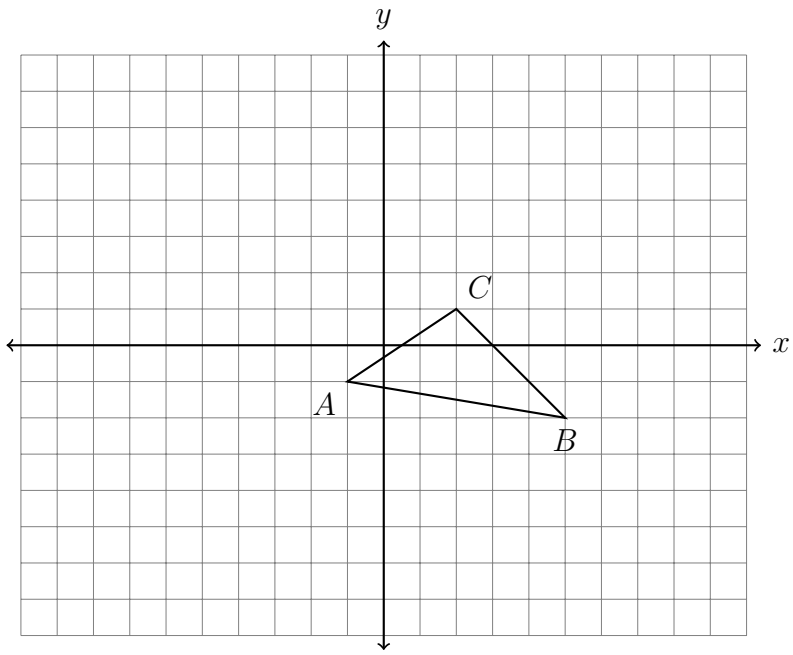
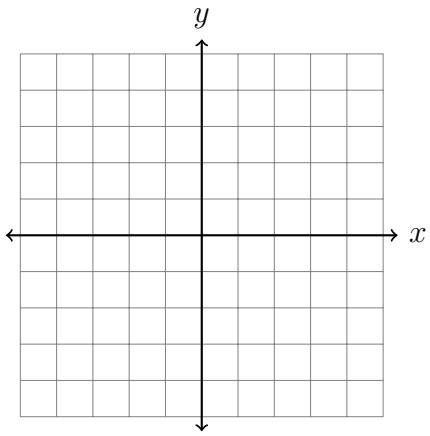
9.5b Exam: Rigid motions, translation, reflection, rotation (No Calculator)

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

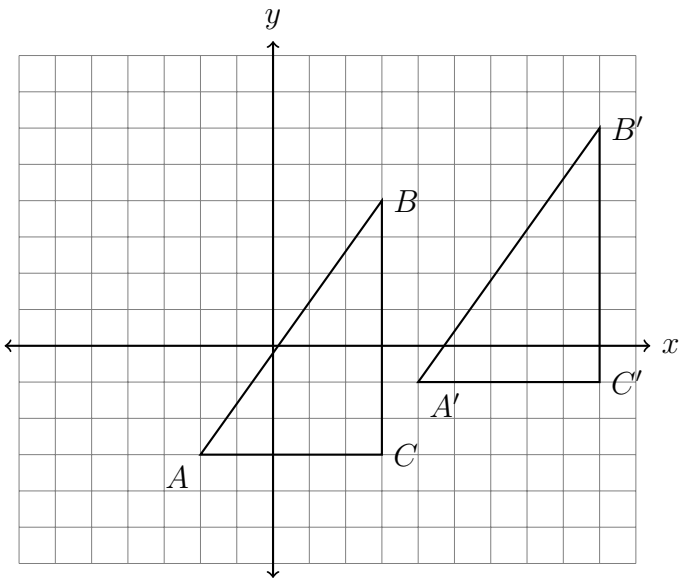


2. Apply the translation $(x, y) \to (x - 3, y + 5)$ to the point $P(-2, -5)$.

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.



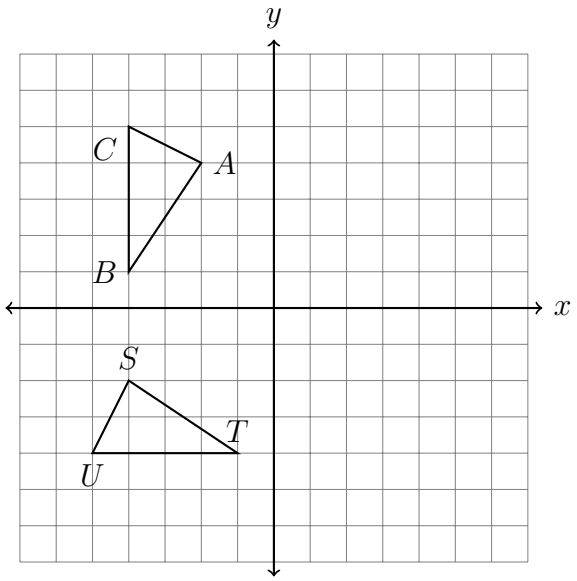
4. Identify the transformation that maps $\triangle ABC$ onto its image $\triangle A'B'C'$.



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

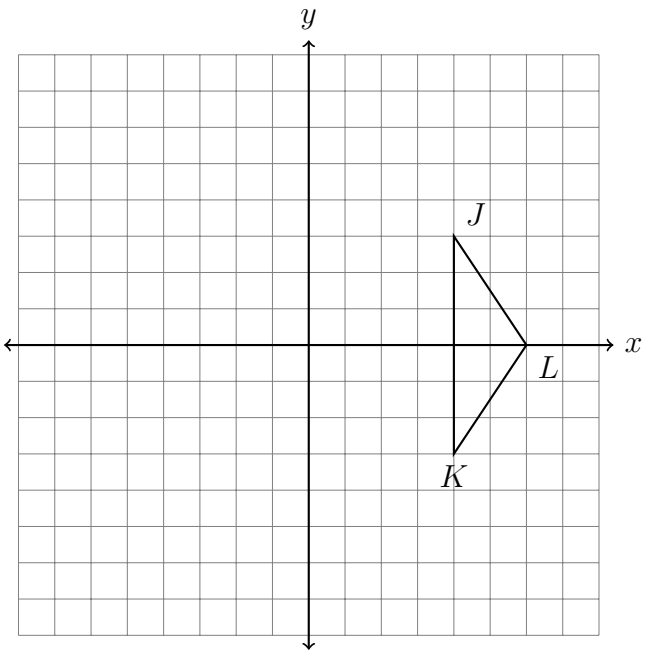
6. On the set of axes below, $\triangle ABC \cong \triangle STU$.

   Describe the rigid motion that maps $\triangle ABC$ onto $\triangle STU$.

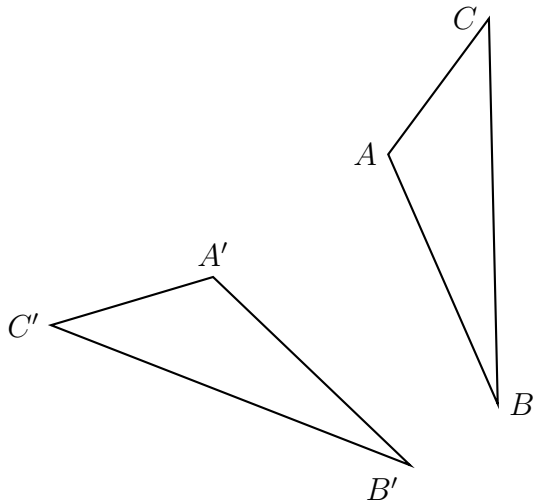


7. Triangle $A'B'C'$ is the image of triangle ABC after a translation of 2 units to the right and 3 units up. Is triangle ABC congruent to $A'B'C'$? Explain why.

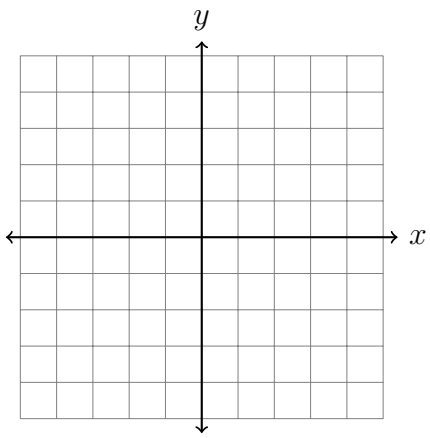
8. Rotate $\triangle JKL$ 90° counterclockwise around the origin on the axes below, labeling the image $\triangle J'K'L'$.



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

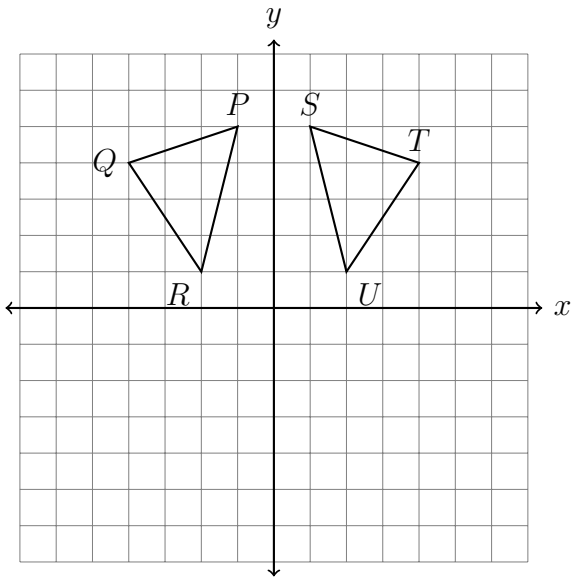


10. On the axes below, plot the point $A(-4, -1)$ and its image, A', after the translation $(x, y) \rightarrow (x + 6, y - 3)$. Label the image as a coordinate pair.

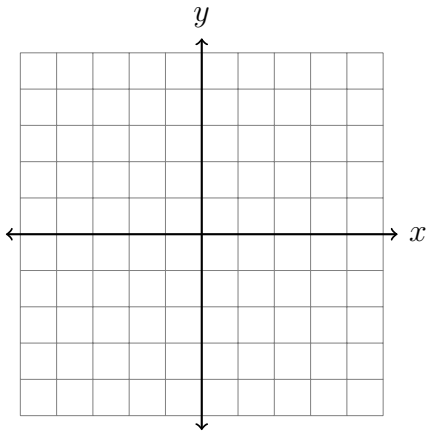


11. The image of triangle ABC after a translation is $\triangle A'B'C'$. Is the area of the triangle greater, smaller, or the same after the translation? Justify your answer.

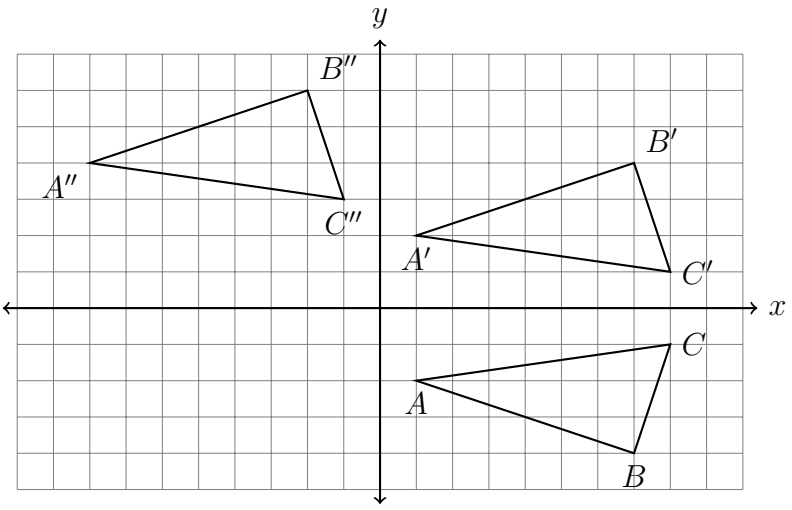
12. Determine and state the transformation mapping $\triangle PQR$ onto $\triangle STU$.



13. State the translation that would map $C(-4, 0)$ onto $C'(3, -3)$. (the use of the grid below is optional)



14. 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.



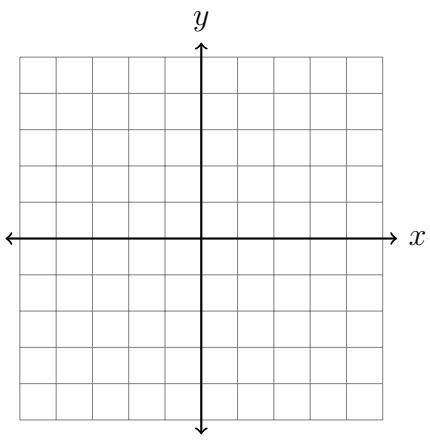
15. What are the coordinates of the image of $B(2, 5)$ after a reflection across the x-axis?

(a) $(-2, 5)$

(b) $(5, 2)$

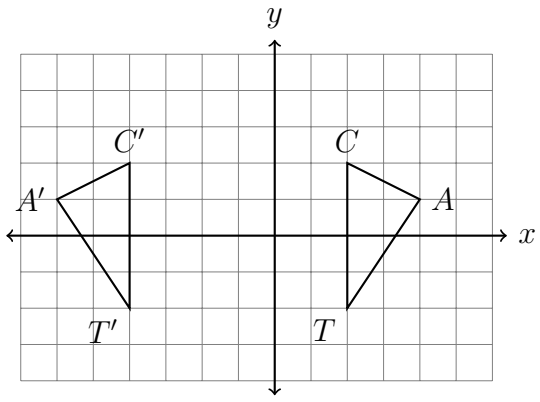
(c) $(2, -5)$

(d) $(-5, -2)$

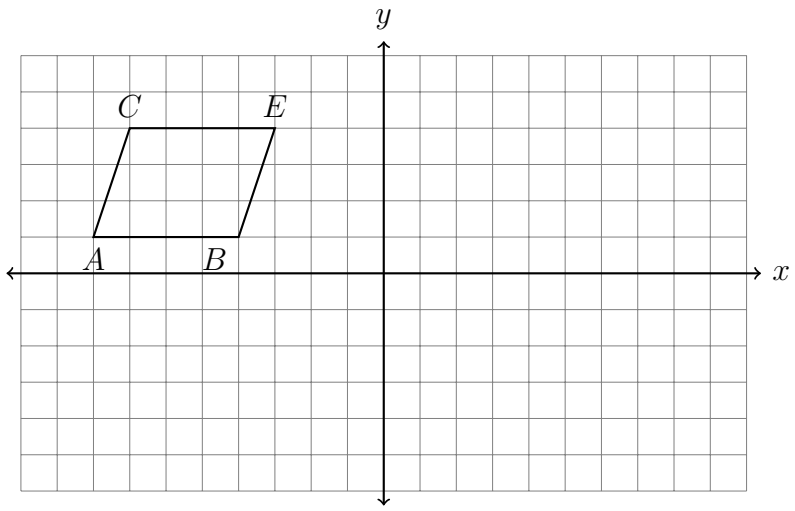


16. Which of the following would map $\triangle CAT \to \triangle C'A'T'$?

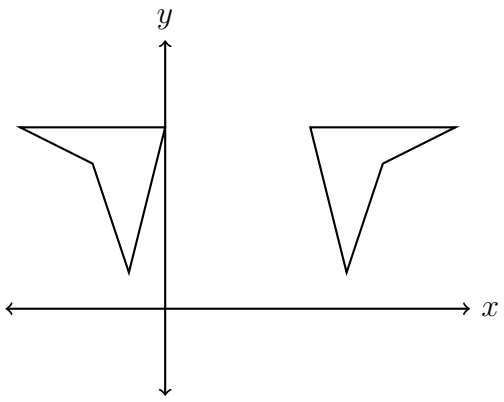
T	F	Reflected across the y-axis
T	F	Translated six to the left, down zero
T	F	Reflected across the y-axis, then slid to the left two
T	F	$(x, y) \to (x - 6, y + 0)$
T	F	Rotated 90° counterclockwise around the origin
T	F	Reflected across the line $x = -1$



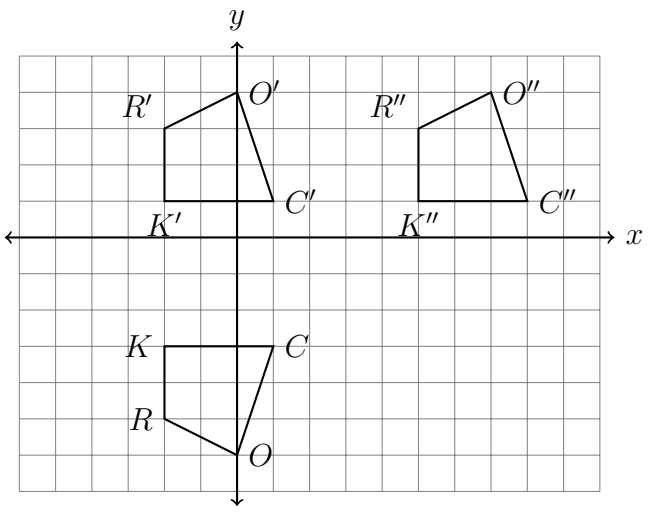
17. First reflect the trapezoid $BECA$ across the x-axis, then move it down 1 and right 7. Label the images $B'E'C'A'$ and $B''E''C''A''$.



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



19. The quadrilateral $ROCK$ undergoes rigid motions, shown below. Describe the sequence of transformations applied.



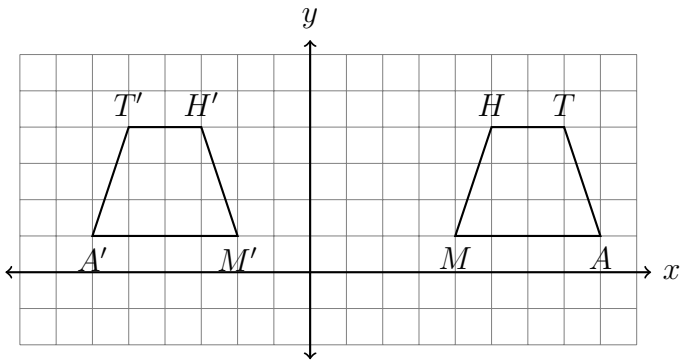
20. The quadrilateral $MATH$ is mapped to $M'A'T'H'$ by a rigid motion. What transformation a been applied?

(a) Dilation

(b) Reflection

(c) Rotation

(d) Translation



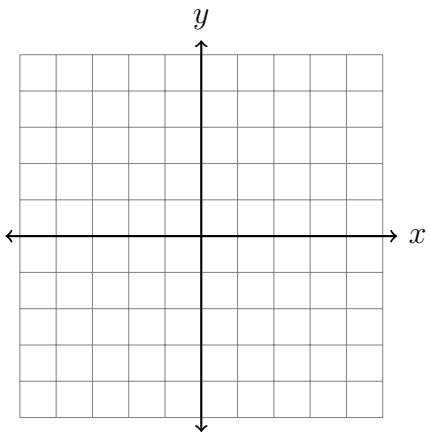
21. What are the coordinates of the image of $C(4, 0)$ after a rotation of 90° counterclockwise around the origin?

(a) $(4, 4)$

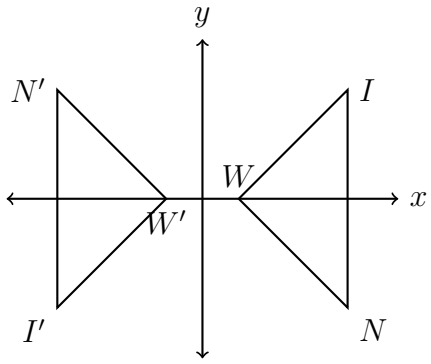
(b) $(0, 4)$

(c) $(-4, 0)$

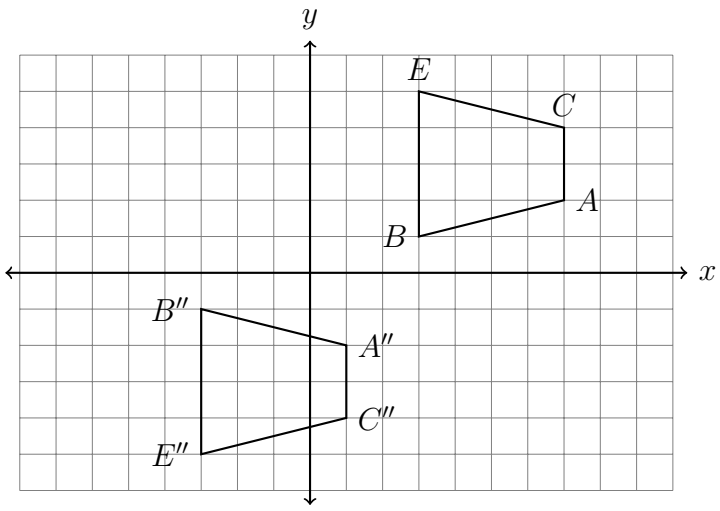
(d) $(0, -4)$



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



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



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