sides?

  $\frac{MN}{SR} = \frac{NP}{RT} = \frac{MP}{ST}$

2. $DEFG \sim HJKL$

- What are the pairs of congruent angles?

  $\angle D \cong \angle H$ $\angle E \cong \angle J$

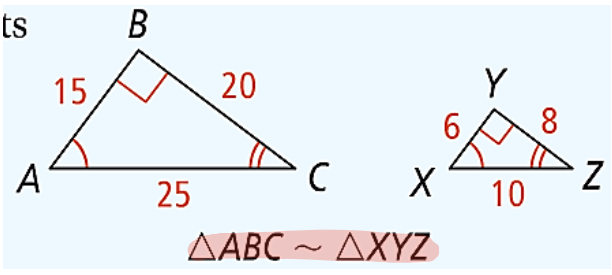
  $\angle F \cong \angle K$ $\angle G \cong \angle L$

- What is the extended proportion for the ratios of corresponding sides?

  $\frac{DE}{HJ} = \frac{FG}{KL} = \frac{EF}{JK} = \frac{DG}{HL}$

Scale Factor: 2.5 or 5/2

ts



$\frac{15}{6} = 2.5$ or $\frac{5}{2}$

$\frac{20}{8} = 2.5$ or $\frac{5}{2}$

$\frac{25}{10} = 2.5$ or $\frac{5}{2}$

Determining Similarity:

1. Are the polygons similar? If they are, write a similarity statement and give the scale factor.

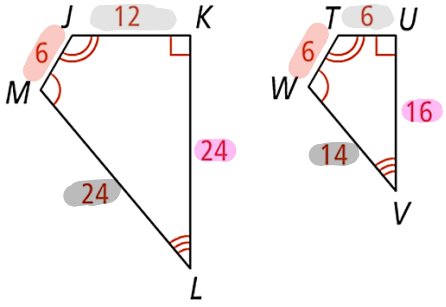
$\frac{6}{6} = 1$

$\frac{12}{6} = 2$

$\frac{24}{14} = 1.71$ or $12/7$

$\frac{24}{16} = 1.5$ or $3/2$

These figures are not similar



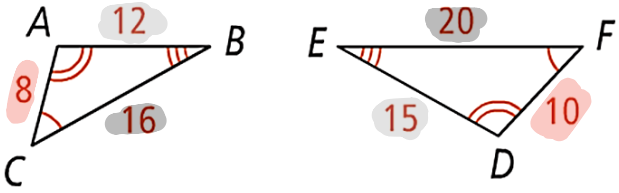
2. Are the polygons similar? If they are, write a similarity statement and give the scale factor.

$\frac{8}{10} = .8$ or $\frac{4}{5}$

$\frac{12}{15} = .8$ or $\frac{4}{5}$

$\frac{16}{20} = .8$ or $\frac{4}{5}$

scale factor: .8 or $4/5$



$\triangle CAB \sim \triangle FDE$

Using Similarity:

1. ABCD ~ EFGD.
   What is the value of x? What is the value of y?

$\frac{6}{9} = \frac{x}{7.5}$

$9x = 6(7.5)$

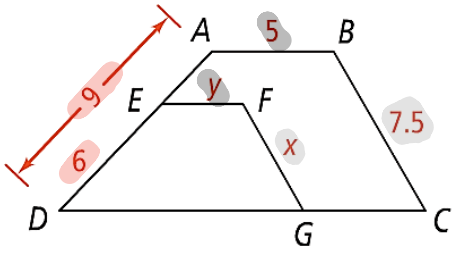
$\frac{9x}{9} = \frac{45}{9}$

$x = 5$

$\frac{6}{9} = \frac{y}{5}$

$\frac{9y}{9} = \frac{30}{9}$

$y = \frac{10}{3}$ or $3.\overline{3}$



2. In the diagram, $\frac{PS}{PR} = \frac{PT}{PQ}$ Find SR

$\frac{5}{x+5} = \frac{8}{18}$

$8(x+5) = 90$

$8x + 40 = 90$

$-40 \quad -40$

$\frac{8x}{8} = \frac{50}{8}$

$x = 6.25$ or $25/4$