**Secondary Math 2 3.2 Homework Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_**

**Similarity of Polygons**

1. Show that the triangles are congruent by completing the transformations that map ∆ABC onto ∆XYZ. **Label the points** on the graph: A (6,-6), B (9,-1), C (6,-1), X (2, 6), Y (5, 1), and Z (2, 1).
Draw the new triangle after each transformation.

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| a) Translate ∆ABC to the left 4 units.  Give the new coordinates: A’ = \_\_\_\_\_\_\_\_\_, B’ = \_\_\_\_\_\_\_\_\_, C’ = \_\_\_\_\_\_\_\_\_ |  |
| b) Rotate this triangle 180°.   Give the new coordinates:A’ = \_\_\_\_\_\_\_\_\_, B’ = \_\_\_\_\_\_\_\_\_, C’ = \_\_\_\_\_\_\_\_\_  |
| c) Reflect the new triangle over the y-axis. Give the new coordinates: A’ = \_\_\_\_\_\_\_\_\_, B’ = \_\_\_\_\_\_\_\_\_, C’ = \_\_\_\_\_\_\_\_\_ |
| d) Finish this sentence: Because these transformations map ∆ABC onto ∆XYZ, I know that…..  |

1. Show that the triangles are similar by completing the transformations that map ∆ABC onto ∆XYZ.
Label the points on the graph: A (-8,-2), B (-6,-6), C (-3,-1), X (4,4), Y (8,12), and Z (14,2).

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| a) Reflect ∆ABC over the x-axis. The new coordinates are: A’ = \_\_\_\_\_\_\_\_\_, B’ = \_\_\_\_\_\_\_\_\_, C’ = \_\_\_\_\_\_\_\_\_ |  |
| b) Translate this new triangle to the right 10 units. The new coordinates are: A’ = \_\_\_\_\_\_\_\_\_, B’ = \_\_\_\_\_\_\_\_\_, C’ = \_\_\_\_\_\_\_\_\_ |
| c) Dilate the newest figure you have drawn with a center at the origin and show that the points are collinear. Then find the scale factor: Scale Factor: |
| d) Finish this sentence: Because these transformations map ∆ABC onto ∆XYZ, I know that…..  |

**Review Problems:**

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|  | Draw the dilated image with Center $(3,5)$; scale factor $\frac{1}{2}$  |  | Draw the dilated image with Center $(0,0)$; scale factor $\frac{1}{3}$ |
|  | Solve for x. |  | Given the parallelogram, solve for b: |

**Extended Understanding:**

1. Give the similarity transformations that will map ∆ABC onto ∆XYZ.
A(3,-3), B(6,-1), C(5,-6), X(-1.5,2.5), Y(-3,3.5), Z(-2.5,1)



1. **Perform** the transformations and then **state** whether the figures are congruent, similar, or neither.

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| a) | Reflect over the y-axisRotate $180°$Translate 6 units right | b) | Reflect over the x-axisTranslate 4 units right | c) | Translate 2 units right and 3 down. Dilate (center at origin) with $k=2$ |