

Finally, I reflected $A'B'C'D'E'F'$ and $A''B''C''D''E''F''$ across a vertical reflection line that passes through the point $(-2, 0)$. Each image vertex is the same distance from the reflection line as its pre-image.

Reflecting

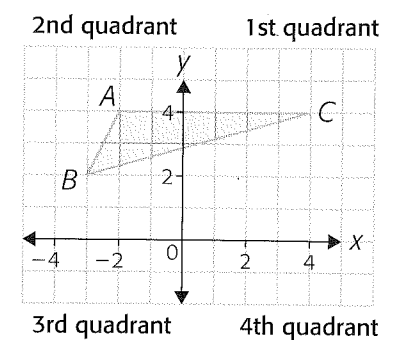
- How did the x -coordinates change in the first translation? How did the y -coordinates change?
- Which coordinates changed in the second translation? Why?
- Why did the reflection change the sign (positive or negative) of some of the coordinates, but not all of them?



WORK WITH the Math

Example 2 | Determining reflection image coordinates

Predict the vertices of the image of $\triangle ABC$ after $\triangle ABC$ has been reflected across the y -axis.



Solution

$$A(-2, 4) \rightarrow A'(2, 4)$$

$$B(-3, 2) \rightarrow B'(3, 2)$$

$$C(4, 4) \rightarrow C'(-4, 4)$$

The y -axis is the reflection line. Count squares to predict the vertices of the image of $\triangle ABC$.

A is 2 squares to the left of the y -axis. A' will be 2 squares to the right of the y -axis.

B is 3 squares to the left of the y -axis. B' will be 3 squares to the right of the y -axis.

C is 4 squares to the right of the y -axis. C' will be 4 squares to the left of the y -axis.

In this reflection, the x -coordinates of the image and pre-image are opposite integers.

A Checking

- Draw the image of this shape after a translation 2 units to the left and 1 unit up.
 - Name the coordinates of the image vertices.
- $\triangle PQR$ has vertices $P(-6, 2)$, $Q(-4, 0)$, and $R(-2, 5)$. Determine the vertices of its image after a reflection across the y -axis.

