

OPEN RESPONSE # _____

- a. Plot the following points on a Cartesian Coordinate Plane.
Connect the points in order.

A. (5, 0)
B. (6, 1)
C. (7, 2)
D. (8, 3)
E. (9, 4)
F. (9, 6)
G. (8, 7)
H. (6, 7)
I. (5, 6)
J. (4, 7)
K. (2, 7)
L. (1, 6)
M. (1, 4)
N. (2, 3)
O. (3, 2)
P. (4, 1)
Connect P to A.

- b. How many lines of symmetry are in this figure?
- c. Which type(s) of line(s) of symmetry are in this figure: vertical, horizontal, of both?
- d. Sketch the line(s) of symmetry on the figure that you graphed in part “a” of this question and label each as a “Line of Symmetry”.
- e. Reflect this figure across the y-axis. Make a list of the new coordinates and explain how the coordinates change in the reflected figure?

Grade Level: **Middle School**

Content Area(s): **Math**

Instructional Unit: **Coordinate Graphing, Symmetry, and Transformations**

<u>Core Content</u>	What Students Need to be Able to Do:	Classroom Strategies/Activities Leading up to Question	Type of Open Response
<p>Math 2.1.4 (Symmetry)</p> <p>Math 2.2.3 Move shapes in a coordinate plane: reflect.</p> <p>Math 4.1.3 Cartesian Coordinate System and ordered pairs</p>	<p>Graph ordered pairs in a Cartesian coordinate plane.</p> <p>Recognize, name, and sketch lines of symmetry.</p> <p>Reflect a figure and name its new points with their ordered pairs.</p> <p>Explain how the coordinates changed in the reflected picture.</p>	<p>Coordinate graphing unit with correct terminology</p> <p>Morris project with reflections and Rotations added.</p> <p>Use Mira to find lines of symmetry.</p> <p>Use Mira to sketch reflections of simple pictures.</p> <p>Use Mira to plot points of reflections of figures and pictures.</p>	Scaffolded

Question:

a. Plot the following points on a Cartesian coordinate plane. Connect the points in order.

- A. (5,0)
- B. (6,1)
- C. (7,2)
- D. (8,3)
- E. (9,4)
- F. (9,6)
- G. (8,7)
- H. (6,7)
- I. (5,6)
- J. (4,7)
- K. (2,7)
- L. (1,6)
- M. (1,4)
- N. (2,3)
- O. (3,2)
- P. (4,1)

Connect P to A.

b. How many lines of symmetry are in this figure?

c. Which type(s) of line(s) of symmetry are in this figure: vertical, horizontal, or both?

d. Show the line(s) of symmetry on the figure that you graphed in part “a” of this question and label each as “Line of Symmetry”.

e. Reflect this figure across the y-axis. Make a list of the new coordinates and explain how the coordinates change in the reflected figure.

Rubric	
4	All of the parts of the question are correct. Student receives all 4 points.
3	Student answers all but one or two parts correctly. Student receives 3 or 3 _ points.
2	Student answers enough of question to receive 2 or 2 _ points.
1	Student shows minimal understanding. Student receives _, 1, or 1 _ points.
0	Student's answer is totally incorrect or irrelevant.
<u>Appropriate Answers</u>	
<p>a. All points are plotted and connected correctly. Heart is in the 1st quadrant.</p> <p>b. one</p> <p>c. vertical line</p> <p>d. Vertical line of symmetry is sketched on the heart in the 1st quadrant.</p> <p>e. Reflection is correctly graphed in the 2nd quadrant. All points are correctly listed with the "x-coordinates" changed to their opposites. Correct explanation: In the reflection the x-coordinate changed to its opposite, but the y-coordinate remained the same.</p>	
Points Assigned	
<p>a. 1 point</p> <p>b. _ point</p> <p>c. _ point</p> <p>d. _ point</p> <p>e. 1 _ points: _ point for correctly plotted and connected reflection _ point for correct list of coordinates from reflection _ point for correct explanation</p>	

