TSW understand concept of reflection

*drawing images after reflection

***find coordinates of points after reflection**

Example 7   **Reflect a figure in the *x*-axis.**

Susan placed a cup on a table. She then placed cardboard on top of the cup and another cup, upside down, on top of the cardboard. The side view of *ABCD*, the cup below the cardboard, is shown. The cardboard is aligned with the *x*-axis.
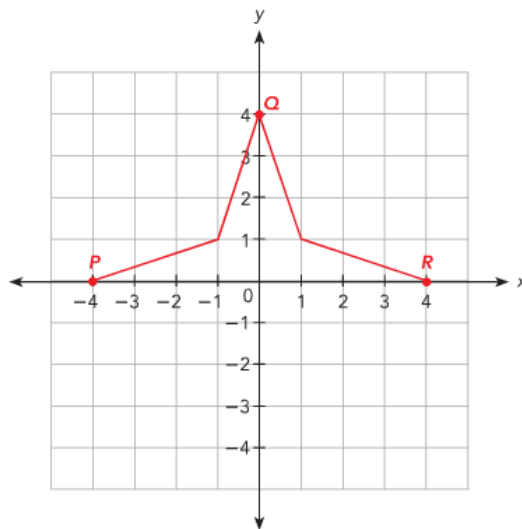
The side view of cup *A′B′C′D′* is the reflection of the side view of cup *ABCD*. Draw and label the side view of cup *A′B′C′D′*.
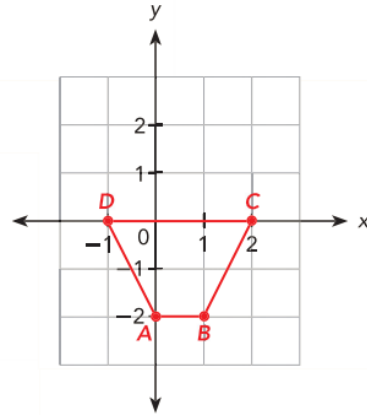
Guided Practice

Copy and complete on graph paper.

3 Layla is designing a star-shaped figure for a stencil. She wants the bottom half to be a reflection of the top half. She will reflect it across the *x*-axis to draw the other half. Complete the design for her.
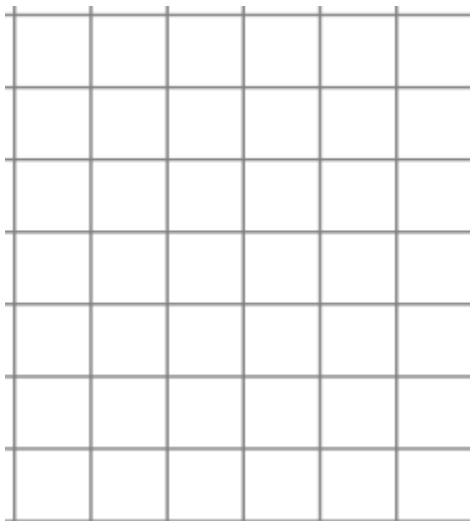
Example 8 | Reflect a figure in the *y*-axis.

Ally draws a shape with the following coordinates for its vertices.

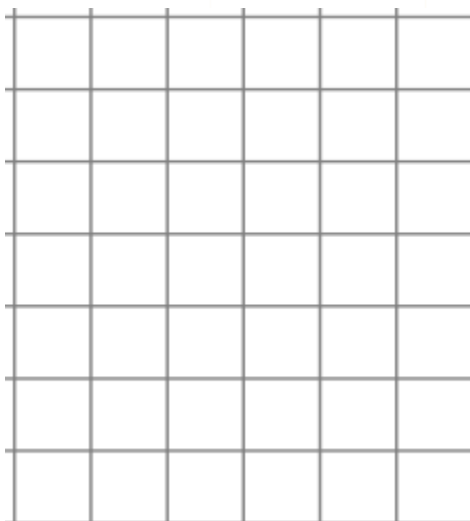A (0, 2), B (2, 2), C (2, 1), D (1, 1), E (1, −1), and F (0, −1).

She reflects it in the *y*-axis to get an alphabet letter. Draw the letter on the coordinate plane.

Guided Practice

Complete.

4 A figure with vertices P (0, 2), Q (−1, 0), R (−2, 1), S (−1, −2), and T (0, −2) is reflected in the *y*-axis. Draw the figure and its image on the coordinate plane. Use 1 grid square on both axes to represent 1 unit for the interval from −2 to 2.
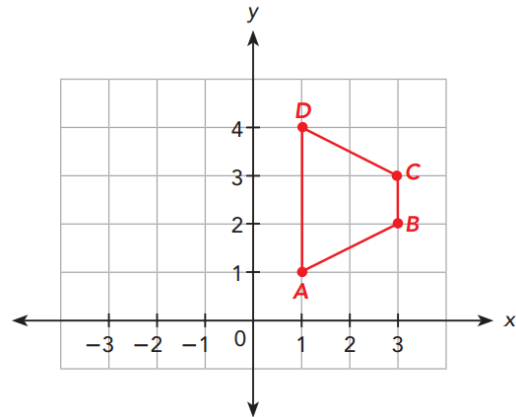
Example 9   **Find the coordinates of points after a reflection.**

State the coordinates of the points.

$A'B'C'D'$ is a reflection of $ABCD$ in the y-axis.

a) What are the coordinates of A, B, C, and D?

b) What are the coordinates of A', B', C', and D'?

Guided Practice

Complete.

5 Mr. Patterson is building a double bird house, one next to the other. The vertices of the front of one houses have coordinates P (3, 0), Q (6, 3), R (3, 6), and S (0, 3). The front of the other bird house, $P'Q'R'S'$, is a reflection of the first one in the y-axis.

The x-coordinates of vertices of $PQRS$ and $P'Q'R'S'$ are __?__, and their y-coordinates are __?__.

P (3, 0) is mapped onto P' (__?__ , __?__).

Q (6, 3) is mapped onto Q' (__?__ , __?__).

R (3, 6) is mapped onto R' (__?__ , __?__).

S (0, 3) is mapped onto S' (__?__ , __?__).

Any point (x, y) is mapped onto (__?__ , __?__) when reflected in the y-axis.