7.2 Classwork: Reflection   **CCSS.HSG.CO.A.5**
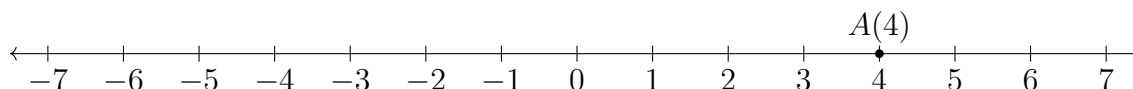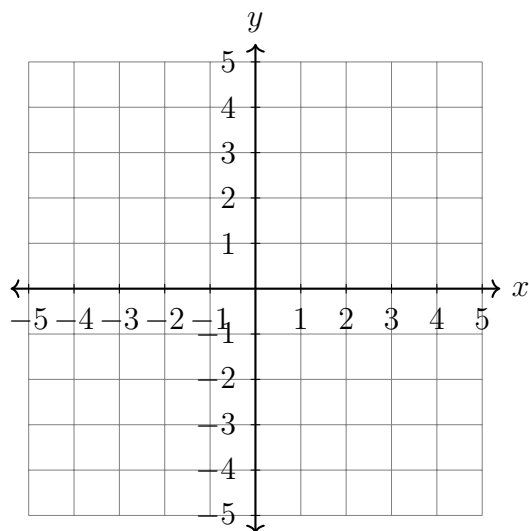
1. Reflect the point $A(4)$ across the origin. (flip the number line) Mark and label it A'.

$$A(4)$$

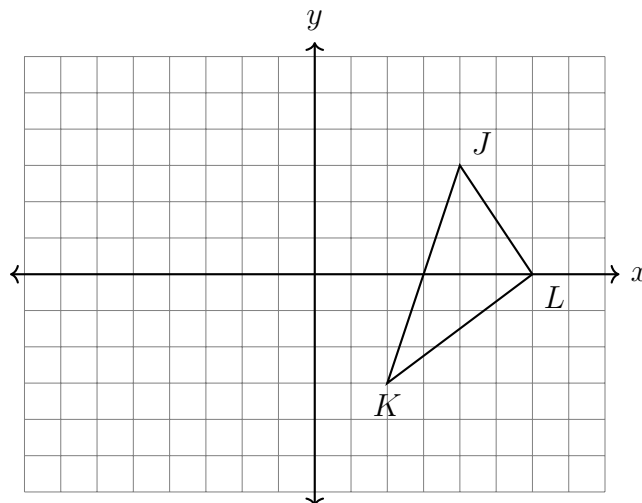$$\begin{array}{ccccccccccccccc} -7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$

2. On the axes below, graph the point $P(-4, 3)$ and its image, P', after a reflection across the x-axis. Mark P' and write it down as a coordinate pair.

3. A reflection maps $Q(4, 3)$ onto $Q'(4, -3)$. Is the reflection across the x-axis or the y-axis?

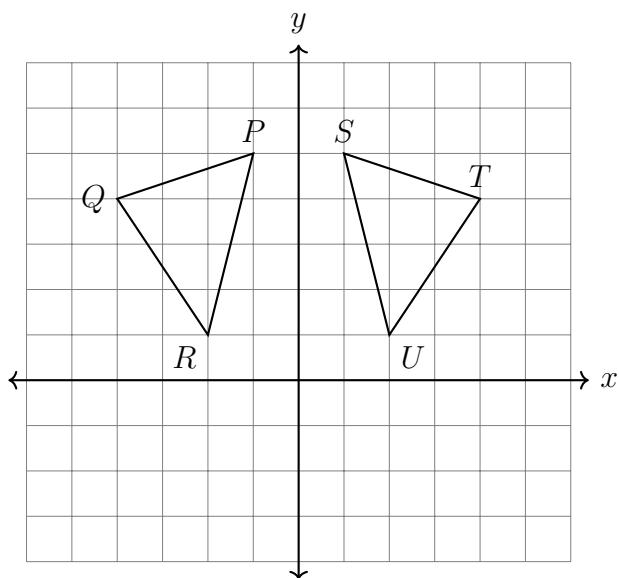4. Reflect $\triangle JKL$ across the y-axis, labeling the image $\triangle J'K'L'$.

5. Triangle $A'B'C'$ is the image of triangle ABC after a reflection. Is triangle ABC congruent to $A'B'C'$? Explain why.

6. In the graph below, a transformation maps $\triangle PQR$ onto $\triangle STU$.

   (a) Completely identify the transformation.
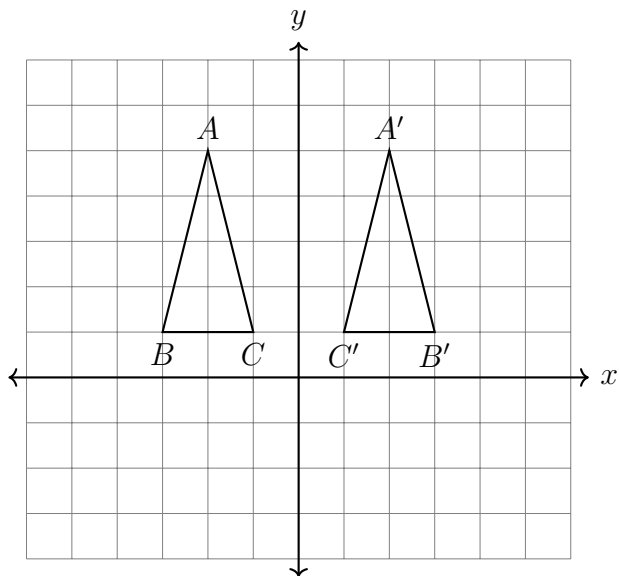
   (b) What point corresponds to T?

   (c) Is R the image of U, or its preimage?

7. In the graph below, a transformation maps $\triangle ABC \rightarrow \triangle A'B'C'$.

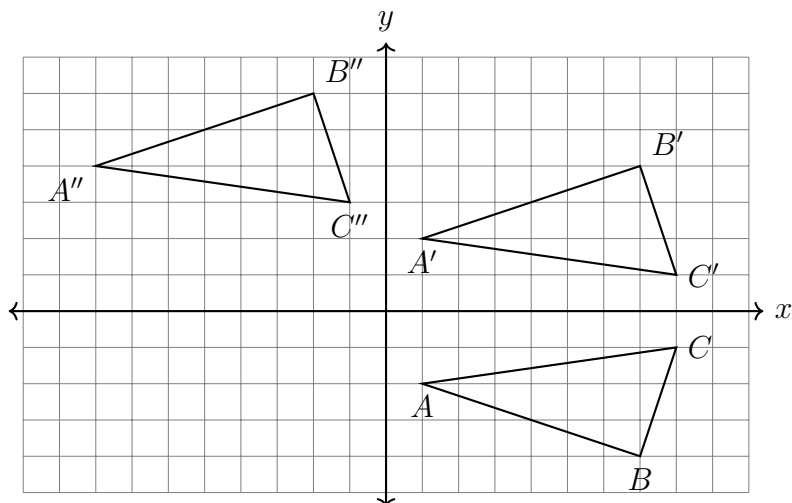   Angie says the triangle must have been reflected across the y-axis. Robbie says it might have been reflected, but it could also have been translated to the right.
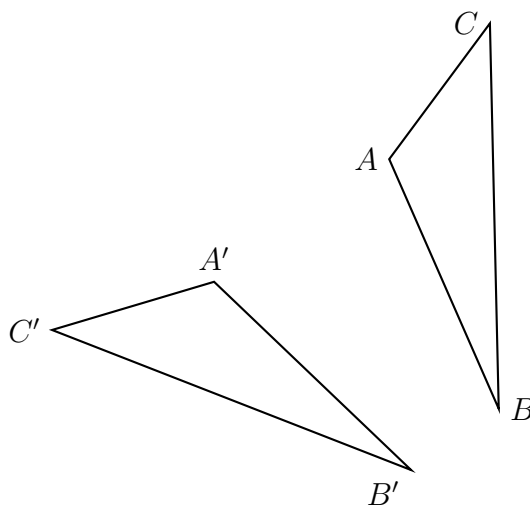
   Who is correct? Justify your answer.

8. Two transformations have been applied to a triangle in the diagram below, $\triangle ABC \to \triangle A'B'C' \to \triangle A''B''C''$. Fully characterize each transformation.

9. A reflection maps $\triangle ABC \to \triangle A'B'C'$. Which triangle has the larger area, the preimage or the image (or neither)? Justify your answer.

10. Draw the line of reflection that would map $\triangle ABC$ onto $\triangle A'B'C'$.

11. Which of the following would map $\triangle CAT \rightarrow \triangle C'A'T'$?
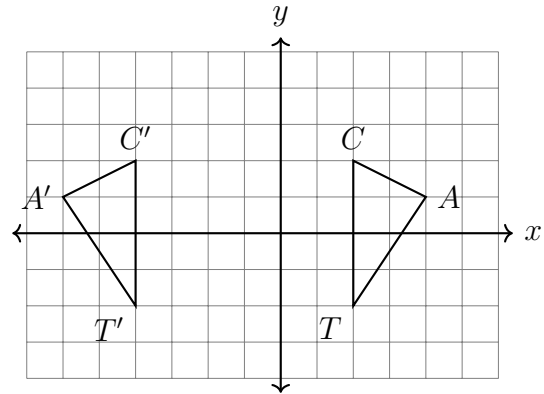
T F   Reflected across the y-axis

T F   Translated six to the left, down zero

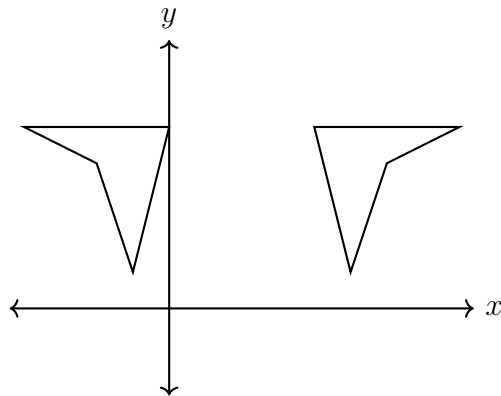T F   Reflected across the y-axis, then slid
        to the left two

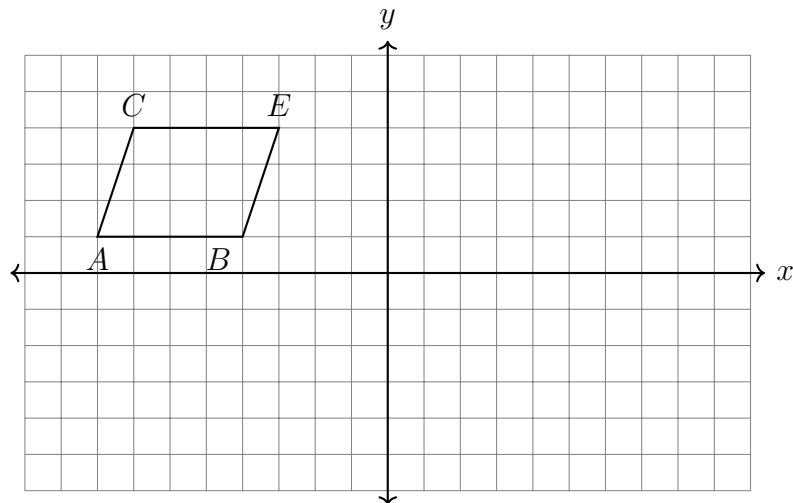T F $(x, y) \rightarrow (x - 6, y + 0)$

T F   Reflected across the line $x = -1$

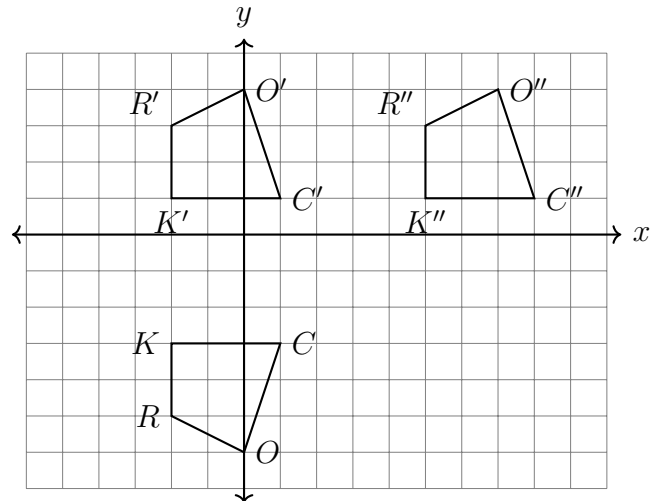12. Draw the line of reflection for quadrilaterals in the diagram below.

13. First reflect the trapezoid $BECA$ across the x-axis, then move it down 1 and right 7.
    Label the images $B'E'C'A'$ and $B''E''C''A''$.

14. The quadrilateral $ROCK$ undergoes rigid motions, shown below. Describe the sequence of transformations applied.
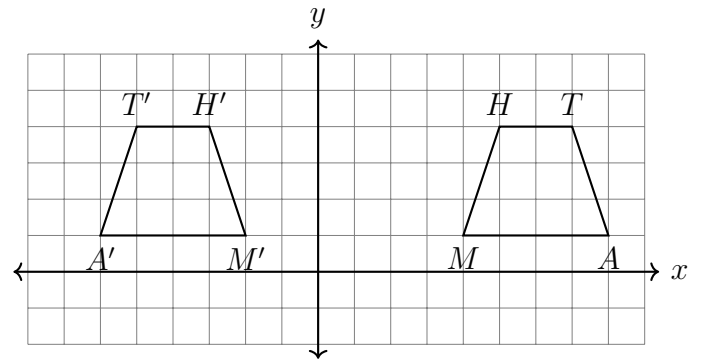
15. The quadrilateral $MATH$ is mapped to $M'A'T'H'$ by a rigid motion. What transformation a been applied?
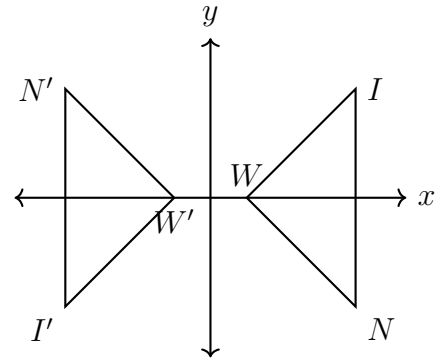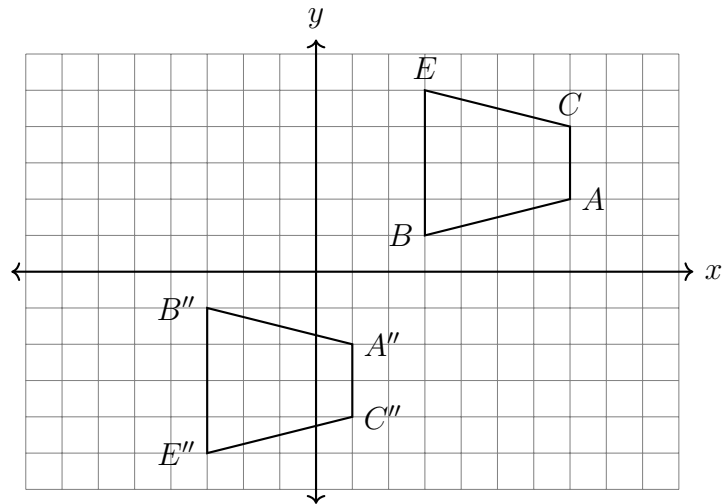
    (a) Dilation

    (b) Reflection

    (c) Rotation

    (d) Translation

16. Given $\triangle WIN \cong \triangle W'I'N'$. Describe the rigid motion mapping $\triangle WIN \to \triangle W'I'N'$.

17. Determine and state the sequence of transfromations applied to map $BECA$ to $B''E''C''A''$.

18. Determine and state the transformation mapping $\triangle NOP$ onto $\triangle QRP$.