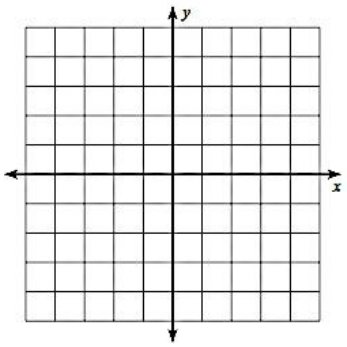
10C Man in the Mirror (Reflections) Name: _____ Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

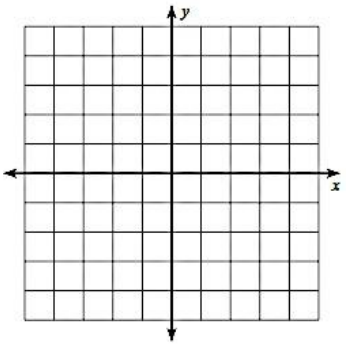
OBJECTIVE: Reflect an image over the given line of reflection Due Date: March 18th / March 19th

1. Reflect the points as asked and label. Then CONSTRUCT the perpendicular bisector between the two points.

   a. $A\ (-2, 3)$ over the y-axis

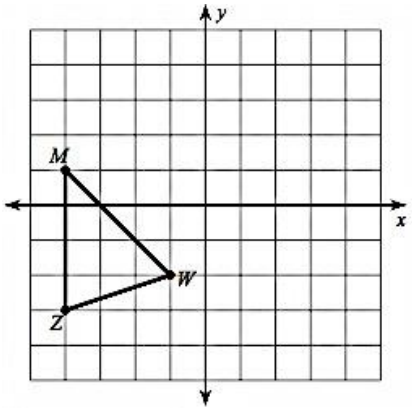
   b. $P(2, 4\ )$ over $x - axis$

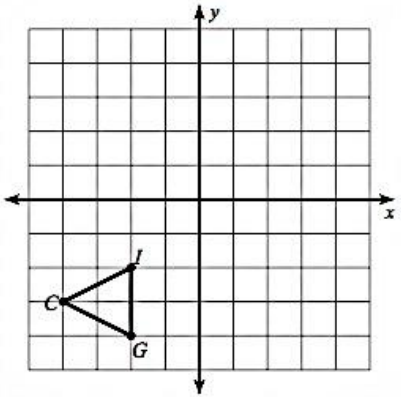
   c. What do you notice about your construction of the perpendicular bisector AND the line of reflection?

2. **Perform the following transformations on the grid provided. Label the new image.**

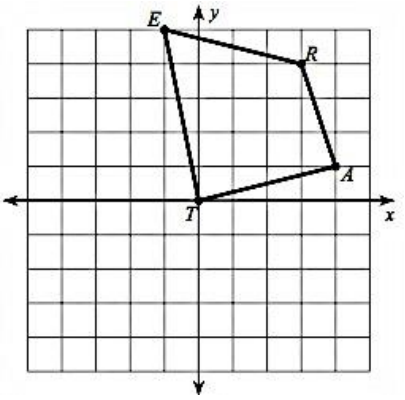
   a. Reflect over $y = -x$

   b. Reflect over $y = -x$

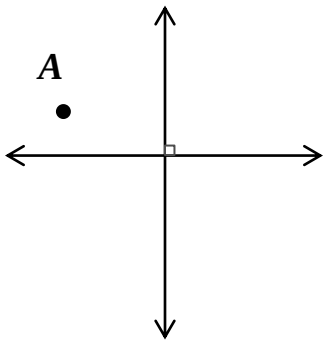
   

   c. Reflect over $y = x$

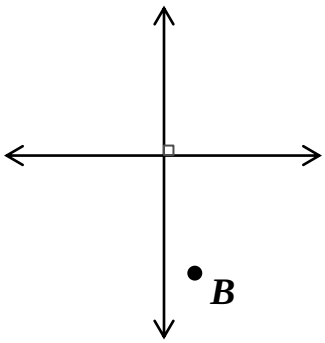
   

3. **Using a compass, reflect the following images of the given line of reflection.**

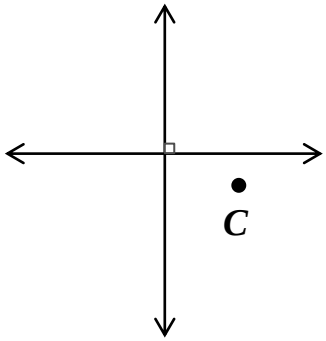
   d. Reflect A over the y-axis

   e. Reflect B over the x-axis

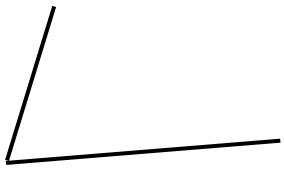
   

   f. Reflect C over the y-axis

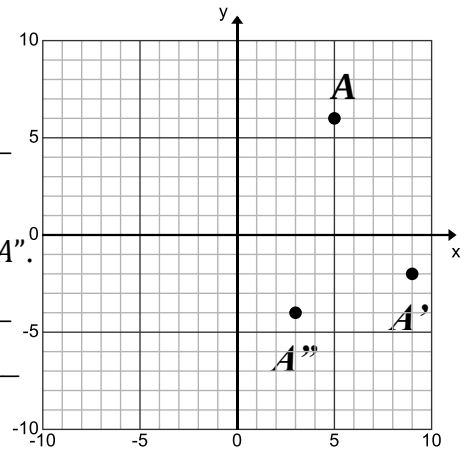
   

4. **Explain how you reflected the above images using the definition of reflection.**

5. **Construct the angle bisectors of the following angle.**



6. To the right, the point A becomes A' and A'' becomes A''.



a. Connect A and A'. What is the slope of the line segment? _____

b. **Construct** (compass/straightedge) the line of reflection for A to A'.

c. Write the equation for that line of reflection. _____

d. Connect A' and A''.What is the slope of the line segment? _____

e. **Construct** (compass & straightedge) the line of reflection for A' to A''.

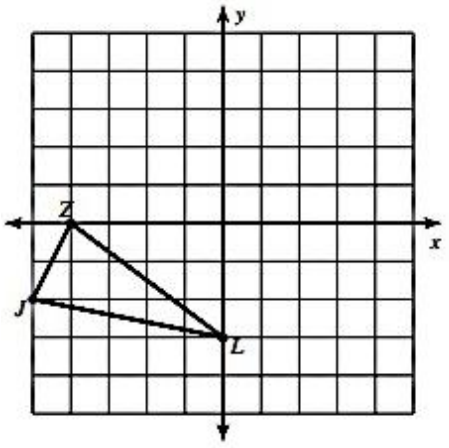
f. Write the equation for that line of reflection. _____

g. At what point do the two lines of reflection cross? _____

h. With a compass, mark the distance from the intersection (from part g) to each of the points of A, A' and A''

i. How does this crossing point relate to all points A, A', and A''?

7. **Use the image to the right to answer the following**



a. Draw a line of reflection of $y = -\frac{1}{3}x$.

b. What will be the slope of the line that connects point Z to Z'? ___

c. What will be the slope of the line that connects point L to L'? ___

d. Draw the line that connects Z to Z' and the line to L to L'.

e. Use your compass to mark **equal distance** from point Z to Z'.

f. Use your compass to mark **equal distance** from point L to L'

g. Complete the figure by finding the last point J' as above.

h. What can you tell me about your line of reflection ($y = -\frac{1}{3}x$) to the points Z and Z'?_____

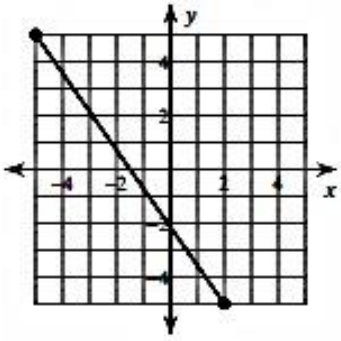
8. Use the given line segment

a. Construct Perpendicular Bisector

b. State the midpoint: _____

c. Write the equation of line of symmetry

_____



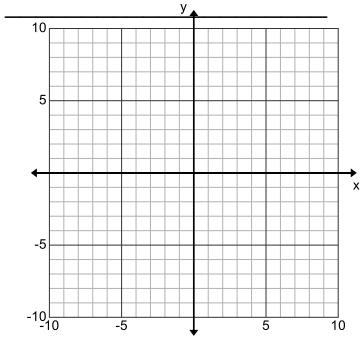
E.C. Find the distance

9. **Plot J $(-1, 4)$ & B $(4, -1)$**

a. Construct Perpendicular Bisector

b. Find midpoint: _____

c. Equation of line of symmetry



E.C. Find the distance

10.

a. Given D $(-2, 5)$ & C $(4, 13)$

b. Find midpoint: _____

c. What is the slope of the line CD? _____

d. What is the slope of the line perpendicular to CD?_____

e. Write the equation of line of symmetry _____

E.C. Find the distance