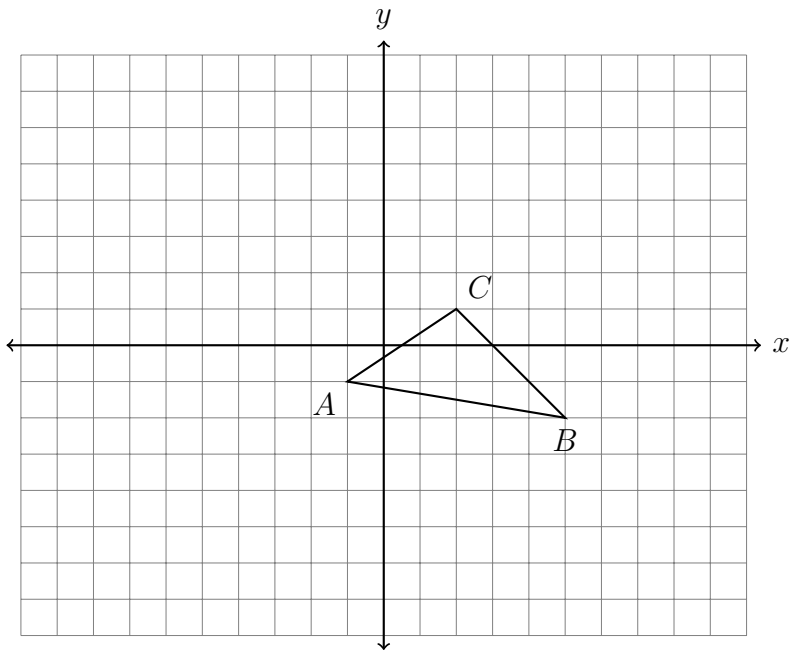
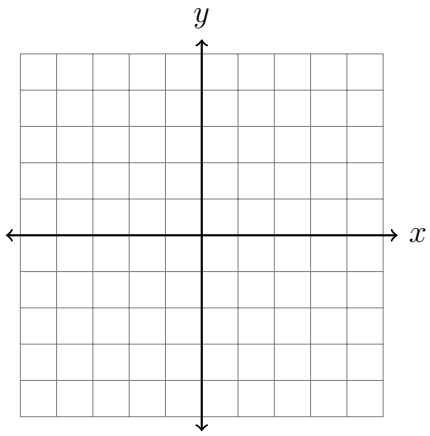
9.5b Exam: Rigid motions including translation, reflection, rotation

1. Slide $\triangle ABC$ to the left four and up five. Label the image $\triangle A'B'C'$.

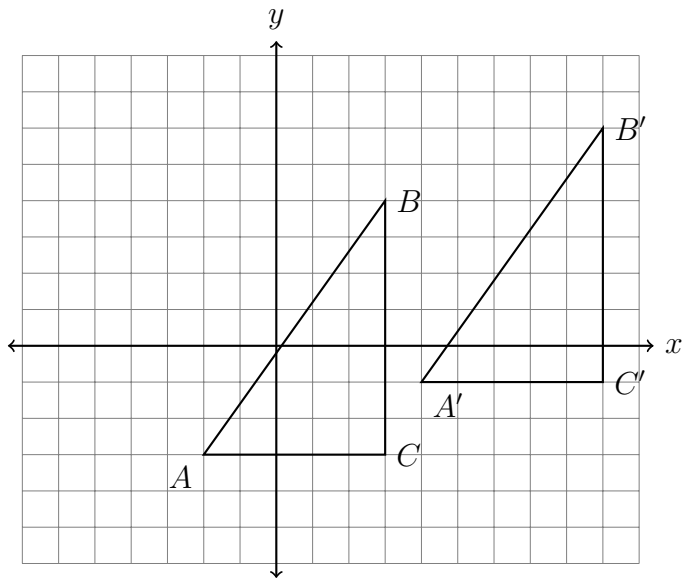


2. Apply the translation $(x, y) \to (x - 3, y + 5)$ to the point $P(-2, -5)$.

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

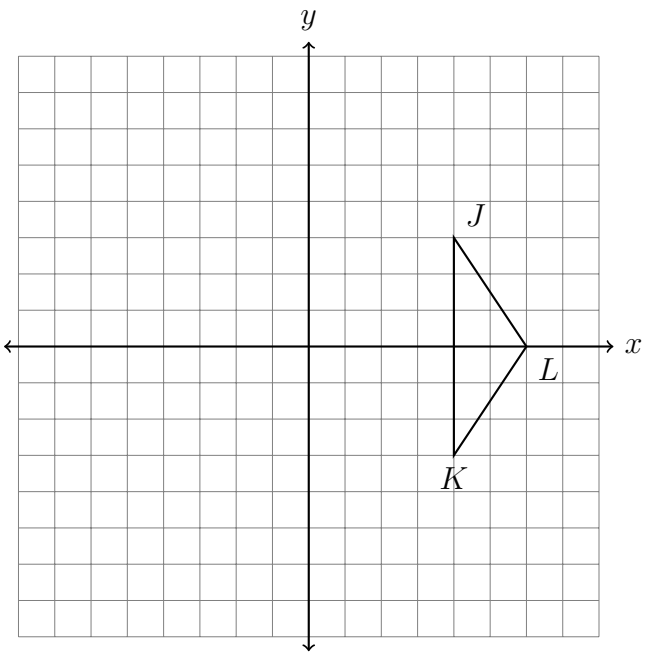


4. Identify the transformation that maps $\triangle ABC$ onto its image $\triangle A'B'C'$.



5. State the translation that would map $Q(4, 3)$ onto $Q'(-1, -3)$.

6. Rotate $\triangle JKL$ 90° counterclockwise around the origin on the axes below, labeling the image $\triangle J'K'L'$.



7. Which of the following would map $\triangle CAT \to \triangle C'A'T'$?

T F Reflected across the y-axis

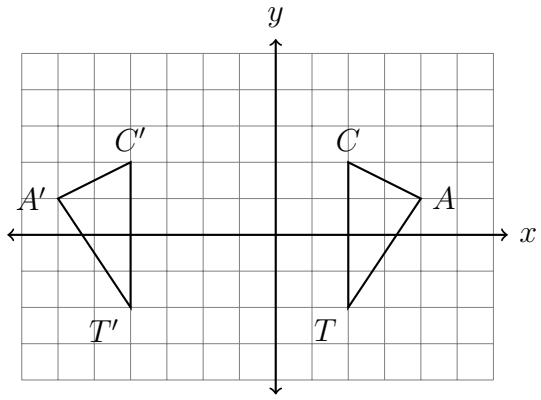
T F Translated six to the left, down zero

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

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

T F Rotated 90° counterclockwise around the origin

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



8. Which of the following would map $\triangle CAT \to \triangle C'A'T'$?

T F Reflected across the y-axis

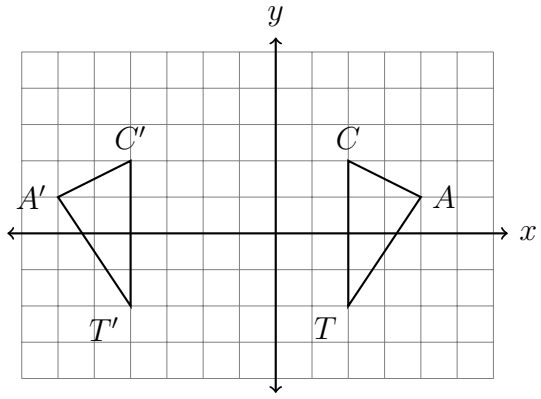
T F Translated six to the left, down zero

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

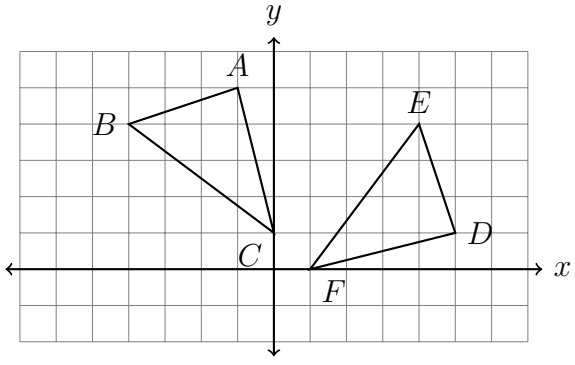
T F $(x, y) \to (x - 6, y + 0)$

T F Rotated 90° counterclockwise around the origin

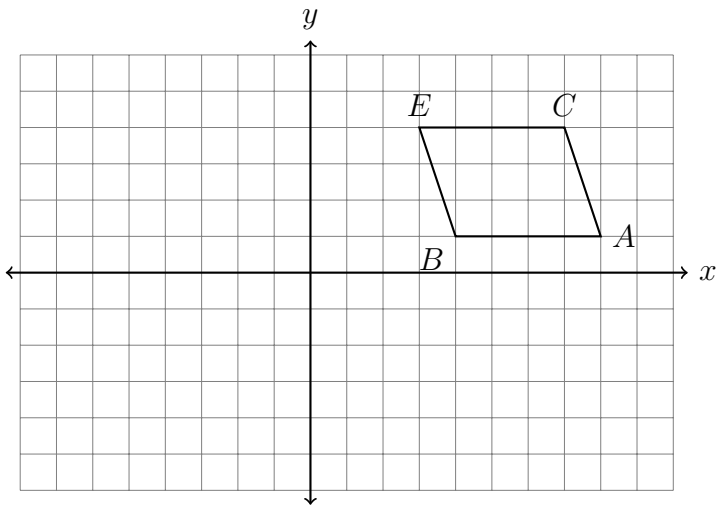
T F Reflected across the line $x = -1$



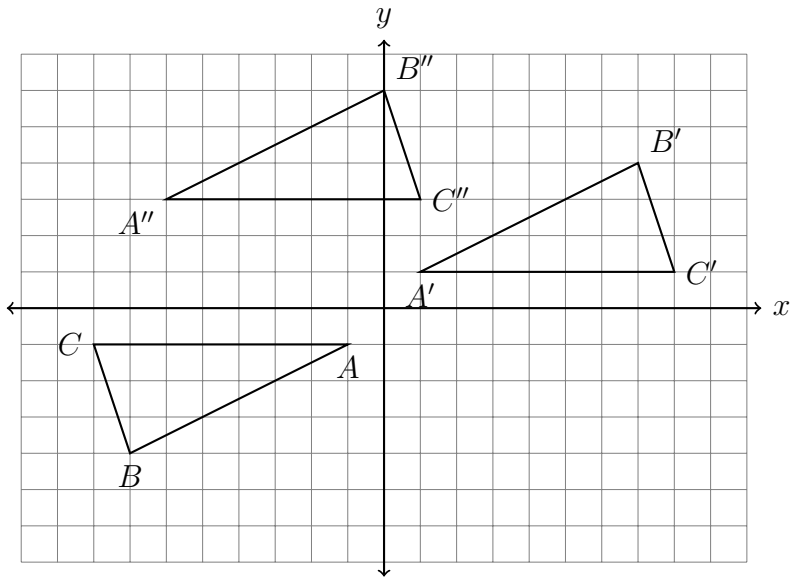
9. Determine and state the transformation mapping $\triangle DEF$ onto $\triangle ABC$. Also, make a mapping table of the coordinate pairs.



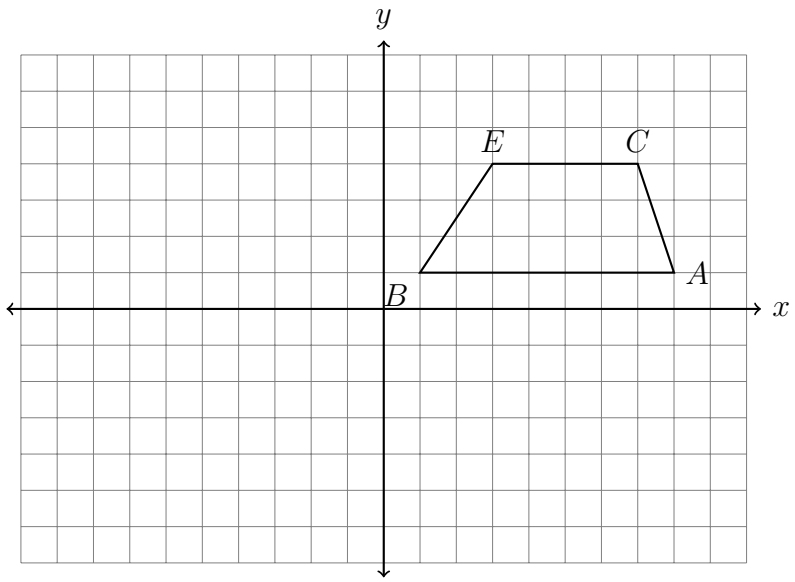
10. First reflect the trapezoid $BECA$ across the y-axis, then move it down five and right two. Label the images $B'E'C'A'$ and $B''E''C''A''$.



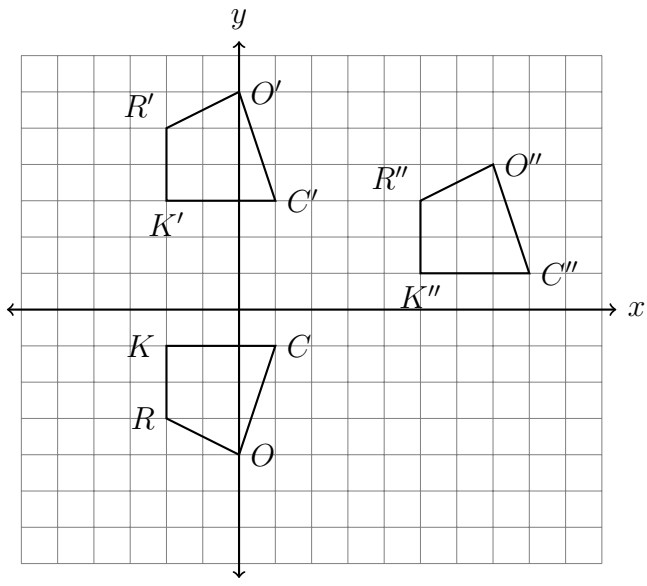
11. Two transformations have been applied to a triangle in the diagram below, $\triangle ABC \to \triangle A'B'C' \to \triangle A''B''C''$. Fully characterize each transformation.



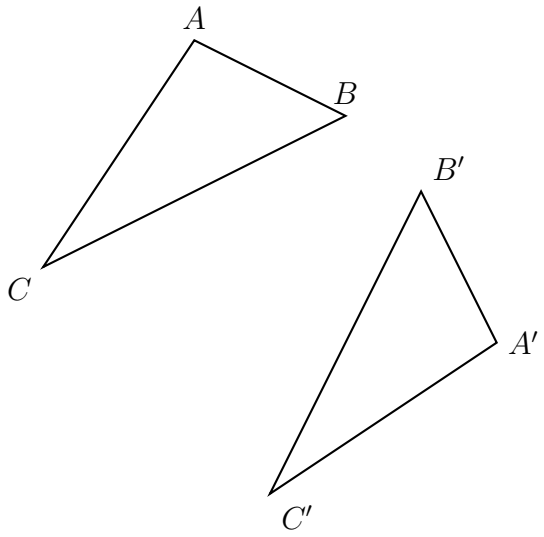
12. Reflect the trapezoid $BECA$ across the x-axis. Label the image $B'E'C'A'$.



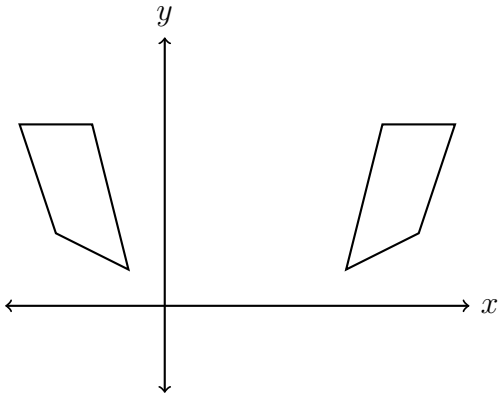
13. The quadrilateral $ROCK$ undergoes two transformations, shown below. Describe the sequence of transformations applied.



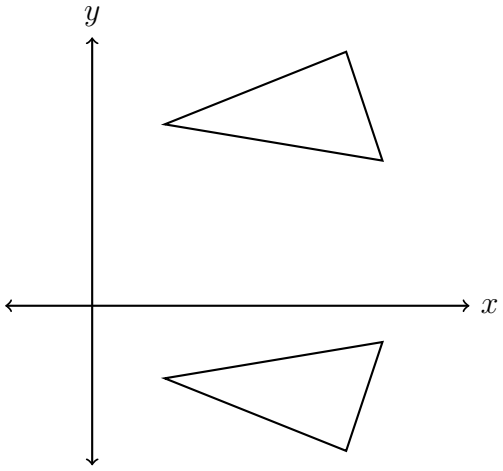
14. Draw the line of reflection used to map $\triangle ABC$ onto $\triangle A'B'C'$.



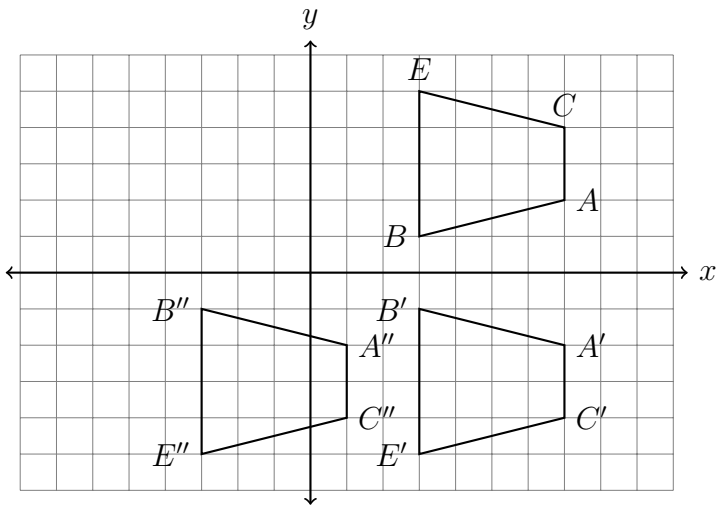
15. Draw the line of reflection for the diagram below.



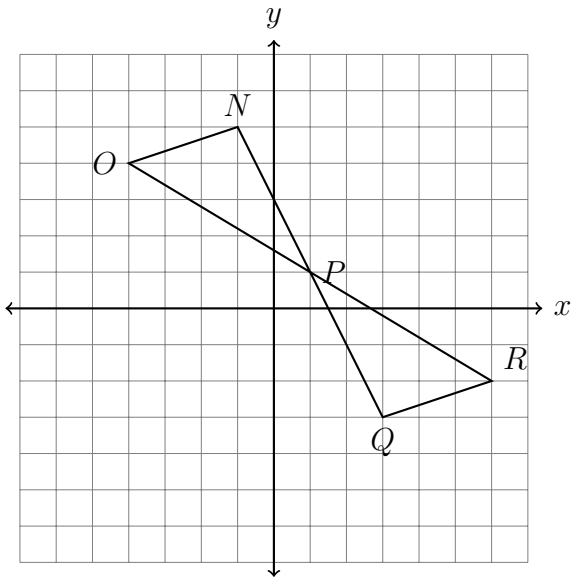
16. Draw the line of reflection for the diagram below.



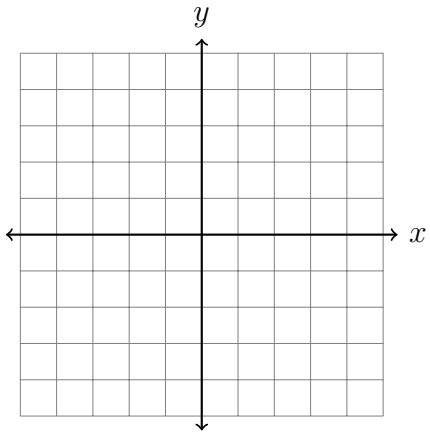
17. Determine and state the sequence of transfromations applied to map $BECA$ to $B'E'C'A'$ and then to $B''E''C''A''$.



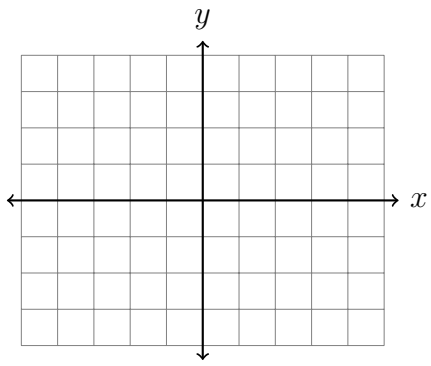
18. Determine and state the transformation mapping $\triangle NOP$ onto $\triangle QRP$.



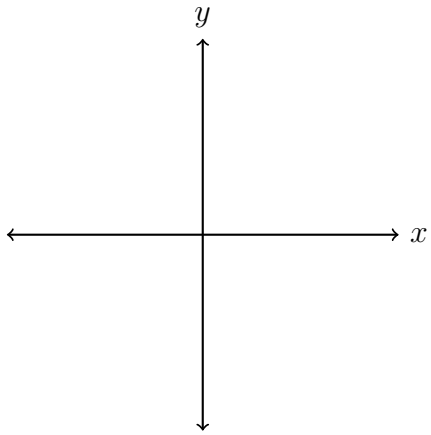
19. Apply the translation $(x, y) \to (x - 2, y + 4)$ to the point $A(2, -1)$.



20. State the translation that would map $C(-3, 1)$ onto $C'(4, 0)$.



21. Given $D(1, 9) \rightarrow D'(4, 3)$. Find the image of $E(6, -2)$ with the translation.



22. The image of triangle ABC after a translation is $\triangle A'B'C'$. Is the area of the triangle greater, smaller, or the same after the translation? Justify your answer.