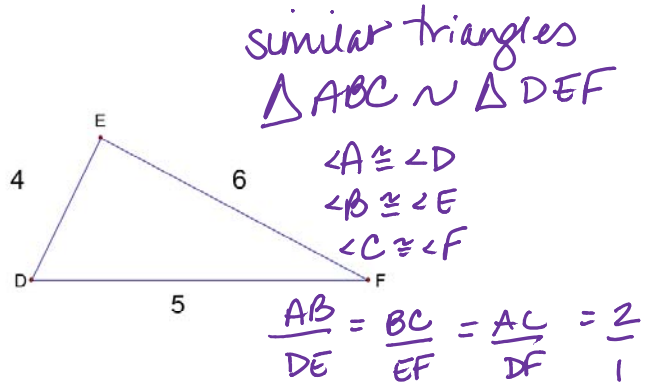
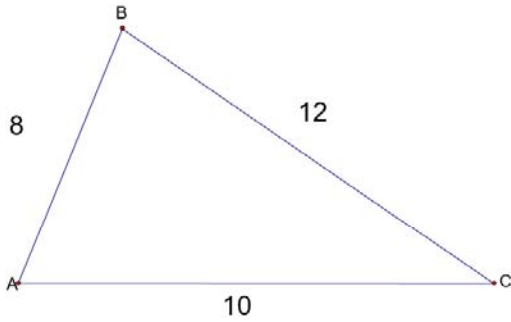
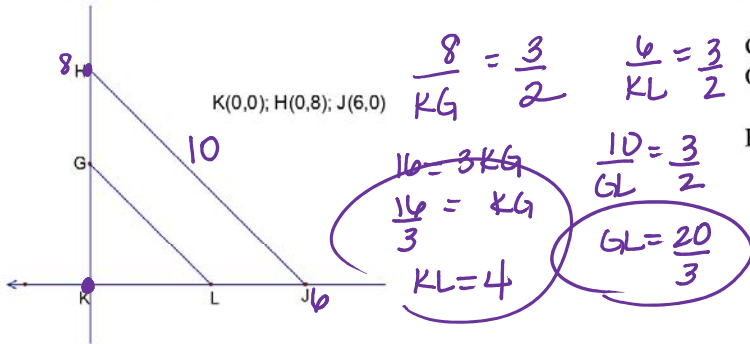


Geo H  
Section 8.2 – SIMILAR FIGURES

**Example 1:**



**Example 2:**

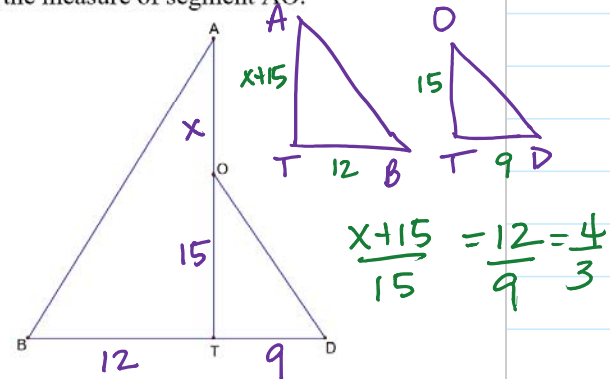


$\triangle KHJ$  is a dilation of  $\triangle KGL$  with an enlargement ratio of 3:2.  
Find the side lengths of  $\triangle KGL$ .

**Example 3:**

Given:  $\triangle BAT \sim \triangle DOT$   
 $OT = 15, BT = 12, TD = 9$

Find the measure of segment  $AO$ .



$3x + 45 = 60$   
 $3x = 15$   
 $x = 5$

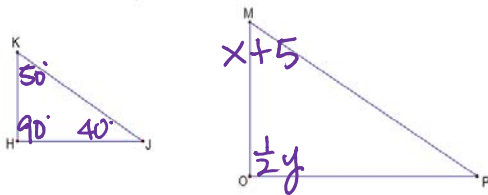
$AO = 5$

**Example 4:**

$\triangle JHK \sim \triangle POM, \angle H = 90^\circ, \angle J = 40^\circ$

Given:  $\angle M \cong (x+5)^\circ, \angle O = \left(\frac{1}{2}y\right)^\circ$

Find:  $x$  and  $y$



$x+5 = 50$   
 $x = 45$

$\frac{1}{2}y = 90$   
 $y = 180$

$$x = 45 \quad y = 180$$

Example 5: Given:  $ABCD \sim EFGH$   $\frac{6}{9} = \frac{4}{BC}$   $\frac{6}{9} = \frac{3}{CD}$   $\frac{6}{9} = \frac{7}{AD}$

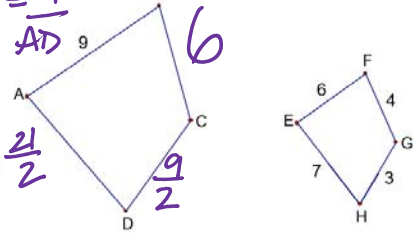
a) Find BC, CD, and AD.

b) Find the ratio of the perimeter of ABCD to the perimeter of EFGH.

$$\frac{30}{20} = \frac{3}{2} = \frac{9}{6}$$

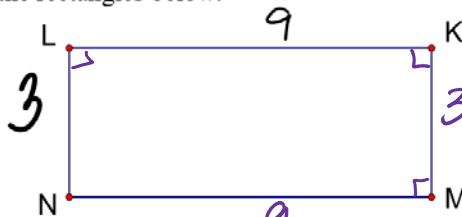
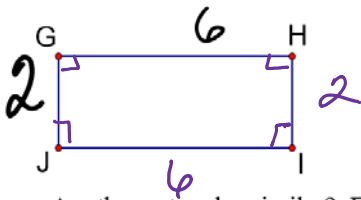
c) What conclusion can you draw about the relationship between the ratio of the perimeters of the two figures compared to the ratio of corresponding sides?

The ratio of the sides = the ratio of the perimeters



Example 6:

For the following questions, refer to the rectangles below.



$$\frac{9}{6} = \frac{3}{2}$$

a. Are the rectangles similar? Explain why.

Yes corr.  $\angle s \cong$  and side lengths proportional

b. Find the perimeter of each rectangle. What is the ratio of the perimeters?

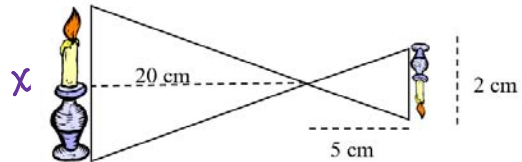
$$\frac{2}{3}$$

c. Find the area of each rectangle. What is the ratio of the areas? How is it related to the ratios of the perimeters and the ratios of the sides?

$$\frac{12}{27} = \frac{4}{9} = \left(\frac{2}{3}\right)^2 = (\text{ratio of sides})^2$$

Example 7: A pinhole camera produces a reduced image of a candle. The size of the image is proportional to the distance from the camera. Given the measurements shown in the diagram, find the height of the candle.

$$\frac{20}{5} = \frac{x}{2} \quad 4 = \frac{x}{2} \quad 8 \text{ cm} = x$$



Example 8: Find the ratio of x to y:  $\frac{4}{3x-5y} = \frac{9}{2x+6y}$

$$8x + 24y = 27x - 45y$$

$$69y = 19x$$

$$\frac{x}{y} = \frac{69}{19}$$