**Transformation Project**

**Math 2 HONORS**

For this project, you will be creating a figure to transform on a coordinate plane. It will essentially create a flip book when it is completed.

**Assignments:**

1. Begin by drawing a figure (to be called your pre-Image) with at least 6 points but no more than 8 points. The figure should be *creative*, unique, and colored. It cannot be equilateral or block letters. Make sure to LABEL all the coordinate points with letters. The WHOLE pre-image **must be located in Quadrant I**.
2. Complete the following transformations. Each transformation will be done ***to the previous image, not the original preimage.***
   1. Translate your pre-Image by
   2. Reflect your last Image (from step a) across the y-axis.
   3. Reflect your last Image (from step b) across the line
   4. Reflect your last image (from step c) across the line y = x
   5. Rotate your last Image 180° Counter Clockwise
   6. Rotate your last Image 270° Clockwise
   7. Dilate your last Image by a scale factor of 2
   8. Dilate your last Image by a scale factor of

**DUE:**

**Friday**

**October 19, 2018**

1. Complete the tables for your transformation coordinates.
2. Create the graphs of your transformations
3. Cut the graphs (and their tables) and staple them together (in order a – h) so that they are essentially making a “flip book” of the image moving around.

\*YOU WILL LOSE POINTS IF NOT IN ORDER\*

*Note:*  in order for this to be effective, the background should

not flip around with the image, but help tell the story.

**What you will turn in:**

* Colored graph and tables filled in for Pre-Image to teacher beforehand for approval. (**DUE: Monday, Tuesday October 16**)
* All graph paper with completed transformations and coordinate tables filled in and in order
* Completed reflection questions

**Rubric for how you will be graded: \*MUST TURN THIS IN WITH YOUR PROJECT\***

*(In addition to the below, each* ***missing table*** *or graph will be less 5 points. 10 if both are missing)*

Grades:

Pre-Image (Due **Tuesday, October 16**)

**\*SIGNATURE SHEET MUST BE HANDED IN TO GET CREDIT FOR THIS PORTION OF THE PROJECT\***

* Between 6 and 8 coordinates labeled and located in the *1st Quadrant* (5 points) \_\_\_\_\_\_\_\_\_\_\_
* Image and all quadrants colored AND decorated- setting up the story (5 points) \_\_\_\_\_\_\_\_

Transformations **\*MUST TURN IN GRAPHS AND TABLES TOGETHER\***

* When flipping through, does the object move into the appropriate

Quadrants and face the appropriate way? (48 points- 6 pts per image) \_\_\_\_\_\_\_\_\_\_\_

*Note: If pages are not in correct order, 10 points will be lost automatically*

* Correct Transformation #1 (4 points) - Translation \_\_\_\_\_\_\_\_\_\_\_
* Correction Randomly Selected Transformation #2 (4 points)- Rotation \_\_\_\_\_\_\_\_\_\_\_
* Correction Randomly Selected Transformation #3 (4 points)- Reflection \_\_\_\_\_\_\_\_\_\_\_
* Correction Randomly Selected Transformation #3 (4 points)- Dilation \_\_\_\_\_\_\_\_\_\_\_

Reflection Questions

* Question #1 is answered thoroughly and insightfully (3 points) \_\_\_\_\_\_\_\_\_\_\_
* Question #2 is answered thoroughly and insightfully (3 points) \_\_\_\_\_\_\_\_\_\_\_
* Question #3 is answered thoroughly and insightfully (3 points) \_\_\_\_\_\_\_\_\_\_\_
* Question #4 is answered thoroughly and insightfully (3 points) \_\_\_\_\_\_\_\_\_\_\_
* Appropriate Length for questions (2 points) \_\_\_\_\_\_\_\_\_\_\_
* Other
* Neatness, color and creativity (12 points) \_\_\_\_\_\_\_\_\_\_\_

Total Score = \_\_\_\_\_\_\_\_\_ =

100

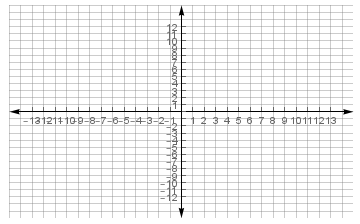
**Reflection Questions**

\*You may type/write these on a separate sheet, but if typed, they must be printed and handed in\*

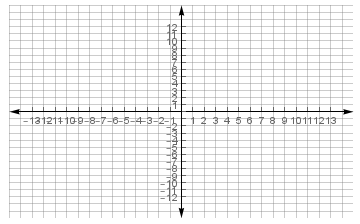
Each Question (including #2) must be at least 4 COMPLETE sentences with explanation. No explanation or COMPLETE sentences will receive an automatic zero for the question.

1. What is a real life example of when you could use either rotation, reflection, dilation, or translation? Speak to at least 2 different transformations.
2. Consider rotating a figure 90° CCW, 180° CCW, and 270° CCW. If I were to rotate the same figure CW, list the rotations that result in the same transformed figure.
3. Write about the transformations that result in the same figure as the original figure. Which ones are they? Which transformations are similar? Why?
4. What is the difference between transformations of geometric figures and transformations of parent functions? Talk specifically about the rules.

**Pre-image**

* [](https://www.wolframcloud.com/objects/355b71bb-6006-4082-a749-e4cd22f9e053?f=%7b%7d&&xmin=-15&&xmax=15&&xstep=1&&ymin=-15&&ymax=15&&ystep=1&&pointList=%7b%7d&&showYAxis=True&&showPlotLegends=Expressions&&showAxesArrows=Yes&&changePointsToCrosses=No&&xGridLines=Table%5bi,%7bi,-15,15,1%7d%5d&&yGridLines=Table%5bi,%7bi,-15,15,1%7d%5d&&inequalities=%7b%7d)Must have at least 6 points, but no more than 8 points
* All points must be in Quadrant I
* Be creative and color it
* Label all points with letters
* Cannot be Symmetrical

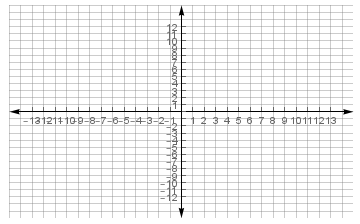
1. Translate your pre-image using the rule

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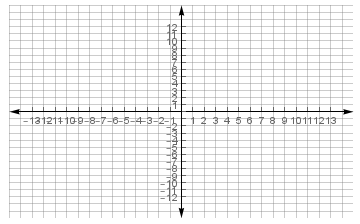
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1. Reflect across the y-axis

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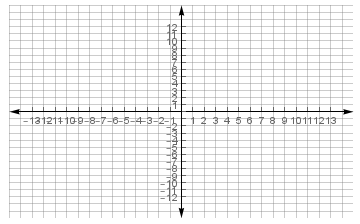
1. Reflect across y = -3

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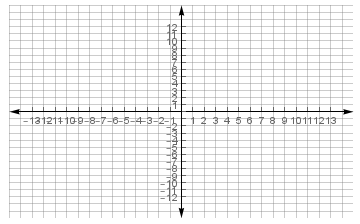
1. Reflect across the y = x

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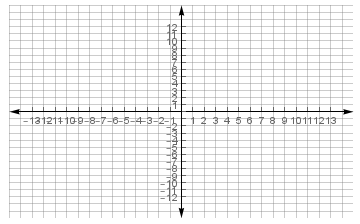
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1. Rotate 180° Counterclockwise (**NOTE:** Only image will rotate. Do not rotate the background)

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1. Rotate 270° Clockwise

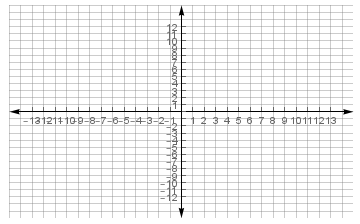
[](https://www.wolframcloud.com/objects/355b71bb-6006-4082-a749-e4cd22f9e053?f=%7b%7d&&xmin=-15&&xmax=15&&xstep=1&&ymin=-15&&ymax=15&&ystep=1&&pointList=%7b%7d&&showYAxis=True&&showPlotLegends=Expressions&&showAxesArrows=Yes&&changePointsToCrosses=No&&xGridLines=Table%5bi,%7bi,-15,15,1%7d%5d&&yGridLines=Table%5bi,%7bi,-15,15,1%7d%5d&&inequalities=%7b%7d)

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1. Dilate by a scale factor of 2. (**NOTE:** Some Points may not fit on graph. Graph what does, do not change the scale. Make sure table is filled out appropriately and color picture accordingly)

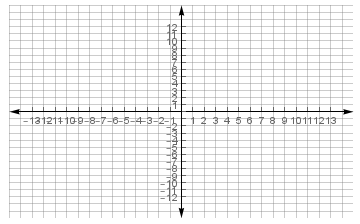
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1. Dilate by a scale factor of ¼

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