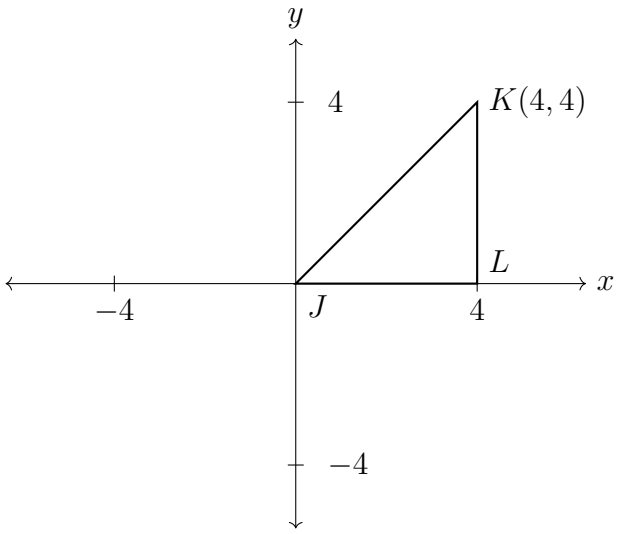
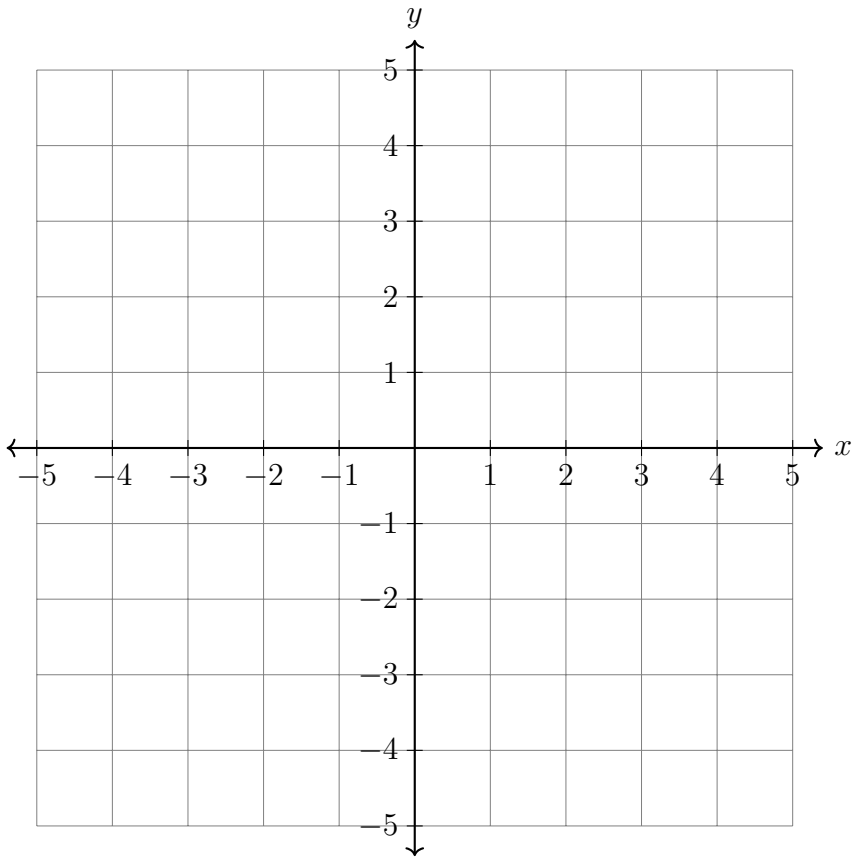
BECA/Huson/Geometry: Construction First and last name:
2 October 2024 Section:

1.19 Classwork: Rotation, translation, & reflection **CCSS.HSG.CO.A.5**

1. Rotate $\triangle JKL$ counterclockwise 90° around the origin, labeling the image $\triangle J'K'L'$.

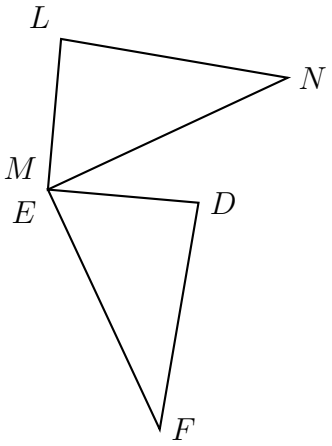


2. On the axes below, mark and label the origin, $O(0, 0)$. Plot the point $P(4, 1)$ and segment $\overline{OP}$. Graph its image, $\overline{O'P'}$, after a 90° counterclockwise rotation around the origin. Mark P' and write it down as a coordinate pair.



3. A rotation maps triangle DEF onto triangle LMN.

   Write the letter or letters for each corresponding object.



(a) $E \rightarrow$

(b) $F \rightarrow$

(c) $\overline{DF} \rightarrow$

4. A rotation centered at the origin maps A to A', as shown, $A(3,1) \rightarrow A'(-1,3)$.

   (a) Identify the rotation:

   (A) Clockwise 180°

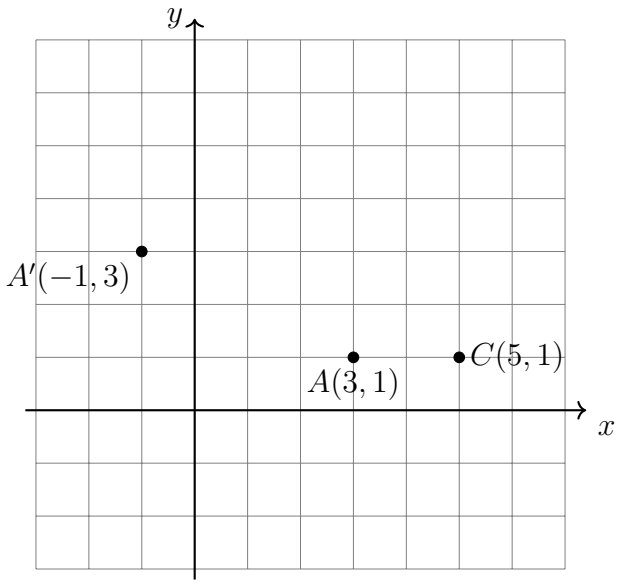
   (B) Counter clockwise 180°

   (C) Clockwise 90°

   (D) Counter clockwise 90°

   (E) None of the above

   (b) Apply the same transformation to $C(5,1) \rightarrow C'(x,y)$. Plot and label the point C' as an ordered pair.



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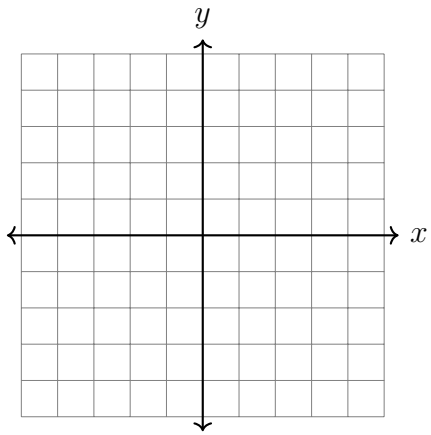
5. On the axes below, plot the point $A(-4, -1)$ and its image, A', after the translation $(x, y) \to (x + 6, y - 3)$. Label the image as a coordinate pair.



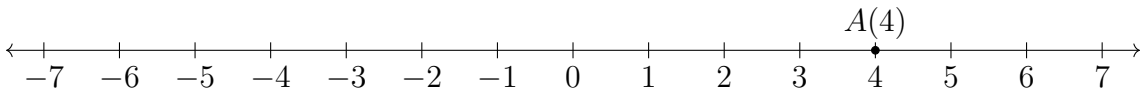
6. The image of triangle ABC after a translation is $\triangle A'B'C'$. Is the area of the triangle greater, smaller, or the same after the translation? Justify your answer.

7. Find the result after the point $B(-2, 5)$ is translated first to the right five and down one, and then by a second translation to the right one and down three.

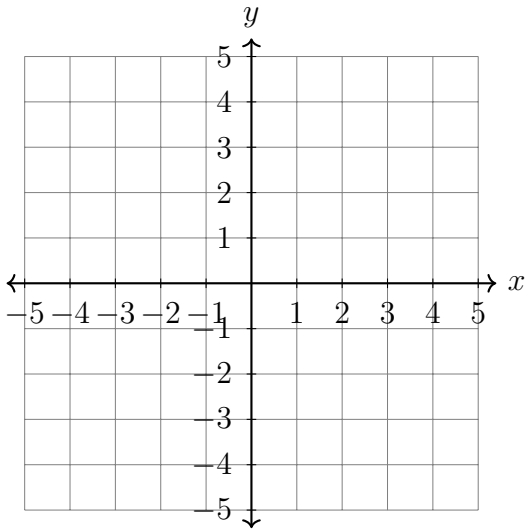
   Use proper notation and show all three points–B, B', and B''–as ordered pairs.

8. What translation would map $P(4, 7) \to P'(6, 2)$?

9. Reflect the point $A(4)$ across the origin. (flip the number line) Mark and label it A'.

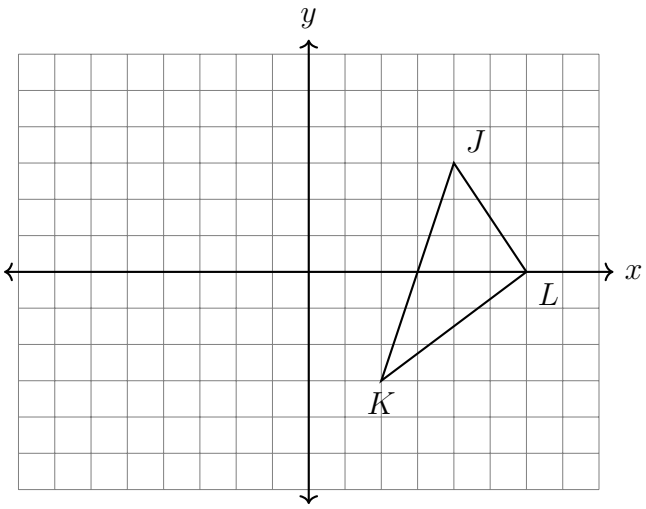


10. On the axes below, graph the point $P(-4, 3)$ and its image, P', after a reflection across the x-axis. Mark P' and write it down as a coordinate pair.



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

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



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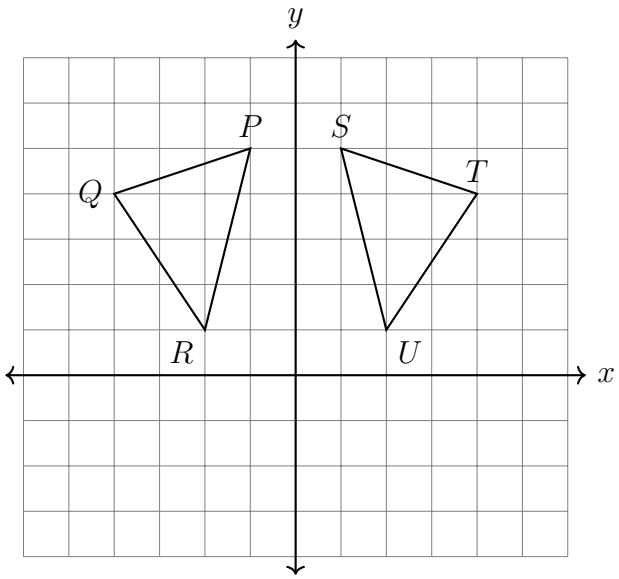
13. Triangle $A'B'C'$ is the image of triangle ABC after a reflection. Is triangle ABC congruent to $A'B'C'$? Explain why.

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

    (a) Completely identify the transformation.

    (b) What point corresponds to T?

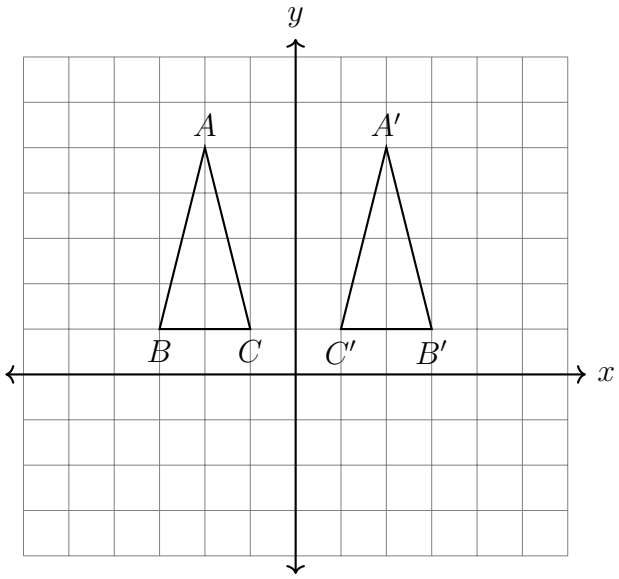
    (c) Is R the image of U, or its preimage?



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

    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.

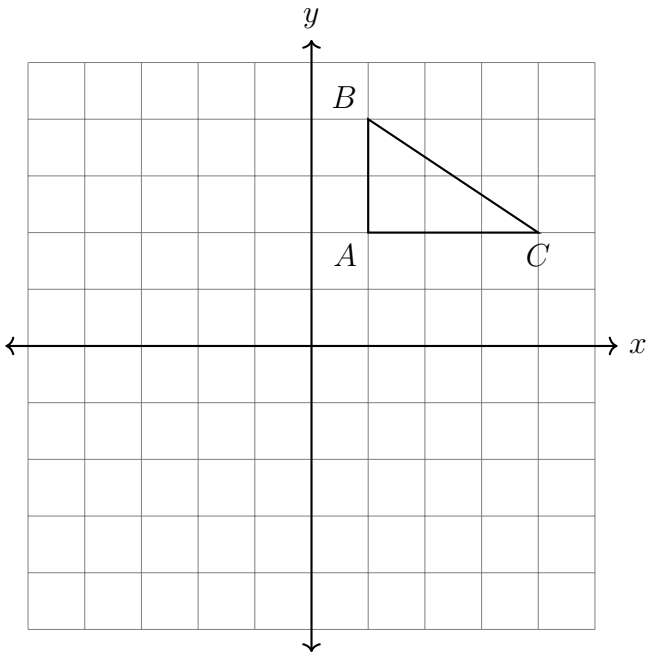


16. Rotate the triangle 90° clockwise around the origin, $\triangle ABC \rightarrow \triangle A'B'C'$. Complete the table of the coordinates and plot and label the image on the grid.

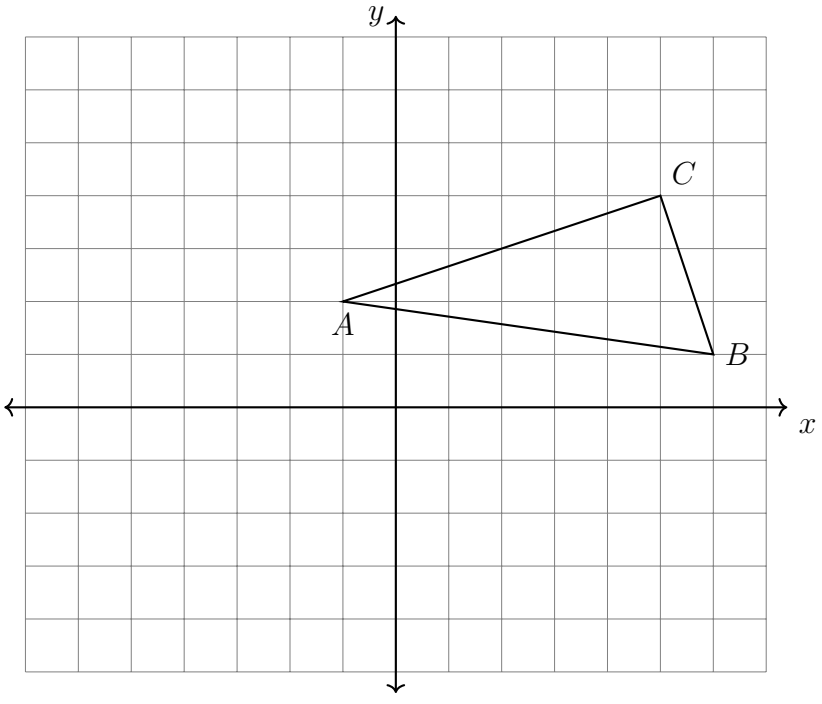
$A(1,2) \rightarrow$

$B(1,4) \rightarrow$

$C(4,2) \rightarrow$



17. $\triangle ABC$ is shown with vertices $A(-1,2)$, $B(6,1)$, and $C(5,4)$. Rotate the triangle 90° counter clockwise around the origin. Write down its coordinates in a table and plot and label it on the graph.



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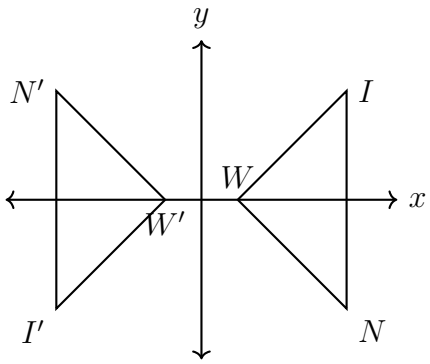
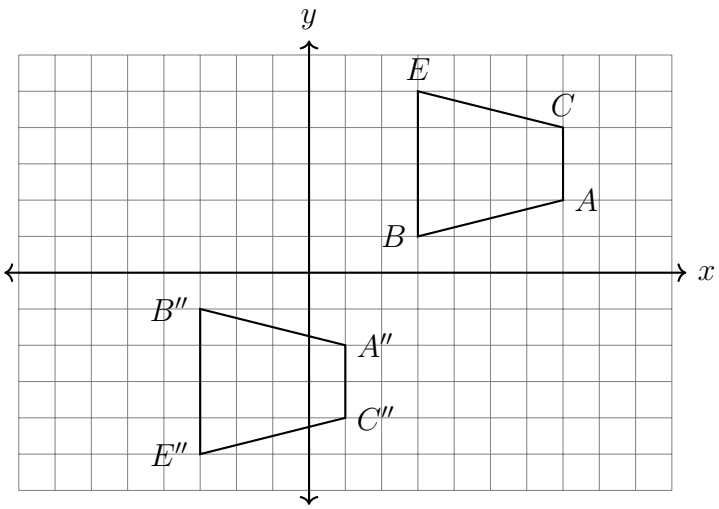
18. Given $\triangle WIN \cong \triangle W'I'N'$. Describe the rigid motion mapping $\triangle WIN \to \triangle W'I'N'$.



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



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