

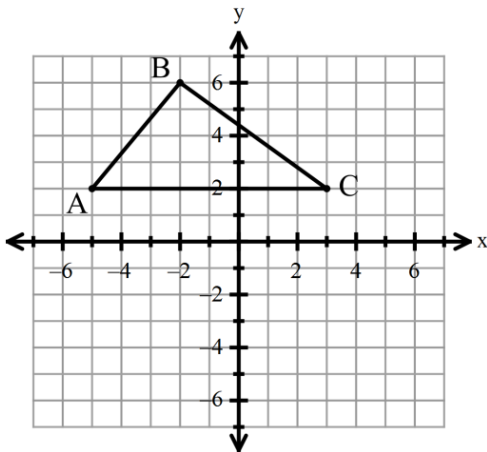
## Formal Geometry

## 3.1 Guided Notes: Reflections

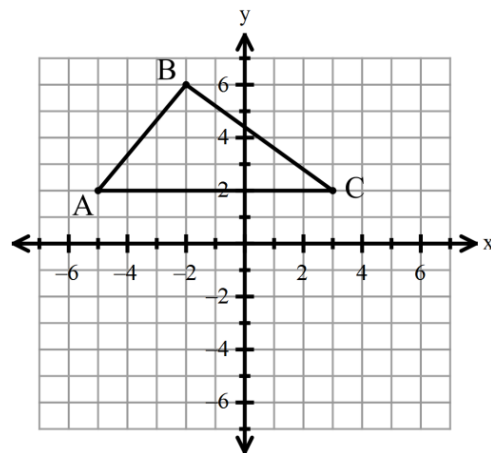
A \_\_\_\_\_ in a line maps a point to its image such that:

- If the point is on the line, then the \_\_\_\_\_ and the \_\_\_\_\_ are the same point.
- If the point does not lie on the line, the line is the \_\_\_\_\_ of the segment joining the pre-image and image.

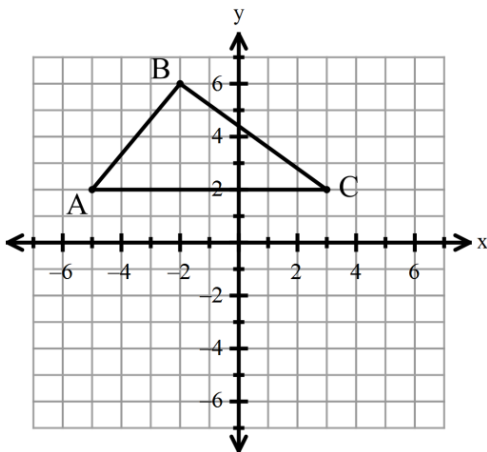
Reflect the given figure in the line  $y = -1$ .



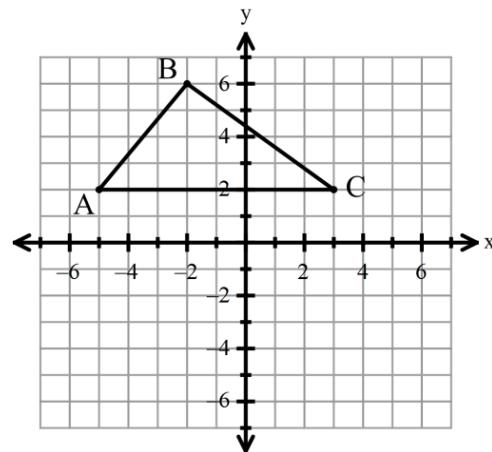
Reflect the given figure in the line  $x = 2$ .



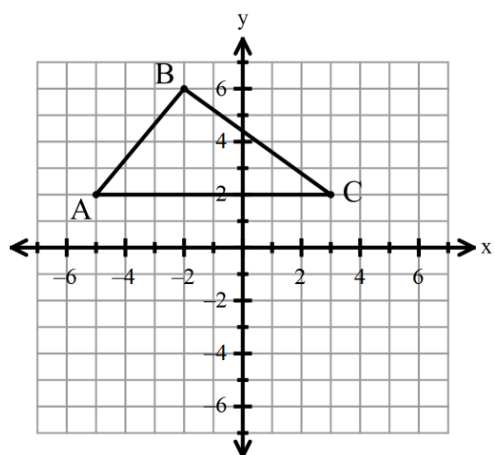
Reflection in the  $x$ -axis:



Reflection in the  $y$ -axis:

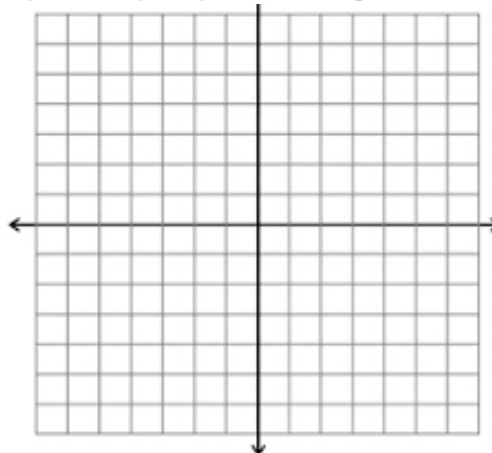


Reflection in the line  $y = x$ .



Ex.2: Graph the figure and its image under the given reflection

Quadrilateral ABCD has vertices A(2,2), B(4,1), C(3, -3), and D(0, -4) in the line  $y = -x$



Summary:

Reflection in the $x$ -axis	Reflection in the $y$ -axis	Reflection in the line $y = x$ .	Reflection in the line $y = -x$

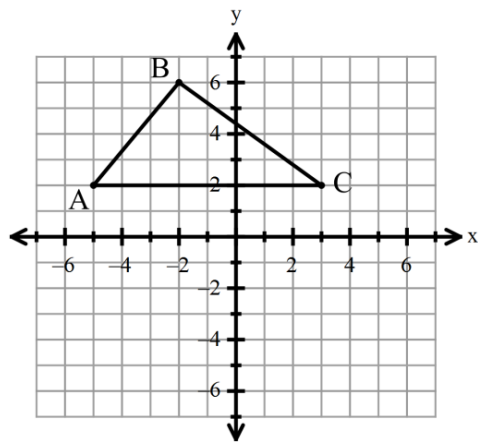
# Formal Geometry

# 3.2 Guided Notes: Translations

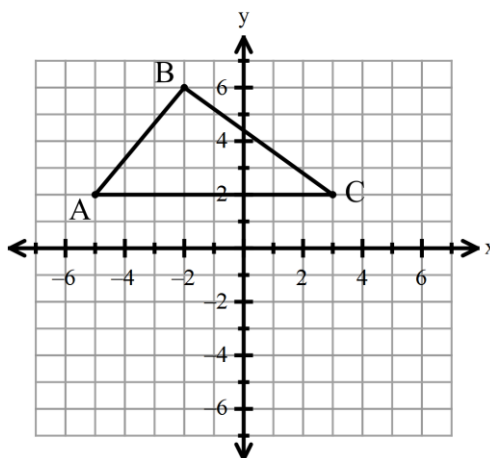
A \_\_\_\_\_ maps each point to its image along a vector, such that:

- Each segment joining a point and its image has the \_\_\_\_\_ as the vector, and
- This segment is also \_\_\_\_\_ to the vector.
- If you translate a point along the vector  $\langle a, b \rangle$ , add  $a$  to the \_\_\_\_\_ and add  $b$  to the \_\_\_\_\_.

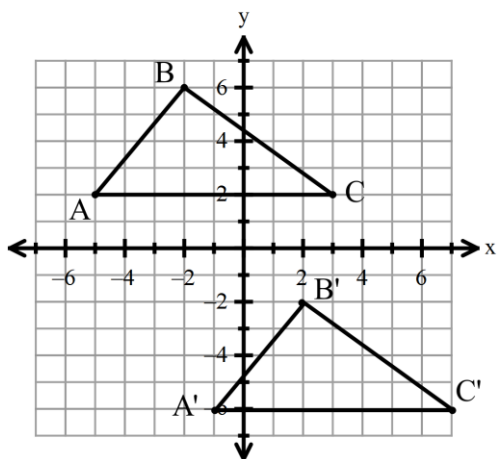
Translate the given figure along  $\langle -3, -2 \rangle$ .



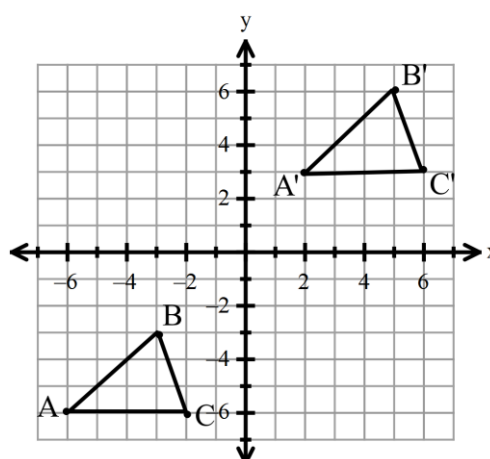
Translate the given figure along  $\langle 4, -6 \rangle$ .



Write the translation vector for  $\triangle ABC$  to  $\triangle A'B'C'$

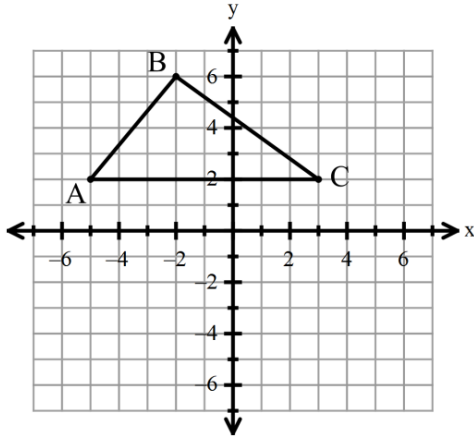


Write the translation vector for  $\triangle ABC$  to  $\triangle A'B'C'$

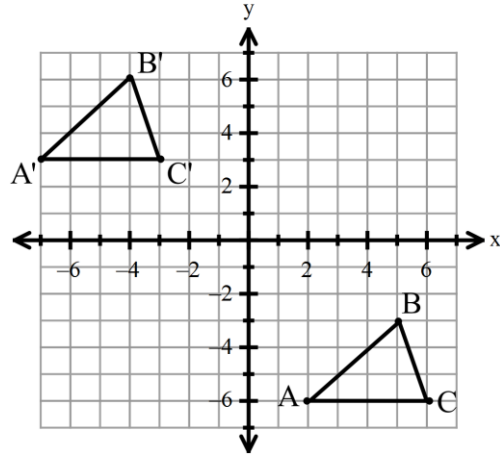


Coordinate Notation to describe a translation:

**Example 1:** Translate the given figure along  $(x, y) \rightarrow (x + 2, y - 3)$ .



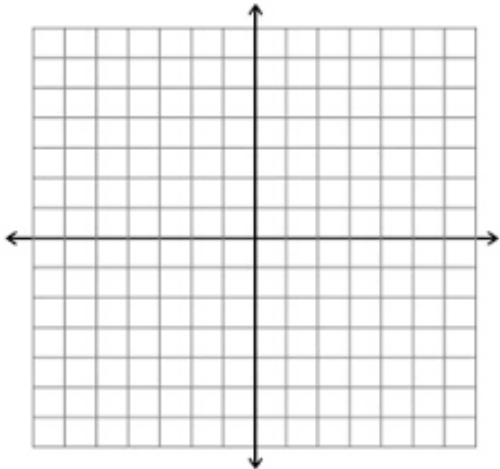
**Example 2:** Write the translation (in **coordinate form**) for the movement shown.



### 3.3 Notes: Rotations

Rotations about the Origin

Clockwise:



Counter-Clockwise:

