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

**Investigating Dilations**

A **dilation** is a transformation of a figure that changes its size but not its shape. The **scale factor** of a dilation determines the extent of the change in size. A dilation is an enlargement when the scale factor is greater than 1. It is a reduction when the scale factor is less than 1. When you dilate a figure, you shrink or enlarge a figure from the **center of dilation**.

The graph shows a dilation of ∆ AOB to ∆ A’OB’ with the center of dilation at the origin.



1. Is ∆ A’OB’ an enlargement or a reduction of ∆ AOB?
2. How many times greater is OA’ than OA?
3. How many times greater is OB’ than OB?
4. How many times greater is A’B’ than AB?
5. What is the scale factor?
6. When examining a dilation, what is the least information you need in order to determine the scale factor?
7. What happened at the center of the dilation (Point 0) in this transformation of ∆ AOB?
8. Using the grid below, draw ∆LOM with vertices L(0,4), O (0,0), and M(2,0). Then draw ∆L’OM’ as a dilation of ∆LOM with the center of dilation at (0,0) and a scale factor of 1.5.



1. After measuring the corresponding angles, what can you conclude about the angles of a dilated figure?
2. When **dilating** a figure, what can you summarize about each of the following?

The corresponding angles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The corresponding side lengths\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A triangle has vertices at A(-2, 14), B(-6,6), and C(-14,6). If it were dilated using the origin as the center of dilation and a scale factor of ½, what would be the coordinates of the dilated triangle A’B’C’?

**PUTTING IT ALL TOGETHER:**

**Congruent** figures are those that have the same size and shape. **Similar** figures are those that have the same shape but not necessarily the same size.

There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ types of transformations. They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will result in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ figures. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will result in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ figures.