

Notes

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Ratios in Similar Polygons: Notes

Fill in the blanks to complete each definition.

1. A similarity ratio is the ratio of the lengths of the \_\_\_\_\_ sides of two similar polygons.
2. Two polygons are similar if and only if their corresponding angles are \_\_\_\_\_ and their corresponding sides are \_\_\_\_\_.
3. Figures that are similar have the same shape but not necessarily the same \_\_\_\_\_.

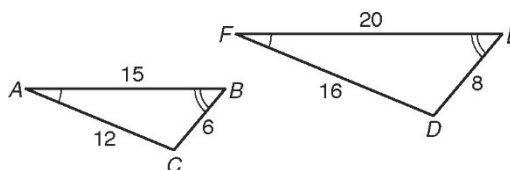
Use the figure for Exercises 4 and 5. The triangles are similar.

4. Name the pairs of congruent angles.

$\angle A \cong$  \_\_\_\_\_

$\angle B \cong$  \_\_\_\_\_

$\angle C \cong$  \_\_\_\_\_



5. Write the corresponding side lengths in the proportion.

$$\frac{AB}{DE} = \frac{BC}{ED} = \frac{AC}{FD}$$

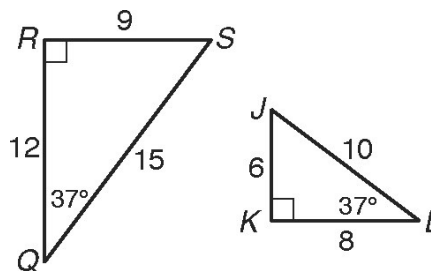
Use the figure to the right for Exercises 6 and 7. The triangles are similar.

6. Circle the correct similarity statement.

$\triangle QRS \sim \triangle KJL$     $\triangle RSQ \sim \triangle KJL$     $\triangle QSR \sim \triangle LKJ$

7. Write the corresponding side lengths in the proportion.

$$\frac{RS}{KL} = \frac{QR}{KJ} = \frac{SR}{LJ}$$

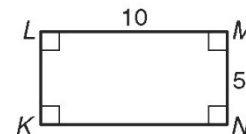
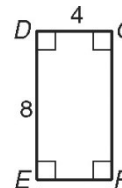


Use the figure to the right for Exercise 8.

8. Substitute numbers for the side lengths and reduce each ratio to simplest form.

$$\frac{DG}{MN} = \frac{4}{10} = \frac{2}{5}$$

$$\frac{DE}{LM} = \frac{8}{5} = \frac{8}{5}$$



## Scale Factor

Scale Factor – the ratio of corresponding sides

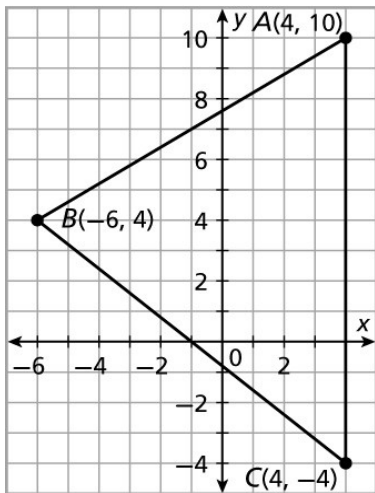
- When scale factor is greater than 1, the shape gets *bigger* and this is called an \_\_\_\_\_.
- When scale factor is less than 1, but greater than 0, the shape gets *smaller* and this is called a \_\_\_\_\_.
- Formula: \_\_\_\_\_

## Dilations

Apply the dilation  $D$  to the polygon with the given vertices. Name the coordinates of the image points. Identify and describe the transformation as an enlargement or reduction.

9.  $D(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$

$A(4, 10)$ ,  $B(-6, 4)$ , and  $C(4, -4)$



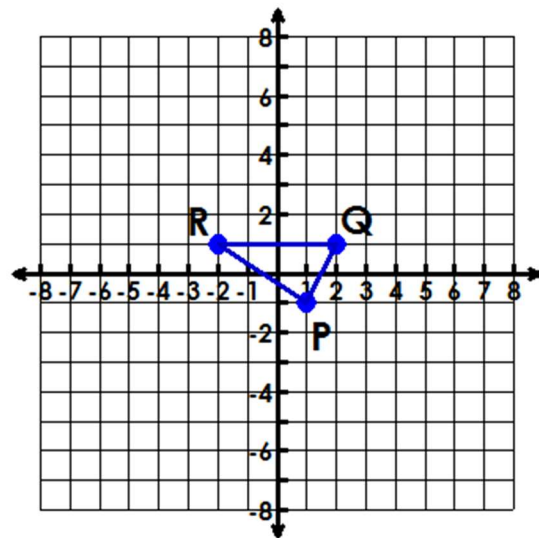
$A'$  \_\_\_\_\_,  $B'$  \_\_\_\_\_, and  $C'$  \_\_\_\_\_

This shape is a/n \_\_\_\_\_.

The scale factor is \_\_\_\_\_.

10.  $D(x, y) \rightarrow (3x, 3y)$

$P(1, -1)$ ,  $Q(2, 1)$ ,  $R(-2, 1)$



$P'$  \_\_\_\_\_,  $Q'$  \_\_\_\_\_, and  $R'$  \_\_\_\_\_

This shape is a/n \_\_\_\_\_.

The scale factor is \_\_\_\_\_.