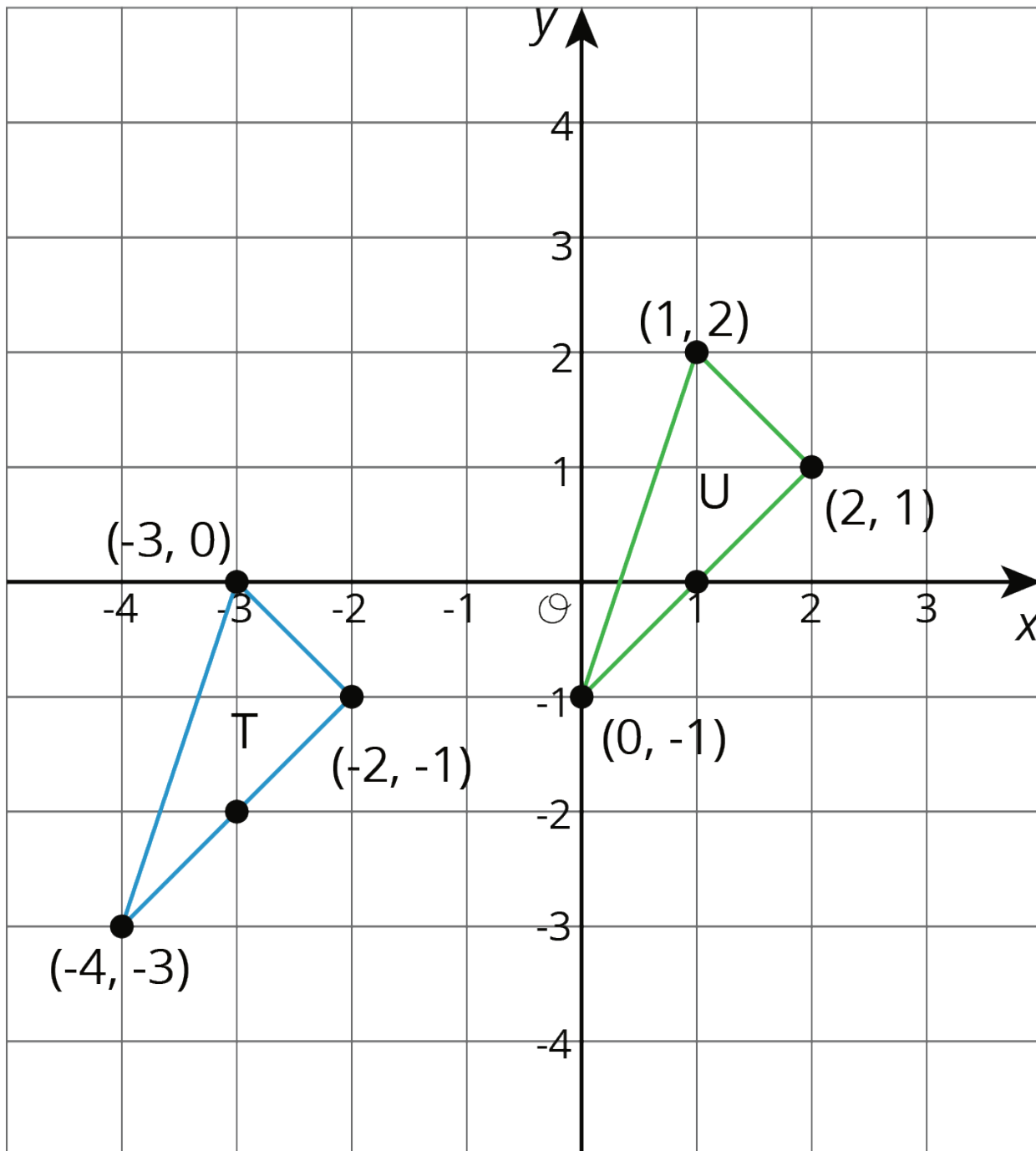# Unit 1 Lesson 5: Coordinate Moves
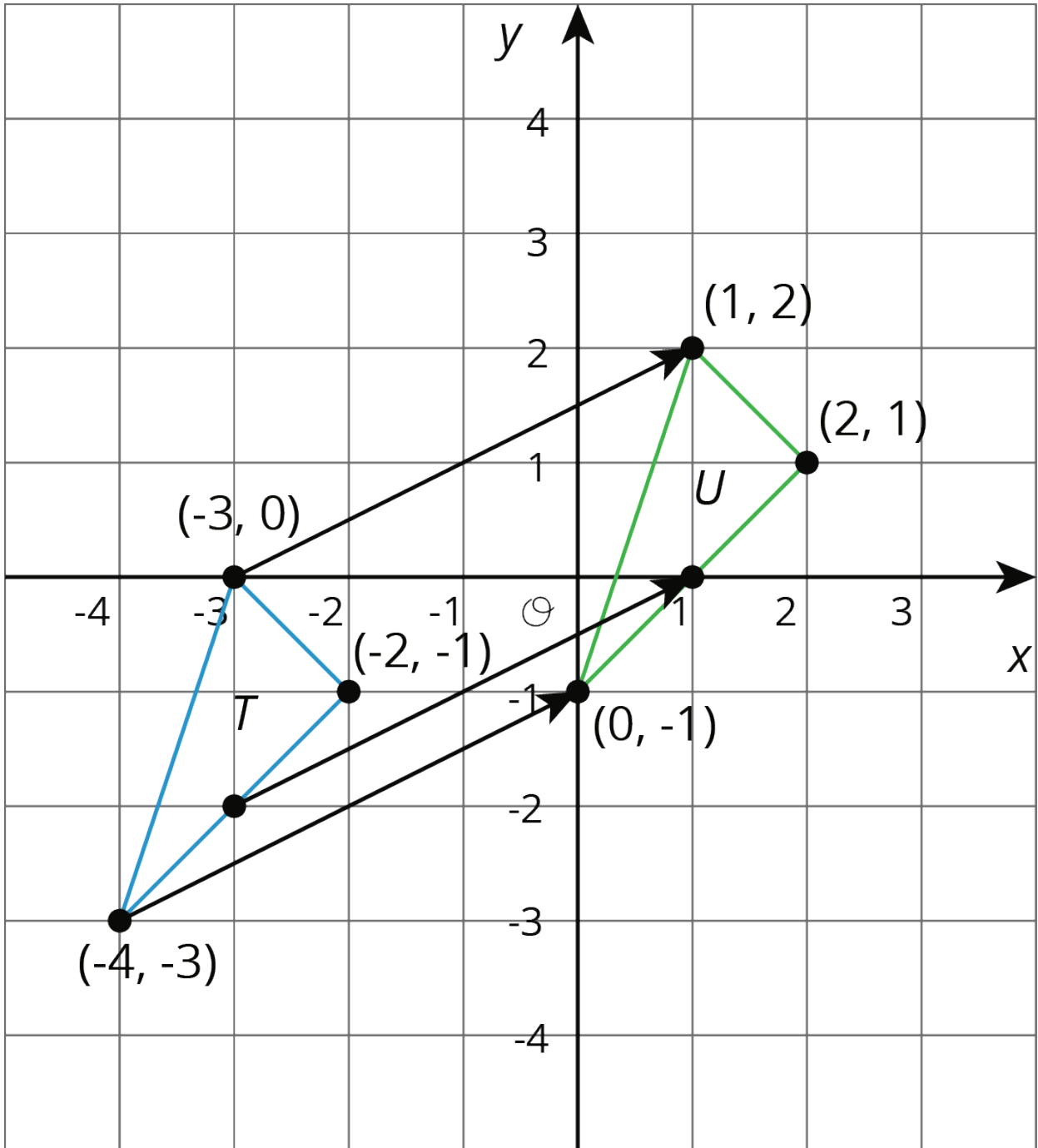
1 Translating Coordinates (Warm up)

Student Task Statement

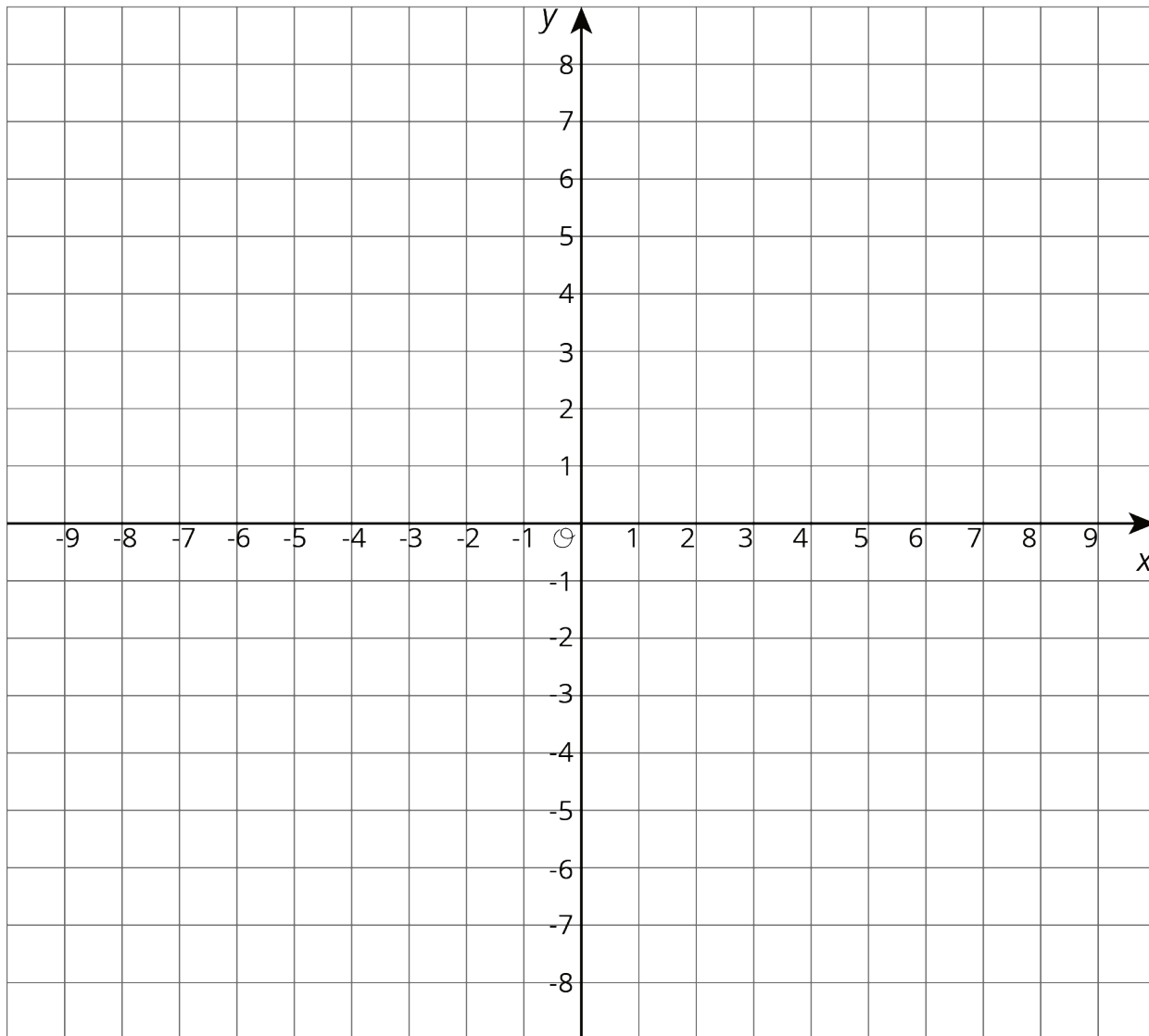Select all of the translations that take Triangle T to Triangle U. There may be more than one correct answer.

1. Translate (-3, 0) to (1, 2).

2. Translate (2, 1) to (-2, -1).

3. Translate (-4, -3) to (0, -1).

4. Translate (1, 2) to (2, 1).

Activity Synthesis

2 Reflecting Points on the Coordinate Plane

Student Task Statement

1. Here is a list of points

   $A = (0.5, 4)$ $B = (-4, 5)$ $C = (7, -2)$ $D = (6, 0)$ $E = (0, -3)$ On the

   coordinate plane:

   a. Plot each point and label each with its coordinates.

   b. Using the x-axis as the line of reflection, plot the image of each point.

   c. Label the image of each point with its coordinates.

   d. Include a label using a letter. For example, the image of point A should be labeled A'.

2. If the point $(13, 10)$ were reflected using the x-axis as the line of reflection, what would be the coordinates of the image? What about $(13, -20)$? $(13, 570)$? Explain how you know.

3. The point R has coordinates $(3, 2)$.

      a. Without graphing, predict the coordinates of the image of point R if point R were reflected using the y-axis as the line of reflection.

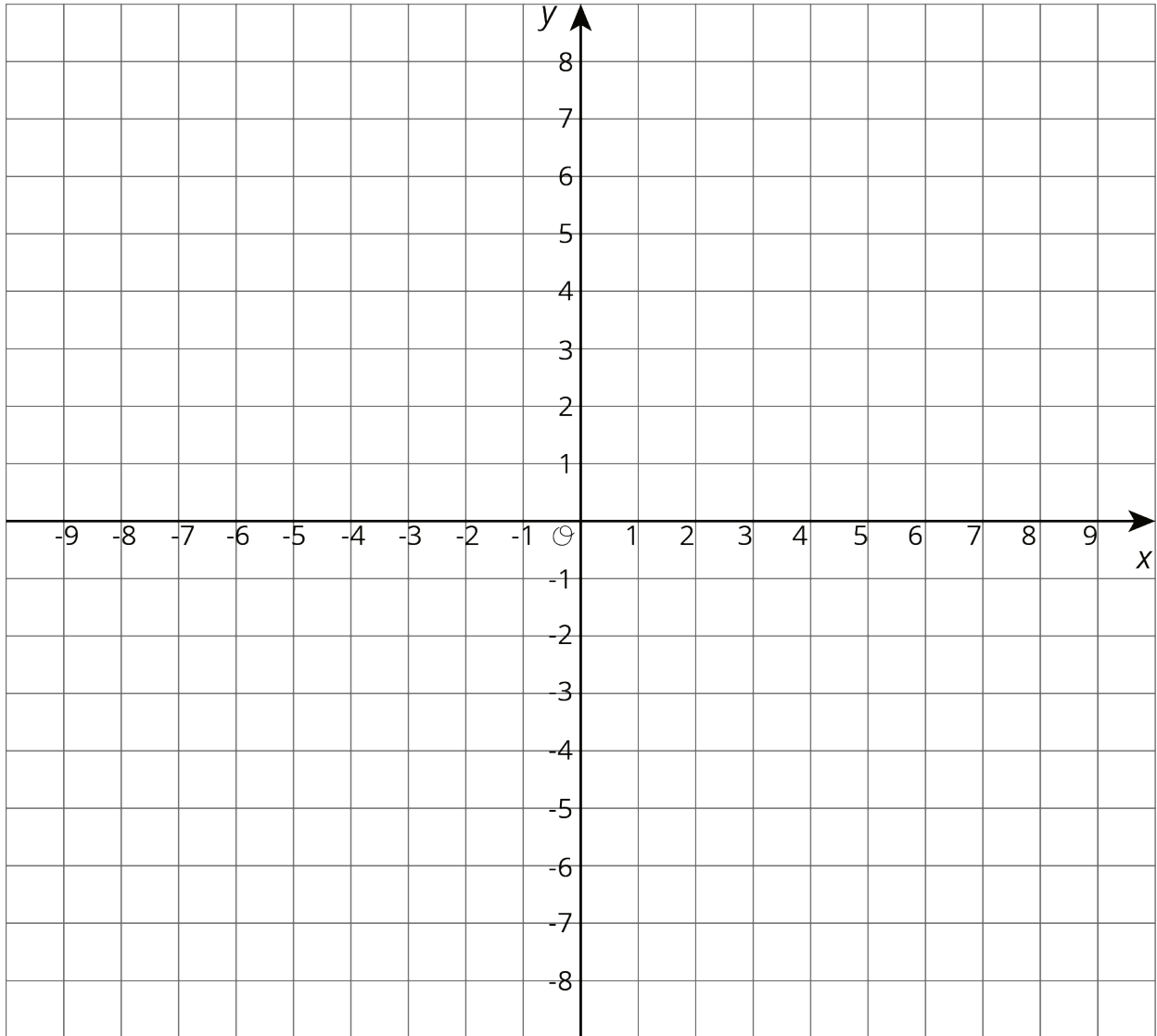   b. Check your answer by finding the image of R on the graph.
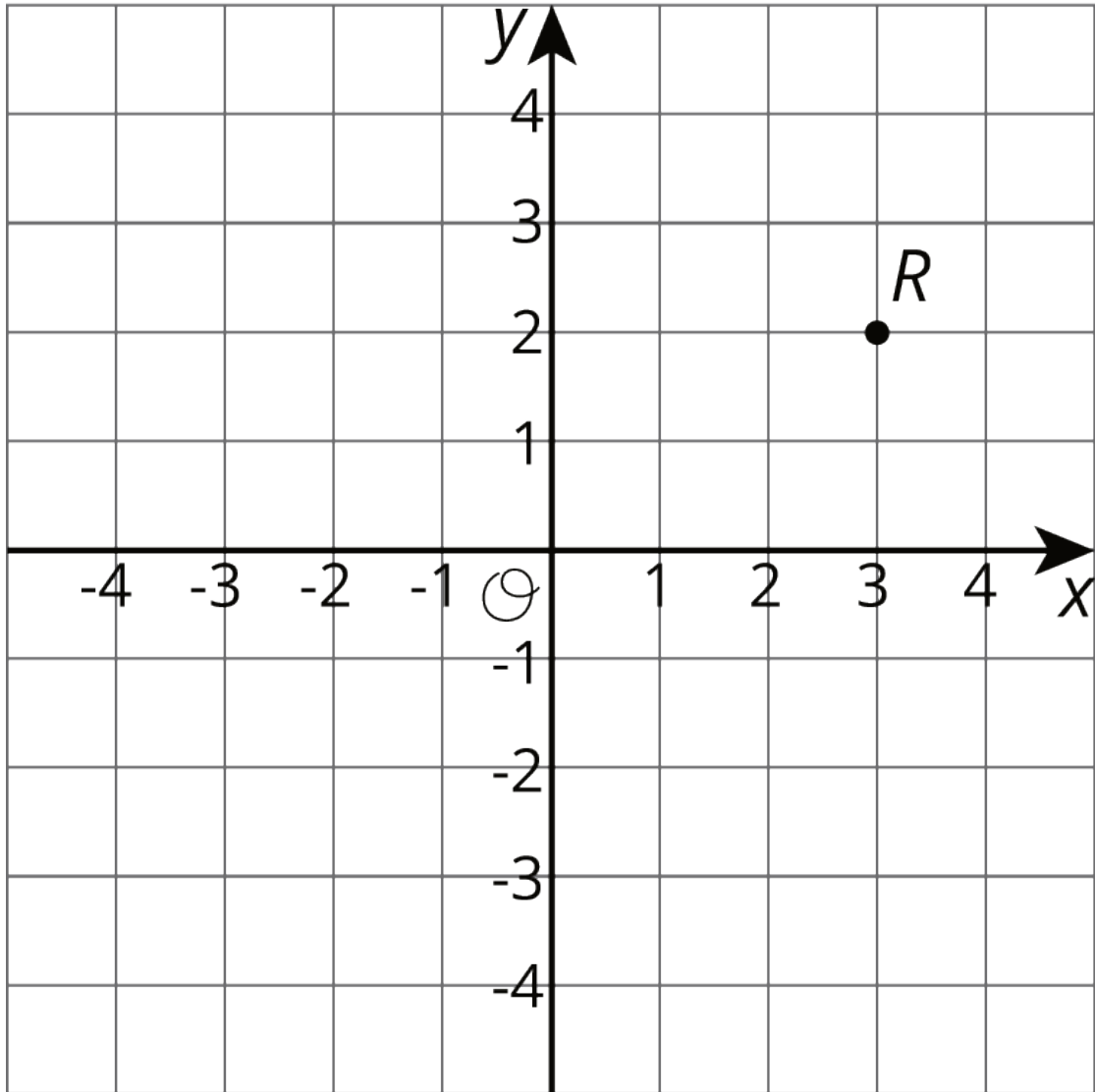
      c. Label the image of point R as R'.
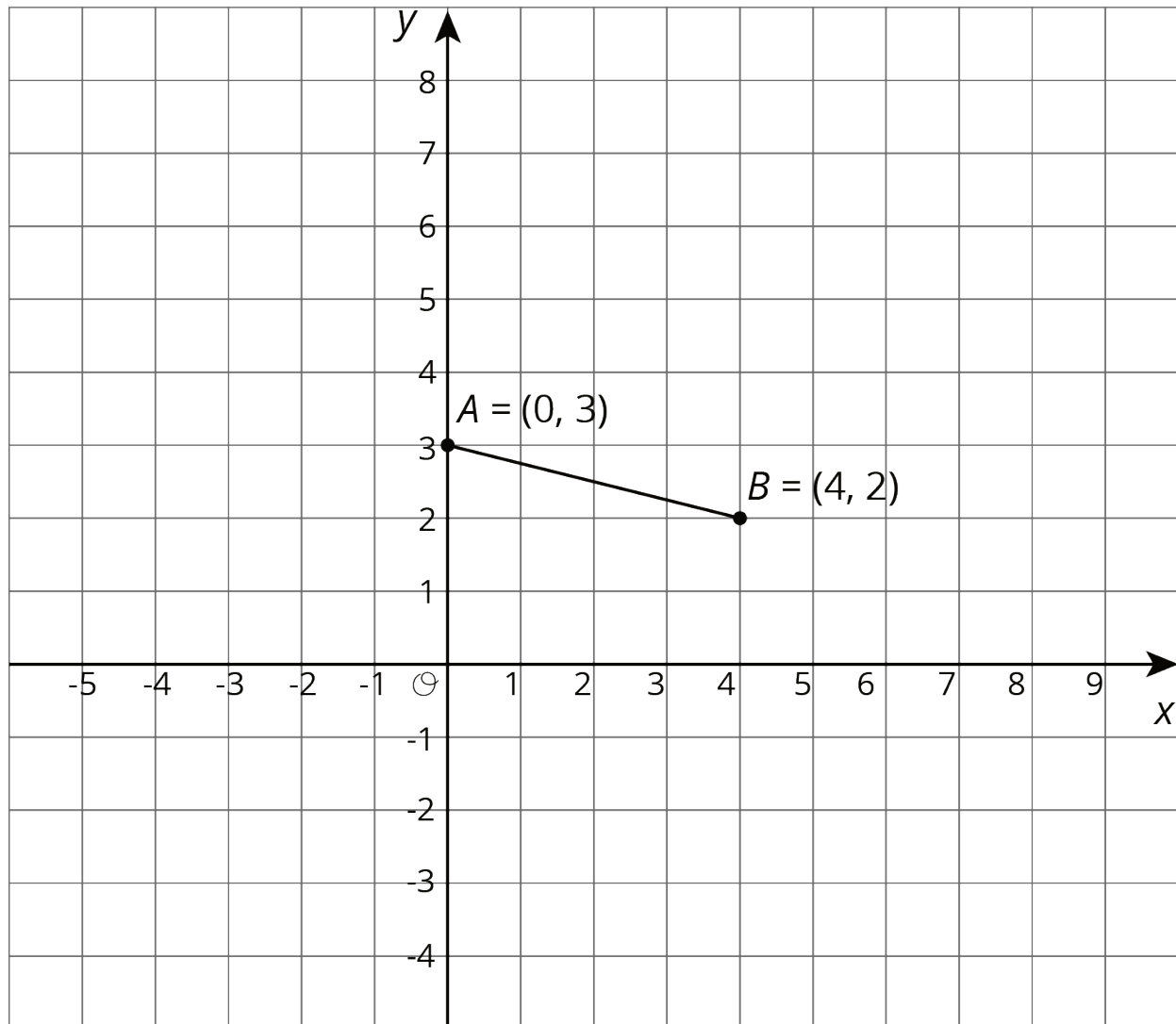
      d. What are the coordinates of R'?

4. Suppose you reflect a point using the y-axis as line of reflection. How would you describe its image?

Activity Synthesis

3 Transformations of a Segment

Student Task Statement

Apply each of the following transformations to segment AB.

1. Rotate segment AB 90 degrees counterclockwise around center B. Label the image of A as C. What are the coordinates of C?

2. Rotate segment AB 90 degrees counterclockwise around center A. Label the image of B as D. What are the coordinates of D?

3. Rotate segment AB 90 degrees clockwise around $(0, 0)$. Label the image of A as E and the image of B as F. What are the coordinates of E and F?

4. Compare the two 90-degree counterclockwise rotations of segment AB. What is the same about the images of these rotations? What is different?