Student Name _____ Date _____

Mirror, Mirror

Dear Parent or Family Partner,
In math, we are working with reflections across the 'y' axis. I hope you enjoy this activity with me.
This assignment is due _____.

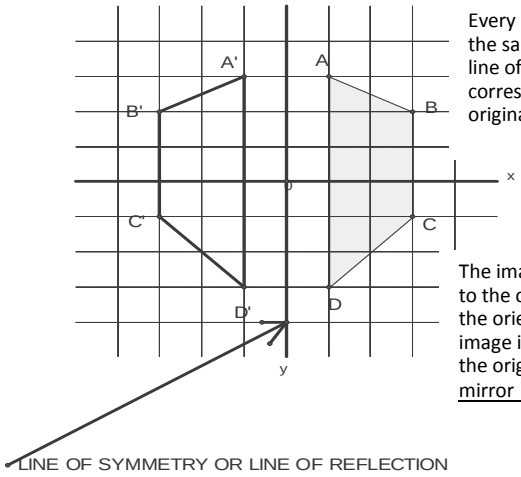
Sincerely,

_____
Student signature

LOOK THIS OVER

Explain to your family partner that a **reflection** is a **transformation**.
A **reflection** is a **mirror image** produced by flipping a figure over **a line of symmetry**.

1. Count the number of units between each **vertex** and the **line of symmetry or reflection**.
2. Plot a point for each vertex **the same distance away** from the line of symmetry.



Every point on a reflection is the same distance from the line of symmetry as the corresponding point on the original figure.

The image is congruent to the original figure, but the orientation of the image is different from the original. It is a mirror image.

3. Connect the new vertices to form your **reflection across the line of symmetry**.
   Note: Units right and up are positive (**+**).
   and units left and down are negative (**-**)..

We record points of a reflection as A', B', C', D' to indicate that they are matched opposites to points A, B, C, and D of the original (shaded) shape.

A (1, 3)	A' (-1, 3)	same
B (3, 2)	B' (-3, 2)	
C (3, -1)	C' (-3, -1)	
D (1, -3)	D' (-1, -3)	

opposite

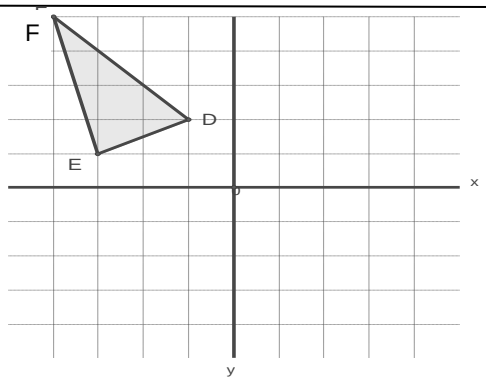
NOTE: The x coordinate of a point reflected across the y (vertical) axis is the opposite of the x coordinate of the original (e.g., see point **A 1** and **A' -1**). The y coordinate is the same as the original (e.g., +**3**).

NOW TRY THIS

Show your family partner how you do this example.

Graph the image of the figure after a reflection across the 'y' axis (the line of symmetry).

Write the coordinates (D', E', F') of the vertices of the new figure



PRACTICE SECTION

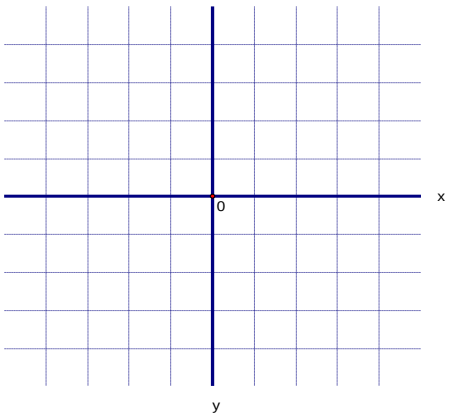
Complete this example on your own.
Show your work.

Explain the example to your family partner.

Graph the trapezoid ABCD with vertices:

A(1, 3), B(4, 0), C(3, -4), and D(1, -2).

Then, graph the **mirror image** of ABCD after a reflection over the 'y' axis.
Write the coordinates of the vertices of the new image.
What changes do you see in the coordinates of your reflection?



******CONTINUE YOUR WORK ON THE BACK OF THIS PAGE******

IN THE REAL WORLD

With a family partner, complete this activity.
Who is working with you? _____

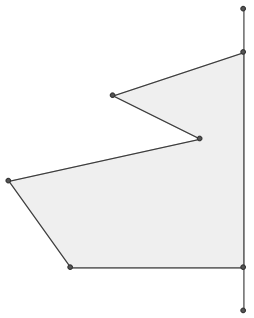
Symmetrical designs—not on a graph—appeal to the eye. Themes may be plants, animals, abstracts, or your ideas.

Design 1. One side of the design is drawn for you. Draw its reflection across the vertical line of symmetry. Remember your reflection should be congruent. With your family partner, give the design a title.

Design 2. Ask your family partner to sketch one half of a design. Then YOU draw the reflection. With your family partner give the design a title.

Design 3. You draw one half of a design. Ask your family partner to sketch the other half. With your family partner give the design a title.

Title: _____ Title: _____ Title:_____



Design 1

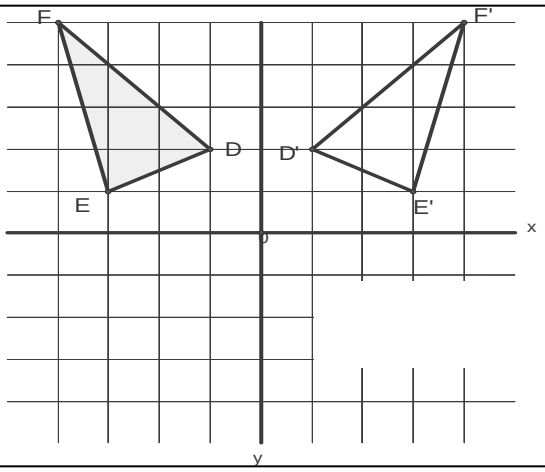
Design 2

Design 3

ANSWER TO NOW TRY THIS

Remember to check that your X coordinates are opposite when reflected across the Y axis.

When reflected across the Y axis, the Y is your line of symmetry.



D(-1, 2) D'(1, 2)
E(-3, 1) E' (3, 1)
F(-4, 5) F' (4, 5)

HOME-TO-SCHOOL COMMUNICATION

Dear Parent or Family Partner,

Please give your reactions to your child's work on this activity.
Write YES or NO for each statement.

_____ 1. My child understood the homework and was able to complete it.

_____ 2. My child and I enjoyed the activity.

_____ 3. This assignment helped me know what my child is learning in math.

Other comments _____

Parent signature _____

Guillory, R., Morris, D., Epstein, J. L., & Greenfeld, M. G. (2017). *Teachers Involve Parents in Schoolwork (TIPS) Interactive Homework—Middle Grades Math (Calcasieu Series).* Baltimore: Center on School, Family, and Community Partnerships, Johns Hopkins University.