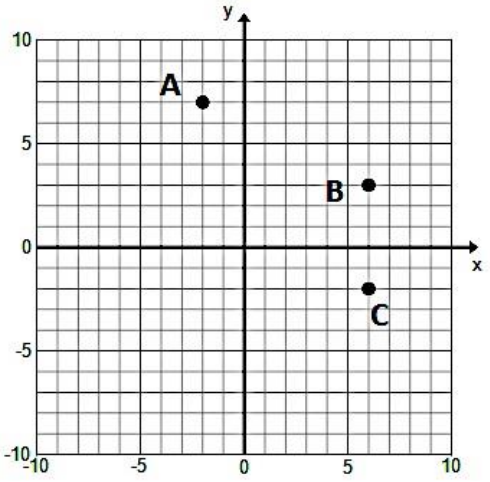
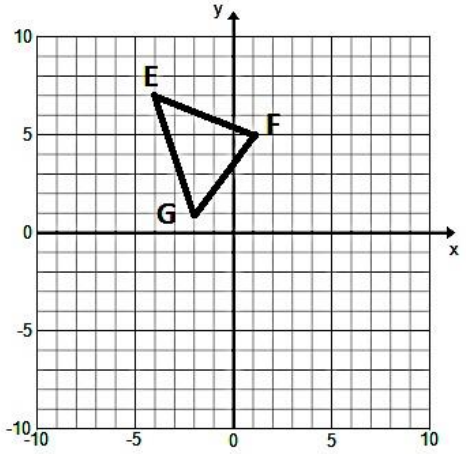
10R Transformations Review Name: _____Per: _____

SHOW ALL YOUR WORK ONLY IN PENCIL

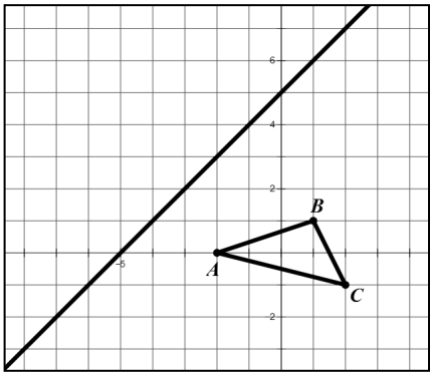
1. Complete the following using the grid to the right. Use **point** $\boldsymbol{A(-2,7)}$, **point** $\boldsymbol{B(6,3)}$, and **point** $\boldsymbol{C(6,-2)}$.
   a. Find the **midpoint** between points A and B. (,)
   b. **Construct** the line of reflection between points A and B.
   c. Write the equation. _____
   d. Find the **midpoint** between points B and C.
   e. **Construct** the line of reflection between points B and C.
   f. Write the equation. _____
   g. **Name the point** that is the center of rotation, which maps A onto both B and C. _____ Explain.



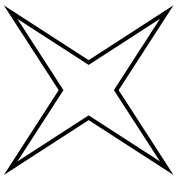
2. **Perform the following rotations about the point** $\boldsymbol{(1,1)}$
   a. Rotate ΔEFG 90-degrees and label $\Delta E'F'G'$
   b. Rotate ΔEFG 180-degrees and label $\Delta E''F''G''$
   c. Rotate ΔEFG 270-degrees and label $\Delta E'''F'''G'''$



3. Given ΔABC and the line of reflection, draw the image $\Delta A'B'C'$.
   a. **Describe** step by step how you reflected the pre-image to get the image.

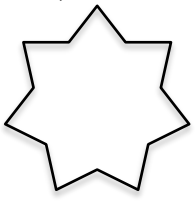


4. Mark the **lines of symmetry** on the first two figures and **find the angle of rotation**. On the third figure also **mark the diagonals in a different color**. (Assume all shapes are regular.)



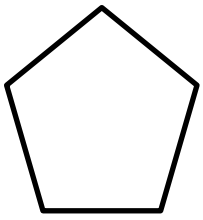
_____ # of lines of symmetry

Angle of rotation _____



_____ # of lines of symmetry

Angle of rotation _____



_____ # of lines of symmetry

Angle of Rotation _____

_____ # of Diagonals

5. **Given quadrilateral QRST** with vertices Q(–7, 2), R(–4,6), S(–2, 1), T(1,5), find the coordinates of the vertices of the image of $Q'R'S'T'$ using the following **translation rule**. **(x,y) => (x – 4, y + 9)**

Q' (____, ____) R' (____, ____) S' (____, ____) T' (____, ____)

6. Given the following points, find the **perpendicular bisector** of the segment that connects the points.

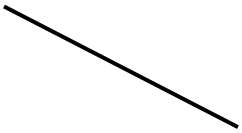
a. (1, 4) & (5, 12)
Midpoint:_____
What is the slope of the line ⊥? _____
Equation: _____

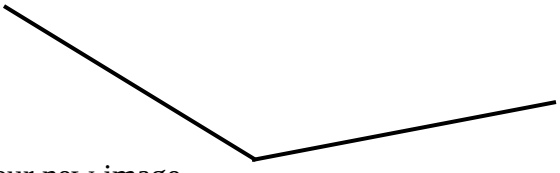
b. (–11, 6) & (7, 12)
Midpoint:_____
What is the slope of the line ⊥? _____
Equation: _____

7. **Write the translation rule** that moves point $B\ (-5,4)$ to point $B'(-10,5)$.
(___, ___) => (x ,)

8. **Write the translation rule** that moves point $S\ (13,9)$ to point $S'(-2,15)$.

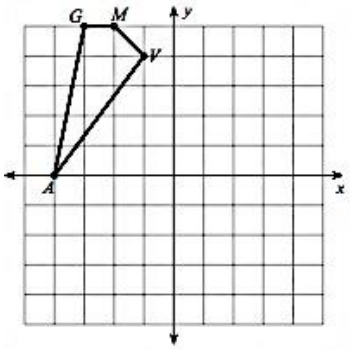
9. Construct the **perpendicular bisector** of the line and **the angle bisector** of the angle.



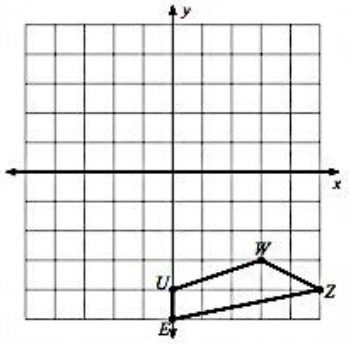


10. Perform the following transformation and **LABEL** your new image.

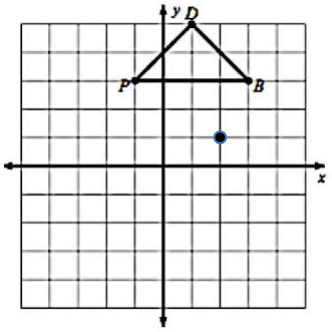
a. Rotate 180° about origin.



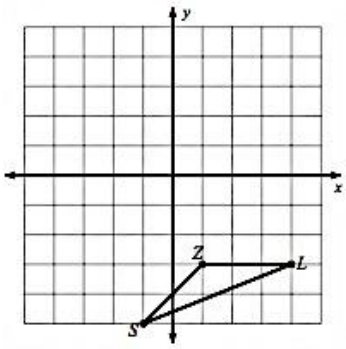
b. Rotate 90° about origin.



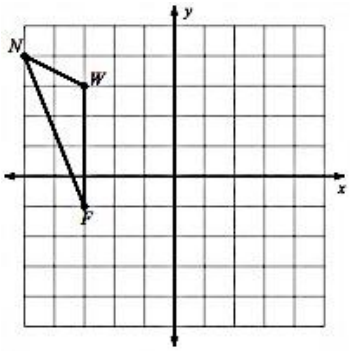
c. Rotate 180° about $(2, 1)$



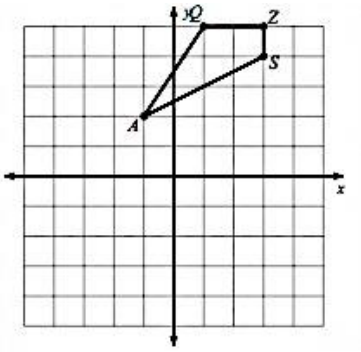
d. Reflect over the line $y = x$



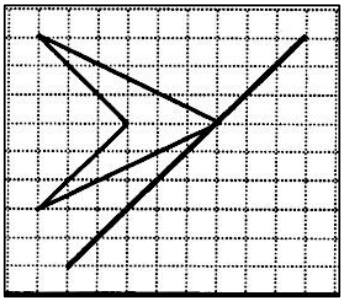
e. Reflect over y-axis then x-axis



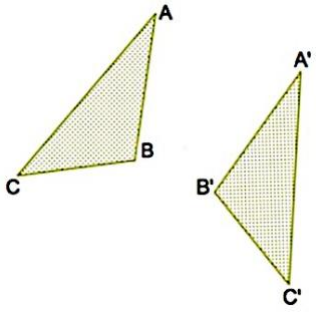
f. Reflect over the $y = -x + 1$



g. Reflect over the given line.



h. Construct the line of reflection



i. Rotate 90° about point $(-2, 1)$ and then 180°