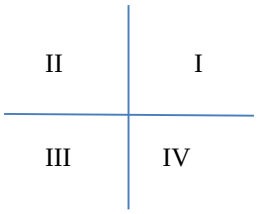
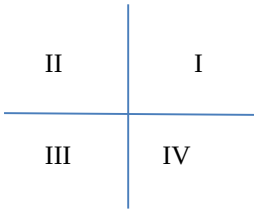
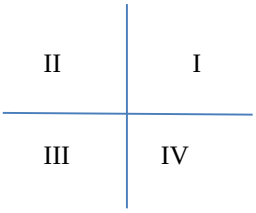
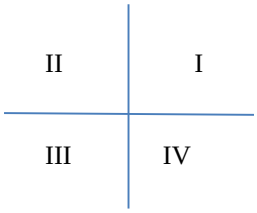
Transformation Project Instructions

Due Date: _____

This project will use 3 different types of transformations; 2 rotations, 2 reflections, and 2 translations.

Each student will pick an irregular or odd number (at least 7 and no more than 12) sided polygon to use. **Your polygon should have convex as well as concave portions**. You will complete the project on a gridded poster board divided into 4 sections as shown below. You must use gridded poster board for a maximum score.

Top left Original 	Top right Reflections 
Bottom left Rotations 	Bottom right Translations 

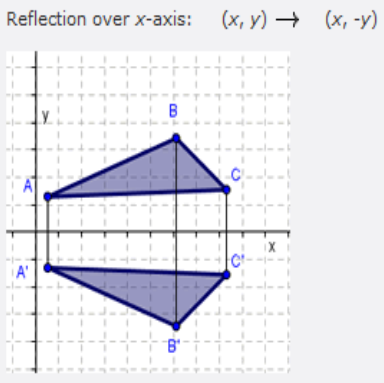
Original	Must be in quadrant II (x –negative, y-positive) and large enough to be seen from 6 feet away. Label each vertex with a letter and the corresponding ordered pair.
Reflections	Redraw the original in quadrant II. Reflect the original over the $y - axis$. Then, reflect the original over the line $y = x$. (You should have 2 reflections and the original in this section). Make sure to label which reflection is which and all points with corresponding letters and ordered pairs.
Rotations	Redraw the original in quadrant II. Rotate the original counter-clockwise 90 degrees. Then, rotate the original 180 degrees. (You should have 2 rotations and the original in this section). Make sure to label which rotation is which and all points with corresponding letters and ordered pairs.
Translations	Redraw the original in quadrant II. Translate the original right 11, down 5. Then, translate the original right 3, down 9. (You should have 2 translations and the original in this section.) Make sure to label which translation is which and all points with the corresponding letters and ordered pairs.

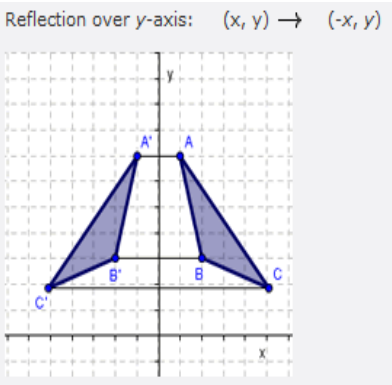
*Rewrite all ordered pairs on the attached sheet.

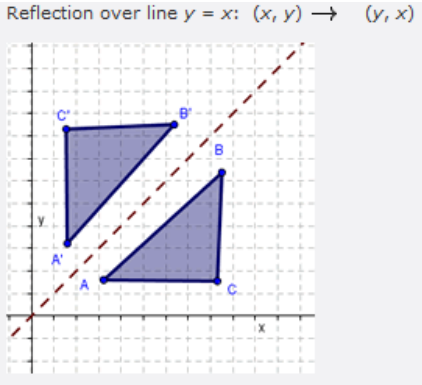
*Make sure that your project is neat and easy to read. All lines should be drawn with a straight edge. After you have finished your transformations apply some color. Make your pictures stand out! Be creative!!!

Examples

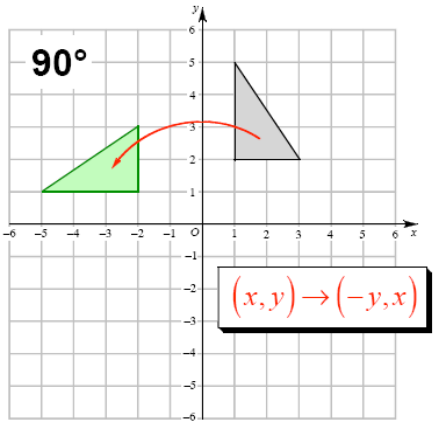
Reflections – A reflection is a **flip**. The image does not change size but the lettering is **reversed**.

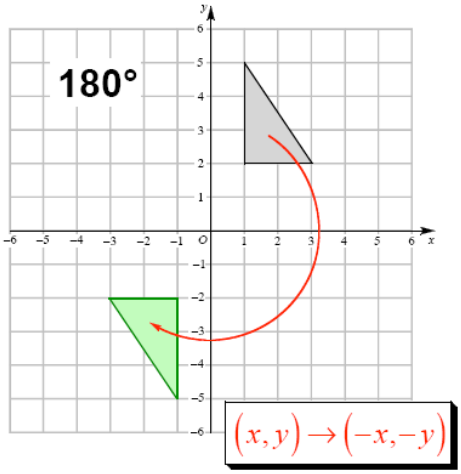




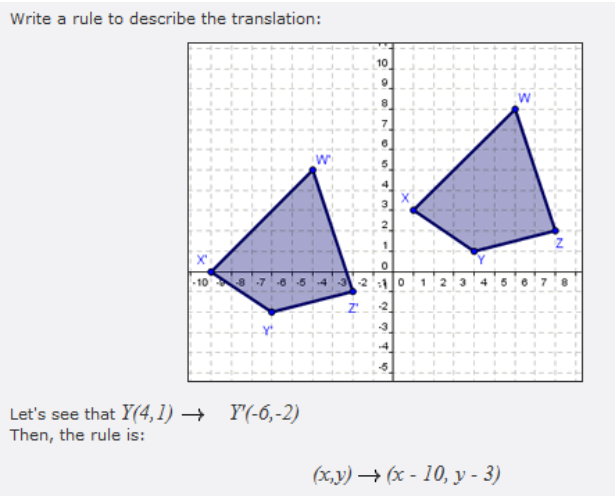


Rotations – A **rotation** turns a figure through an angle about a fixed point called the center. A **positive** angle of rotation turns the figure **counter-clockwise**, a **negative** angle of rotation turns the figure in a **clockwise** direction.

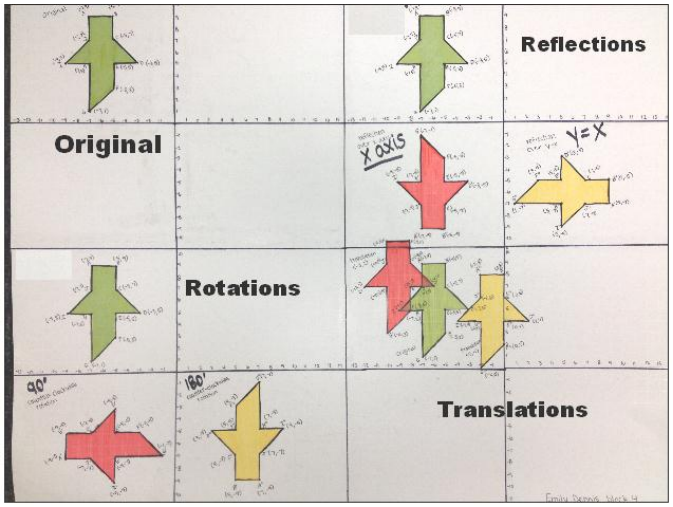




Translations – A translation **"slides"** an object by a **vector** which is a fixed distance in a given direction $(x, y) \longrightarrow (x + a, y + b)$.



EXAMPLE of project:



Ordered Pairs of Translations

ex: $A(3,5)$	ex: $A'(-3,5)$	ex: $A'(5,3)$	ex: $A'(-5,3)$	ex: $A'(-3,-5)$	ex: $A'(14,0)$	ex: $A'(6,-4)$
Original	Reflection over $y-axis$	Reflection over $y=x$	Rotation $90°$ (counter-clockwise)	Rotation $180°$	Translation $< 11,-5 >$	Translation $< 3,-9 >$

Transformation Project Grading Rubric

Name: _____ Period: _____

Category		Maximum Points	Score
Original Polygon		15	
Reflection	Original	5	
	Across $y-axis$	10	
	Across $y=x$	10	
Rotation	Original	5	
	90° Counter-clockwise	10	
	180°	10	
Translation	Original	5	
	⟨11, 5⟩	10	
	⟨3,- 9⟩	10	
Sheet of Points		10	
Extra Credit		10	
Total possible points		110	
Deduction of Points	Not Pre-gridded	-10	
	No Poster Board	-10	
	No Ruler	-10	
	No Color	-10	
FINAL GRADE			