

Reflection Project: Mathematical Coat of Arms

A "Coat of Arms" is a symbol, usually on a shield, that represents your family. You will use both your first and last names in your design. To build the design you will use the coding system below.

0	1	2	3	4	5	6	7	8	9	10
A	B	C	D	E	F	G	H	I	J	K
L	M	N	O	P	Q	R	S	T	U	V
W	X	Y	Z							

Follow Irene's example below to code your first and last name separately.

I	R	• Write your first name vertically and end the first column with the first letter of your first name.
R	E	
E	N	• The second column continues your first name starting with the second letter until the columns are of equal length.
N	E	
E	I	
I	R	

I	R	→	(8,6)	• Use the code above to form above to form ordered pairs that represent your first name.
R	E	→	(6,4)	
E	N	→	(4,2)	
N	E	→	(2,4)	• Use the same method to write, code, and form the ordered pairs that represent your last name.
E	I	→	(4,8)	
I	R	→	(8,6)	

1. Create your design...
 - a. Using a quarter inch graph paper, plot all the ordered pairs in order, first name then your last name. Connect the points with line segments in order as you go.
 - b. Reflect all the points and segments across the y-axis.
 - c. Reflect all the points and segments across the x-axis.
 - d. Reflect the image created in part c across the y-axis (this is a reflection in the origin).
 - e. Color your design to reflect your own creativity.
2. State **all** the coordinates of each reflection on a separate sheet of paper.
3. Answer the reflection questions. **Turn this sheet over!**

On a sheet of looseleaf, answer the following questions.

1. In your own words what is a "coat of arms"?
2. What steps did you take to achieve your "coat of arms" diagram?
3. What shortcuts did you use if any?
4. What do you think about the completed diagram? Is it what you expected?
5. How would you explain reflection across axis or the origin to a non math person?

Rubric

Reflection : Coat of Arms

Student Name: _____

CATEGORY	4	3	2	1
Neatness and Attractiveness	Exceptionally well designed, neat, and attractive. Colors that go well together are used to make the graph more readable. A ruler and graph paper (or graphing computer program) are used.	Neat and relatively attractive. A ruler and graph paper (or graphing computer program) are used to make the graph more readable.	Lines are neatly drawn but the graph appears quite plain.	Appears messy and "thrown together" in a hurry. Lines are visibly crooked.
Accuracy of Plot	All points are plotted correctly and are easy to see. A ruler is used to neatly connect the points or make the bars, if not using a computerized graphing program.	All points are plotted correctly and are easy to see.	All points are plotted correctly.	Points are not plotted correctly OR extra points were included.
Concept	All transformations are performed correctly.	Transformations are performed correctly with the exception of one or two minor errors	Several errors have occurred during the transformation process.	It is clear that you do not know the difference between the various transformations.
Creativity	Your design clearly demonstrates your own thoughtfulness and personality.	Your design demonstrates some level of personality and thoughtfulness.	Minimal effort was put into creating a meaningful and creative design.	Little or no level of creativity or thoughtfulness was put into completing this project.