

GUIDED NOTES (MODEL NOTES)

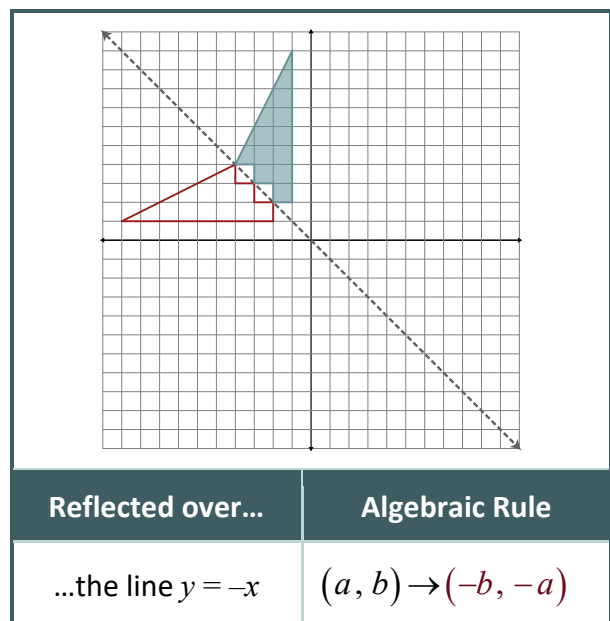
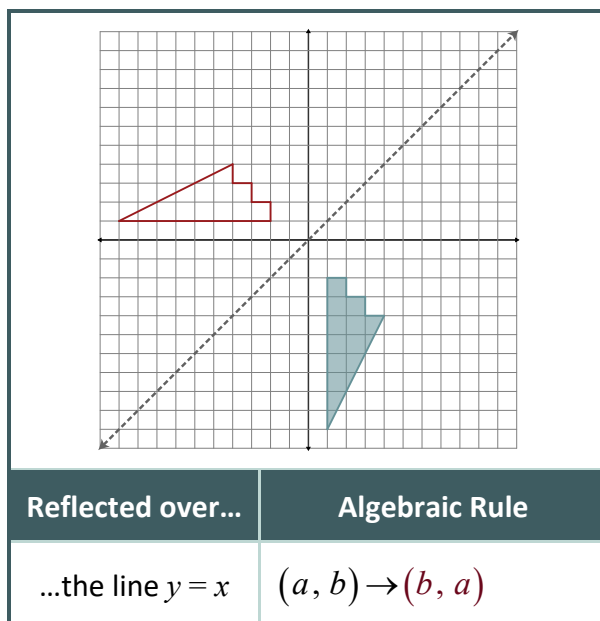
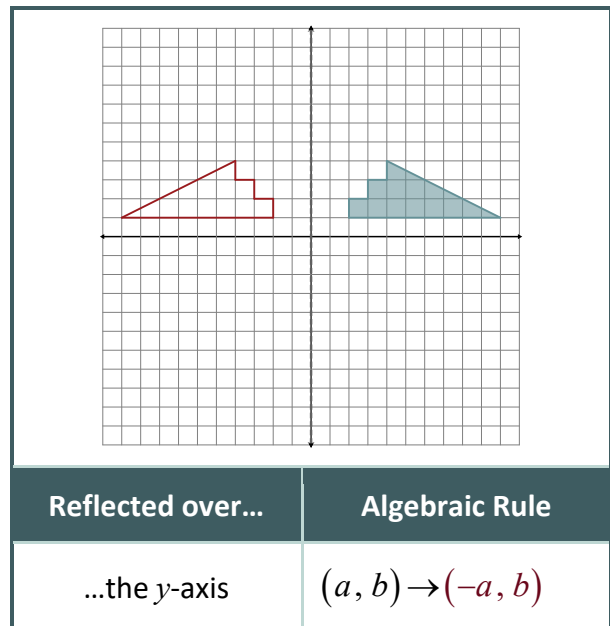
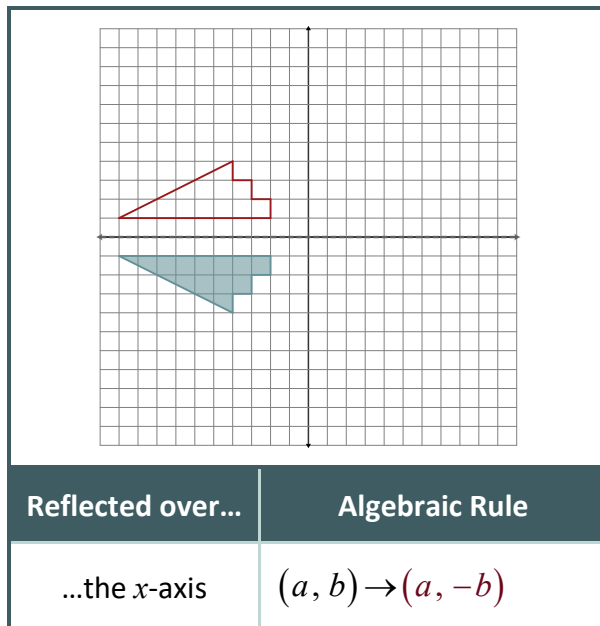
Vocabulary

- **Reflection:** a type of transformation that uses a *reflection line* like a mirror to create a mirror image; the figure is **flipped** over the *reflection line*

Is a reflection an example of rigid motion?

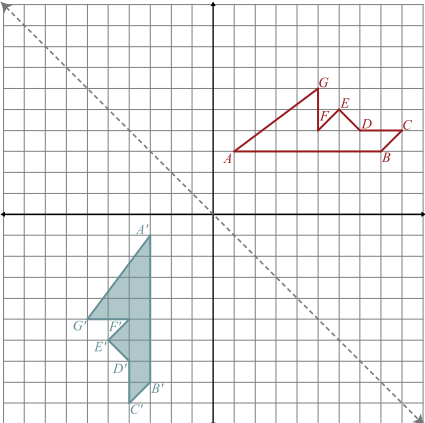
yes, because the preimage and image are congruent

Special Reflections: Algebraic Rules



Applying Algebraic Rules

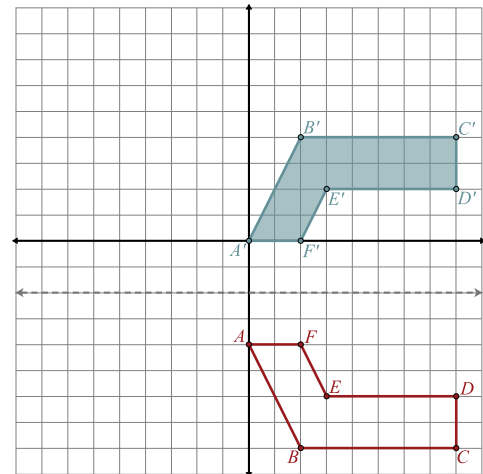
1) Draw the image and complete the table below for the unshaded preimage.

Graph	Verbal Description	Algebraic Rule
	<p>The preimage is reflected over the line $y = -x$.</p>	$(x, y) \rightarrow (-y, -x)$

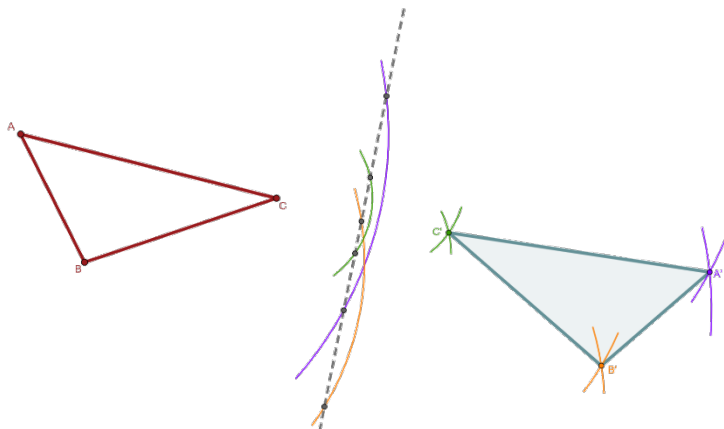
Other Reflections

2) What if we reflect an image over a different line?

Reflect the following preimage over the line $y = -2$.



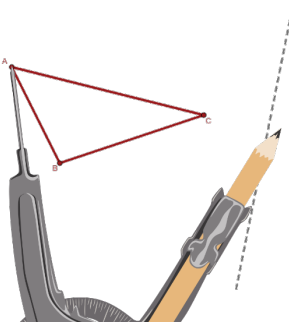
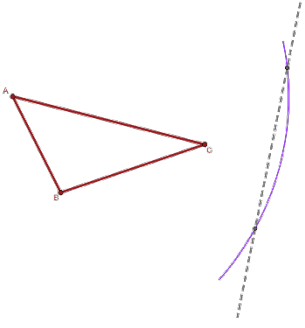
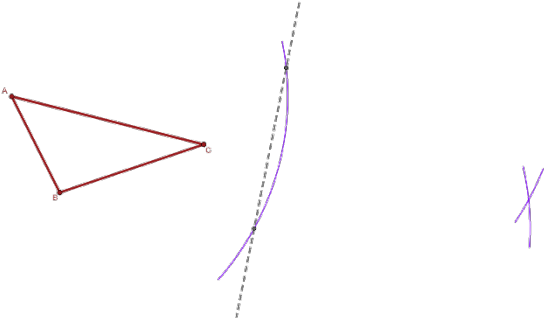
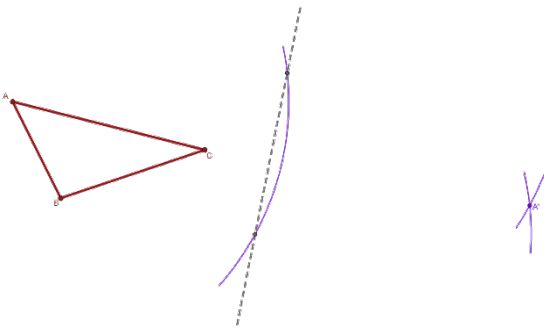
3) What if the preimage was not on the coordinate plane? How would we construct the image? Construct the image given the following preimage and line of reflection.

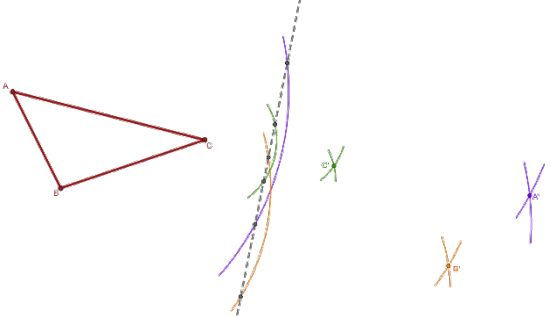
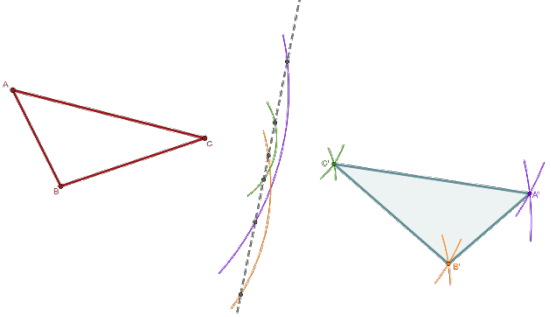


GUIDED NOTES (TEACHER GUIDE)

Example 3

How to construct a reflection with a compass and straightedge.

Construction	Instruction
	<p>Step 1: Set the compass to have a radius longer than the distance from <i>Point A</i> to the reflection line. You want to be able to sketch an arc that intersects the reflection line twice.</p>
	<p>Step 2: Draw an arc with the center at <i>Point A</i> that intersects the reflection line twice.</p>
	<p>Step 3: Use that same radius, from Step 1, to construct two additional arcs (both on the opposing side of the reflection line): each having their center at one of the intersection points from Step 2.</p>
	<p>Step 4: Label this new point of intersection A'.</p> <p><i>Notice that if you draw a line from Point A to Point A' that you have constructed a perpendicular line. There is no need to draw that line, but knowing this confirms that the reflection line is the perpendicular bisector of $\overline{AA'}$.</i></p>

Construction	Instruction
	<p>Step 5: Repeat steps 2-4 for the remaining points.</p>
	<p>Step 6: Use a straightedge to create the polygon (image).</p>