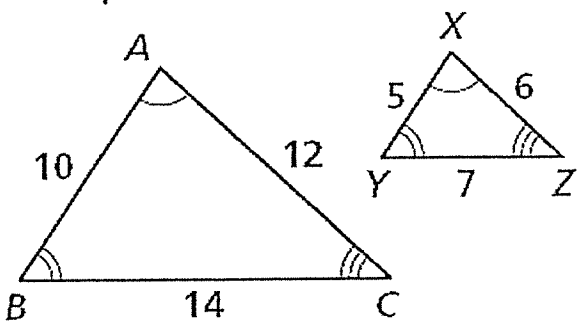
Corresponding sides and Similar Polygons Notes

Similar Polygons: Congruent angles, Same Shape
Corresponding sides are proportional.

SYMBOL for SIMILAR: ~

Example 1:



List corresponding angles:

$\angle B \cong \angle Y$
$\angle A \cong \angle X$
$\angle C \cong \angle Z$

List corresponding sides:

$AB \sim XY$
$AC \sim XZ$
$BC \sim YZ$

Similarity Statement:

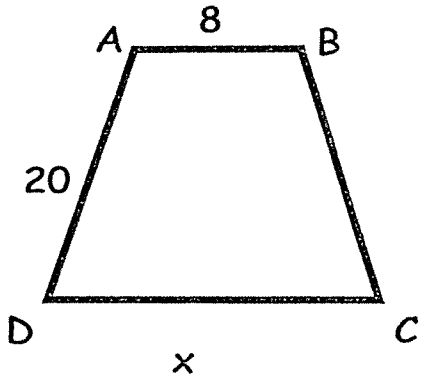
$\triangle ABC \sim \triangle XYZ$

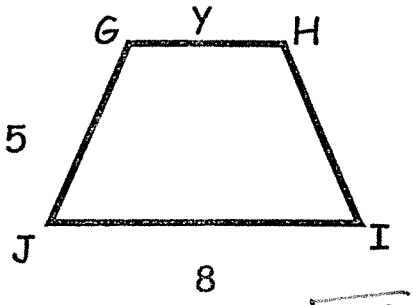
Proportional Sides:

$$\frac{\triangle ABC}{\triangle XYZ} = \frac{AB}{XY} = \frac{AC}{XZ} = \frac{BC}{YZ}$$

What is the scale factor of $\triangle ABC$ to $\triangle XYZ$? New $\frac{\text{Image}}{\text{Pre-Image}}$ Old $= \frac{6}{12} = \boxed{\frac{1}{2}}$

2.) In the diagram, polygon ABCD ~ GHIJ. Find x and Y





$\frac{AD}{GJ} = \frac{AB}{GH} = \frac{BC}{HI} = \frac{DC}{JI}$

1- What part of the figure are you solving for?

Side X (DC) and Side Y (GH)

2- Which property of similar figures are you using?

Sides lengths are proportional.

3- Set Up Equations/Proportions

$\frac{AD}{GJ} = \frac{DC}{JI}$; $\frac{20}{5} = \frac{x}{8}$ $\quad$ $\frac{AB}{GH} = \frac{AD}{GJ}$; $\frac{8}{y} = \frac{20}{5}$

4- Solve

$\frac{20}{5} = \frac{x}{8}$ $\quad$ $\frac{8}{y} = \frac{20}{5}$

$\frac{160}{5} = \frac{5x}{5}$ $\quad$ $\frac{40}{20} = \frac{20y}{20}$

$x = 32 = DC$ $\quad$ $y = 2 = GH$