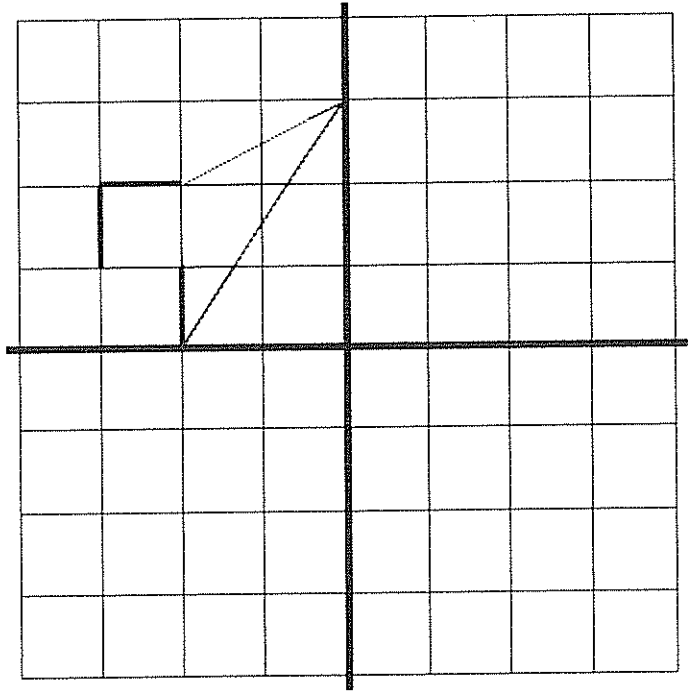


Transformations – Extension Problems

Name: _____ Date: _____ Period: _____

1. Finish Aaron's first design by reflecting the gray shape over the y -axis.

Now reflect the original and its image over the line $y = 0$.



2. A triangle ABC with vertices at $A(2, -2)$, $B(2, 3)$, $C(-4, -2)$ is reflected over the x -axis, rotated 90° clockwise about the origin, and then translated 3 units down and 2 units left.

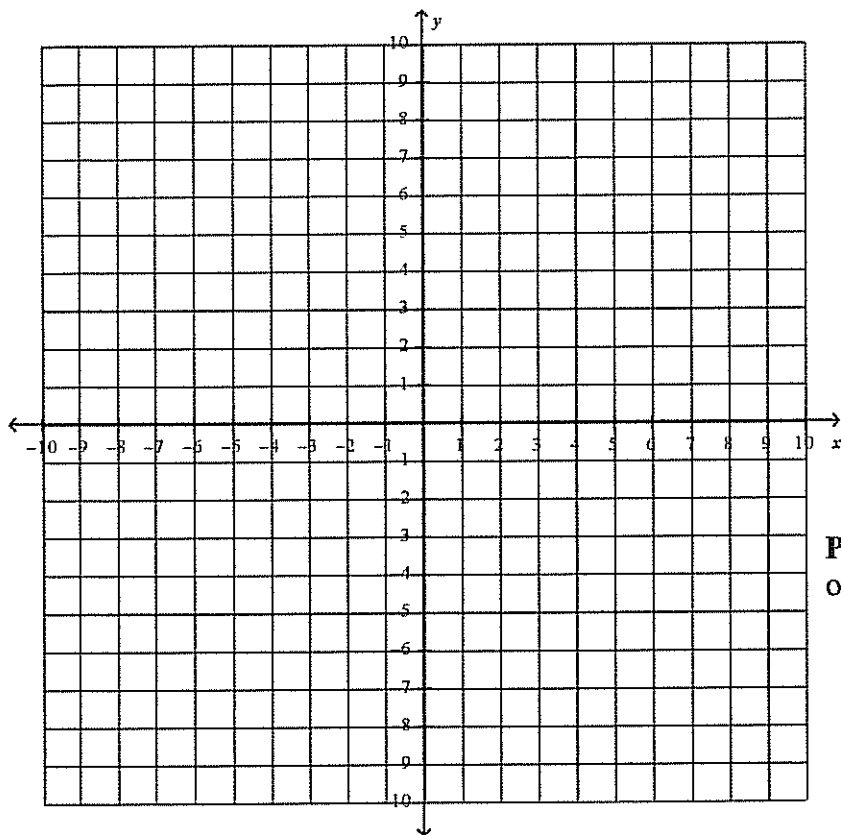
Part A: Describe the operations you must perform on the coordinates of the vertices for each transformation listed above. Then, list the coordinates of the new vertices after each transformation.

Reflection over the x -axis

Rotation 90° clockwise about the origin

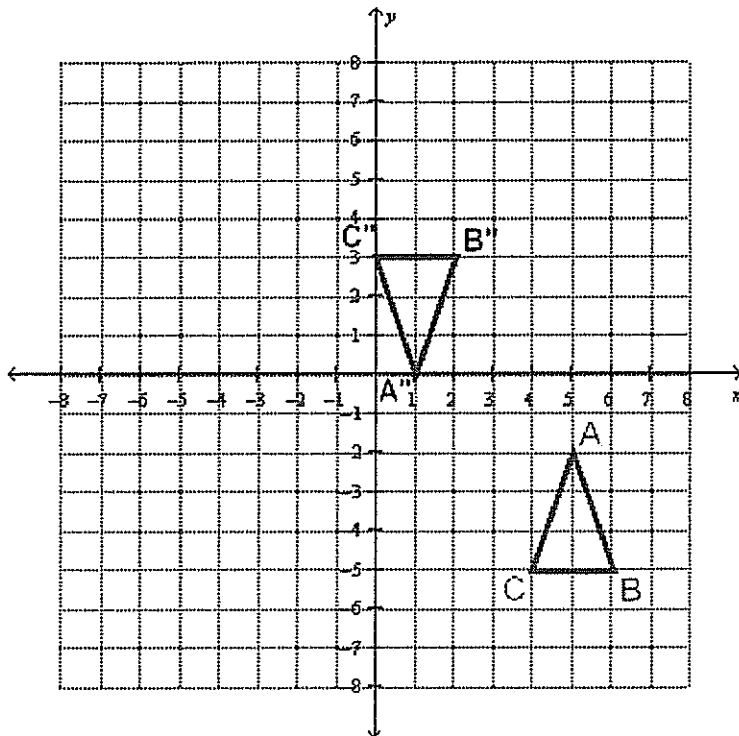
Translation

Part B: Graph both the original triangle and the *final* image after all transformations have been performed, label all coordinates accurately.



Part C: Is the new triangle congruent to the original triangle? Explain in detail.

3. Triangle ABC and triangle $A''B''C''$ are plotted on the coordinate plane below.



Describe how you could move the $\triangle ABC$ to exactly match $\triangle A''B''C''$ using transformations.

Now find a second way (different from your first) you could move $\triangle ABC$ to exactly match $\triangle A''B''C''$ using transformations.

4. Triangle DEF is rotated 90° counterclockwise and then dilated using a scale factor of 3. Which parts are congruent and which are similar? Explain.

How do the perimeters compare? Explain.

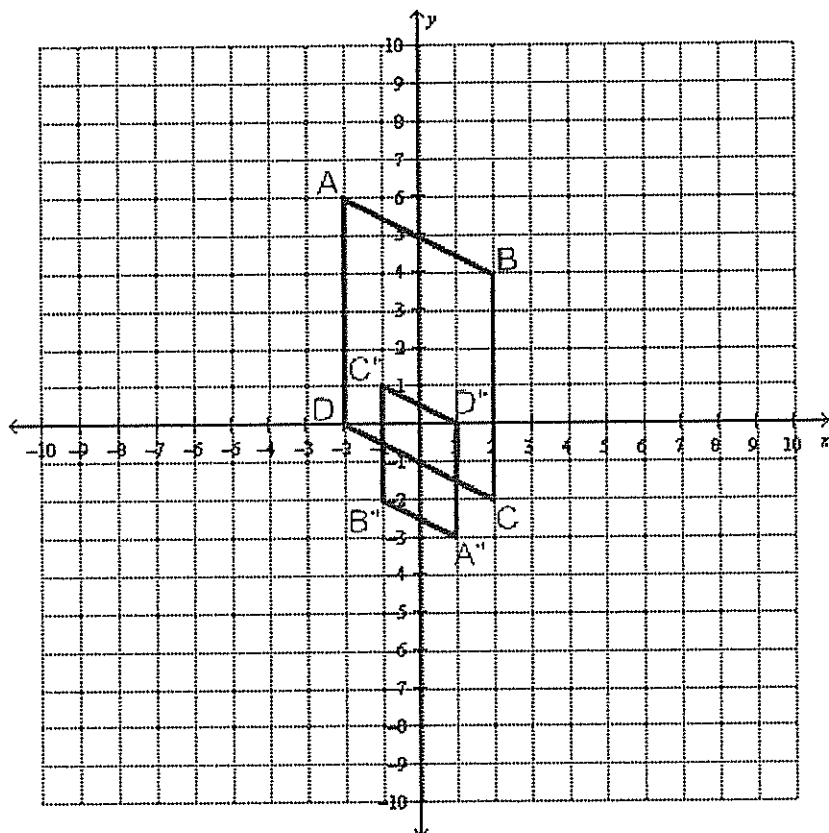
How do the areas compare? Explain.

5. Square $ABCD$ is reflected over the y -axis and then dilated using a scale factor of $\frac{1}{2}$. Which parts are congruent and which are similar? Explain.

How do the perimeters compare? Explain.

How do the areas compare? Explain.

6. Parallelogram $ABCD$ and parallelogram $A''B''C''D''$ are plotted on the coordinate plane below.



Describe a sequence of transformations to determine how parallelogram $ABCD$ matches to parallelogram $A''B''C''D''$.

Can you come up with a different set of transformations that will get parallelogram $ABCD$ to match up with parallelogram $A''B''C''D''$?