Name_____ Period_____

Coordinate Graphing / Geometry Project

The purpose: The following activities allow students to demonstrate their understanding of the coordinate system and apply that knowledge to various geometric concepts. This project will enable the students to apply, analyze, evaluate and create a product demonstrating their understanding of geometric transformations which is an essential skill for Analytic Geometry (10th grade math).

Standards Addressed:

MCC9-12.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

MCC9-12.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

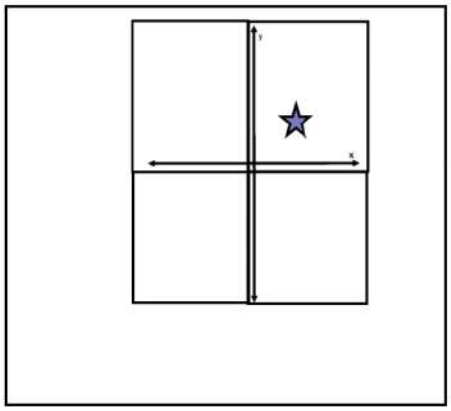
Supplies Needed: (Ms. Dean is not providing this -> the supplies)

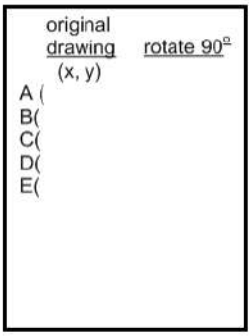
4 sheets of graph paper and 1 sheet of notebook paper
1 poster board
Ruler
Markers or colored pencils
Black pen or marker (for outlines)

Procedure: The student will complete a total of four transformations from their original figure. The original figure must contain a minimum of **10 points**, and the points should be labeled (A-J). Each transformation must be shown graphically, and the coordinates must be displayed. There must be a reflection, rotation, translation, and combo transformation. The students **must** write a rule for each transformation, and identify what quadrant(s) the transformed image is in. There must be a figure in all four quadrants after all transformations are completed. Each graph must be drawn using a ruler or straight edge and must be colored.

STEPS:

1) Place all four sheets of graph paper on the poster board and make a large coordinate grid. On the loose leaf sheet of paper, make a column for the original figure, reflection rule, rotation rule, transformation rule, and combo rules (i.e., two transformations).





2) Complete each transformation: reflection, rotation, translation, combination.
3) Color code each figure and label as original, reflection, rotation, translation, and combo.

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Writing Component

Reflection of concept:
You will write a reflection on the math content of this project ***and*** you will choose one topic reflecting transformations throughout our world.

Content (Write 1 paragraph with **5** or more sentences.)

Compare and contrast two different types of transformations. State your opinion on which one was more challenging and explain in detail why it was more challenging.

Connection to Our World: (Chose one topic. Write **1** paragraph with **5** or more sentences.)

Choose a topic and write about it, regarding societal/real-world transformations. You may use one of the suggestions below or create one of your own.

1) In our society, technology is always transforming. Explain this transformation.

2) As a human journeying through life, how have you transformed?

3) How has music transformed our society?

4) How does weather over time transform our land?

Grade: This project has two portions and will count as 1.5 test grades. **LATE** projects **will not** be accepted. If the project is late or the student does not turn in the project, they/he/she will receive a grade of zero, which will be detrimental to their class average. Students will also receive a score of zero if it is determined that the project is **not** their own independent work. Students may turn in the project early, and this is encouraged.

DUE DATE(S): ODD Classes Due: November 6, 2014, EVEN Classes Due: November 7, 2014

Parent Signature: _____Date _____

Student Signature: _____Date _____

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RUBRIC

Accuracy: 4 points – Graphed all figures accurately.
2 points – Graphed more than half the figures accurately.
1 point – Graphed less than half the figures accurately.

Quadrant(s): 4 points – Figures were in all four quadrants.
2 points – Figures were in 3 quadrants.
1 point – Figures were in 1 or 2 quadrants.

Rule: 4 points – Rules were listed for all transformations.
2 points – Rules were listed for more than half of the transformations.
1 point – Rules were listed for less than half of the transformations.

Part 1 (60 points possible)

	Accuracy	Quadrant(s)	Rule	Total
Original Figure				
Reflection				
Rotations				
Translation				
Combo				
			Part 1- Subtotal	

Part 2 (40 points possible):	20 points	10 points	5 points	
Essay (Content)	Paragraph ***contains:*** 5 or more sentences, compares and contrasts two transformations, and challenge explanation is provided.	Paragraph ***contains:*** 5 or more sentences, but does not ***contain:*** comparison and contrast of two transformations, or challenge explanation.	Paragraph ***contains*** the following: 3-4 sentences, but does not ***contain:*** comparison and contrast two transformations, and challenge explanation.	
Essay (World Connection)	Paragraph ***contains:*** 5 or more sentences, and provides a clear connection to the real-world.	Paragraph ***contains:*** 5 or more sentences, but does not ***contain:*** a clear connection to the real-world	Paragraph ***contains*** the following: 3-4 sentences, but does not ***contain:*** a clear connection to the real-world.	
			Part 2 – Subtotal	

Total Points_____