

## Reflections on the Coordinate Plane

You can use what you know about number lines and opposites to compare locations on the coordinate plane. A number line shows that  $(-4)$  and  $(4)$  are opposites (the same distance from zero). A coordinate plane shows that the points  $(-4, 0)$  and  $(4, 0)$  are the same distance from the  $y$ -axis in opposite directions. So, they are reflected across the  $y$  axis. Notice that the  $y$ -coordinates did not change and the  $x$ -coordinates are opposites. The same is true for a point that is reflected across the  $x$ -axis, you will keep the same  $x$ -coordinate and take the opposite  $y$ -coordinate.

Example 1: Name the ordered pair that is a reflection of  $(-3, 2)$  across the  $x$ -axis.

\*\*\*Keep the same  $x$ -coordinate,  $-3$  and take the opposite of the  $y$ -coordinate. The opposite of  $2$  is  $(-2)$ , so  $(-3,2)$  reflected across the  $x$ -axis is located at  $(-3, -2)$ .

Example 2: Name the ordered pair that is a reflection of  $(-5,4)$  across the  $y$ -axis.

\*\*\* Keep the same  $y$ -coordinate,  $4$  and take the opposite of the  $x$ -coordinate. The opposite of  $(-5)$  is  $5$ , so  $(-5,4)$  reflected across the  $y$ -axis is located at  $(5, 4)$