

# Reflections Practice

KEY

## Reflections:

- A reflection flips each point of a figure across a line and produces a congruent figure/image.
- A reflection is sometimes called a flip.
- A line of reflection/symmetry is the line over which the image is flipped.

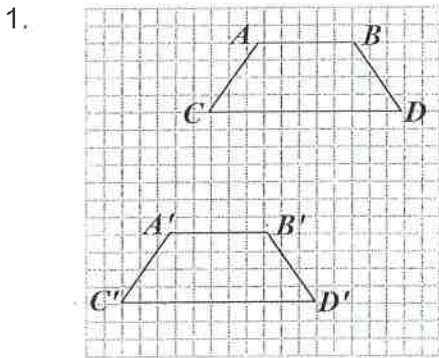
## Reflection across y-axis:

- The x-coordinate is the opposite.
- The y-coordinate is the same.
- Algebraic rule:  $(x, y) \rightarrow (-x, y)$

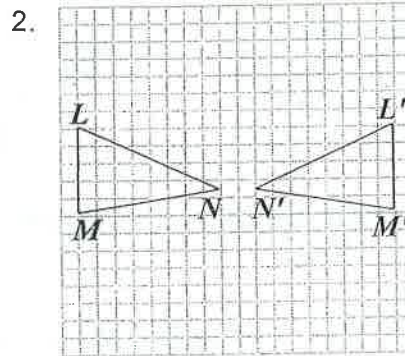
## Reflection across x-axis:

- The x-coordinate is the same.
- The y-coordinate is the opposite.
- Algebraic rule:  $(x, y) \rightarrow (x, -y)$

Tell whether the figure and its image show a reflection. Explain your answer.

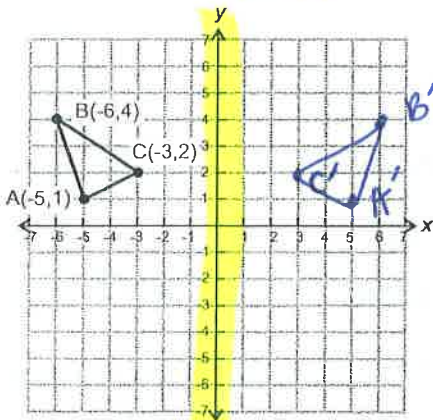


No - figure is slid (translation)  
not flipped (reflection)



Yes. LMN and L'M'N' are flipped

3. Reflect  $\triangle ABC$  across the y-axis. Give the coordinates of  $A'B'C'$ . Then write the algebraic rule for the reflection.



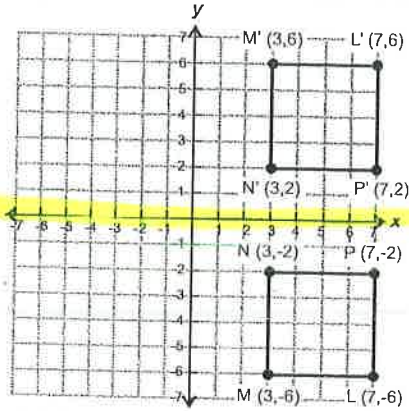
$$(x, y) \rightarrow (-x, y)$$

$$\begin{aligned} A' & (5, 1) \\ B' & (6, 4) \\ C' & (3, 2) \end{aligned}$$

4. How are translations and reflections the same? How are they different?

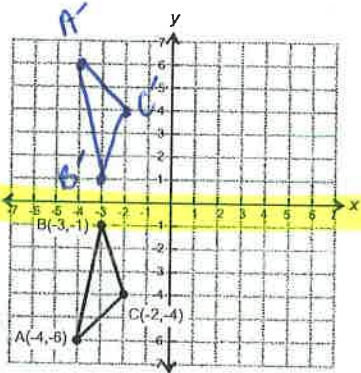
Translations + reflections maintain a shape's size and shape.  
Translations slide a figure, so its location ~~at~~ changes.  
Reflections flip a figure, so its location and orientation change.

5. Write the algebraic rule for the transformation of square LMNP into square L'M'N'P'.



Reflected over x-axis  
 $(x, y) \rightarrow (x, -y)$

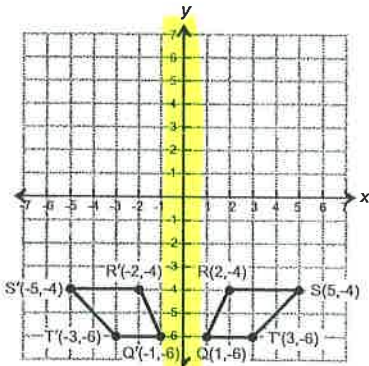
6. Reflect  $\triangle ABC$  across the x-axis. Give the coordinates of  $A'B'C'$ . Then write the algebraic rule for the reflection.



$A'(-4, 6)$   
 $B'(-3, 1)$   
 $C'(-2, 4)$

Reflection across x-axis  
 $(x, y) \rightarrow (x, -y)$

7. Write the algebraic rule for the transformation of quadrilateral QRST and its image.



Reflection across y-axis  
 $(x, y) \rightarrow (-x, y)$

8. When reflecting a point across an axis, explain how you know which coordinate becomes the opposite and which coordinate stays the same.

Whichever axis you're reflecting over, that coordinate remains the same and the other coordinate goes to its opposite.

9. The point located at  $(6, -1)$  is reflected across the x-axis. What are the coordinates of the image point?

$(x, y) \rightarrow (x, -y)$  The image point is  $(6, 1)$ .

10. The point located at  $(-2, 8)$  is reflected across the x-axis and then is reflected across the y-axis. What are the coordinates of the final image point?

Across x:  $(x, y) \rightarrow (x, -y)$   $(-2, 8) \rightarrow (-2, -8)$   
 Across y:  $(x, y) \rightarrow (-x, y)$   $(-2, -8) \rightarrow \boxed{(2, -8)}$