Day 1 – Dilations and Scale Factor

Ratios in Similar Polygons

- 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
- 4. We denote similarity with the symbol: _____.

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



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

6. Circle the correct similarity statement.

 $\Delta QRS \sim \Delta KJL \quad \Delta RSQ \sim \Delta KJL \quad \Delta QSR \sim \Delta LKJ$

7. Write the corresponding side lengths in the proportion.









Dilations and Scale Factor

A **dilation** is a proportional enlargement or reduction of a figure through a point called the center of dilation. The size of the enlargement or reduction is called the **scale factor** (the ratio of corresponding sides).

- If the dilated image is larger than the original figure, then the scale factor is greater than 1. This is called an ______.
- If the dilated image is the same as the original, then the scale factor is 1. The figures are congruent.
- If the dilated image is smaller than the original figure, then the scale factor is less than
 1. This is called a ______.

The scale factor is the ratio of



A figure and its dilated image are always **similar**. Similar figures will always have the same angle measures, but their side lengths will be different (will remain proportional to each other). **This means dilations do not preserve congruency.** If two figures are congruent, they are also similar.

If two polygons are similar, then the ratio of the lengths of the two corresponding sides is the scale factor.

Practice: Determine if the following figures are similar.



Practice: 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.



