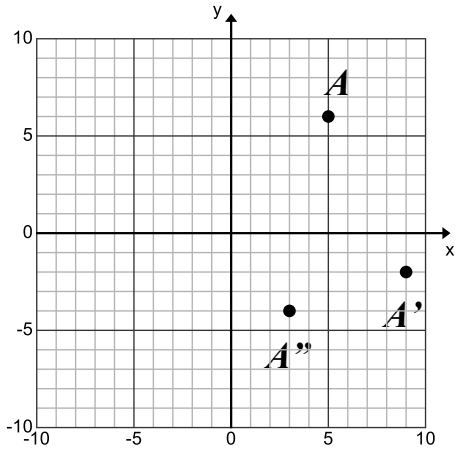
10.3H Man in the Mirror (Reflections) Name: _____Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

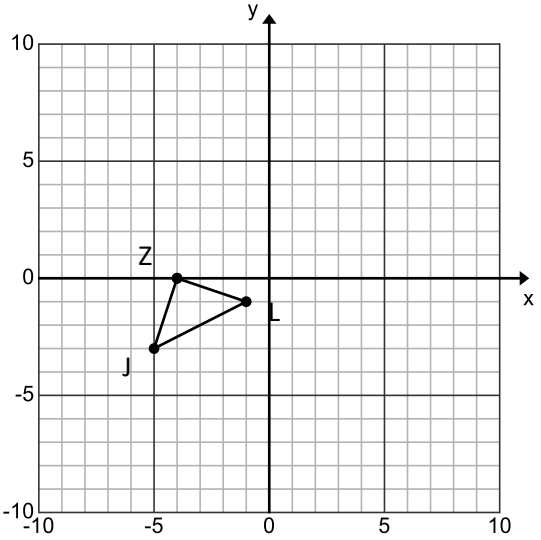
1. Using the graph to the right,
   a. Write the equation of the line passing through *A* and *A'*_____
   b. Find the equation for the line of reflection algebraically. SYW.



   c. **CONSTRUCT** the line of reflection for *A* and *A'*.
   d. Write the equation passing through *A'* and *A"*_____
   e. Find the equation for the line of reflection algebraically. SYW.

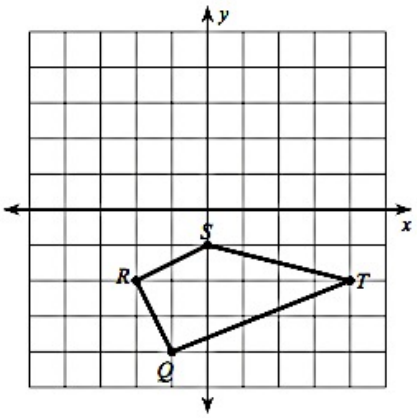
   f. **CONSTRUCT** the line of reflection.
   g. Where do these two constructed lines cross? _____
   h. How does this crossing point relate to all points A, A', and A"?

2. Use the image to the right to answer the following.
   a. Draw a line of reflection A= $-\frac{1}{3}x + 2$.
   b. **CONSTRUCT** a line perpendicular to line A **passing through Z**.
   c. Measure, with your compass, the distance from Z to line A. Mark the location for Z' on your perpendicular.
   d. Find the slope of the line from Z to Z'? _____
   e. **CONSTRUCT** a line perpendicular to line A passing through L.
   f. Measure, with your compass, the distance from L to line A. Mark the location for L'.
   g. Find the slope of the line from L to L'? _____
   h. Find J' to complete the image.

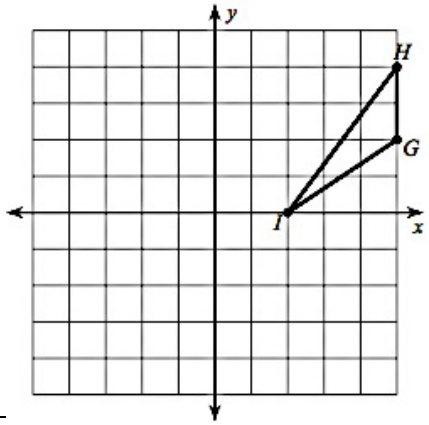


3. Perform the following reflection. **Label your new image.**

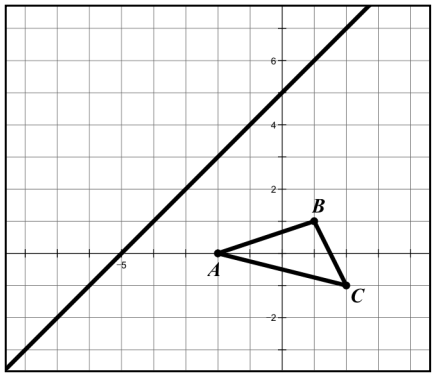
a. **Reflection across $y = x$**



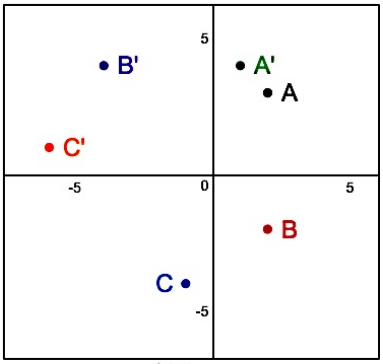
b. **Reflection across $y = -x$**



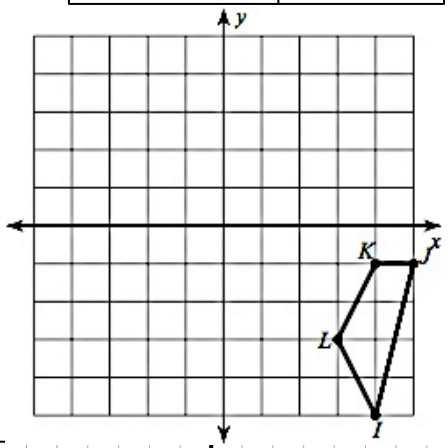
c. Reflect across the given line.



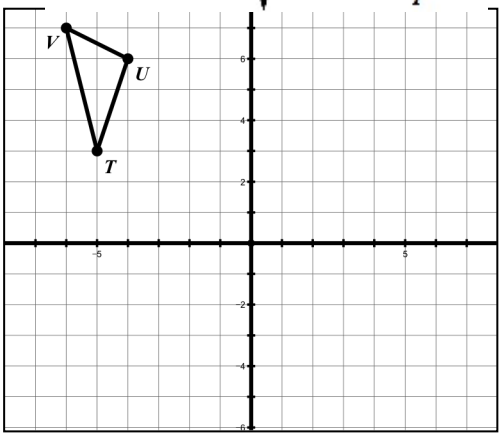
4. Given points $A, B,$ and C and A', B', C', connect the points to make $\triangle ABC$ and $\triangle A'B'C'$
   a. Draw lines to connect A to A', B to B' and C to C'.
   b. **CONSTRUCT** the line of symmetry for the two triangles.
   c. Explain how you know this is the line of symmetry.



5. Use the trapezoid perform the following.
   a. Reflect the **pre-image** over the x-axis (Label $I'J'K'L'$.)
   b. Reflect the NEW image ($I'J'K'L'$) over the y-axis and label $I''J''K''L''$.
   c. Reflect the **pre-image** over the y-axis and label $I'''J'''K'''L'''$
   d. Reflect $I'''J'''K'''L'''$ over the x-axis and Label $I^4J^4K^4L^4$
   e. Explain how figures $IJKL$ and $I^4J^4K^4L^4$ are different?

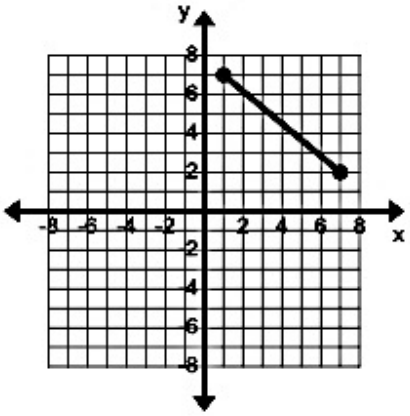


6. Using $\triangle TUV$ perform the following transformation.
   a. **Reflect** $\triangle TUV$ across line $y = x + 5$. Label $\triangle T'U'V'$
   b. **Reflect** $\triangle T'U'V'$ across line $y = -x - 1$. Label $\triangle T''U''V''$

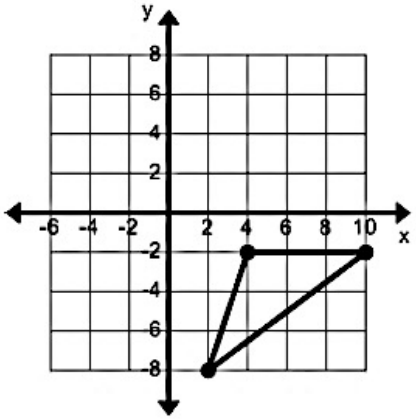


Perform the following transformations. Do each transformation on the image just before it.

7. Label the line AB
   a. Reflect over y-axis ($A'B'$)
   b. Translate down 5 units and label ($A''B''$).



8. Label triangle HAT
   a. Reflect over $y = x - 2$ ($H'A'T'$)
   b. Translate right 2 units, ($H''A''T''$)



9. Label triangle TRI
   a. Reflected over $y = -2x$
   b. Translate up 3 units.