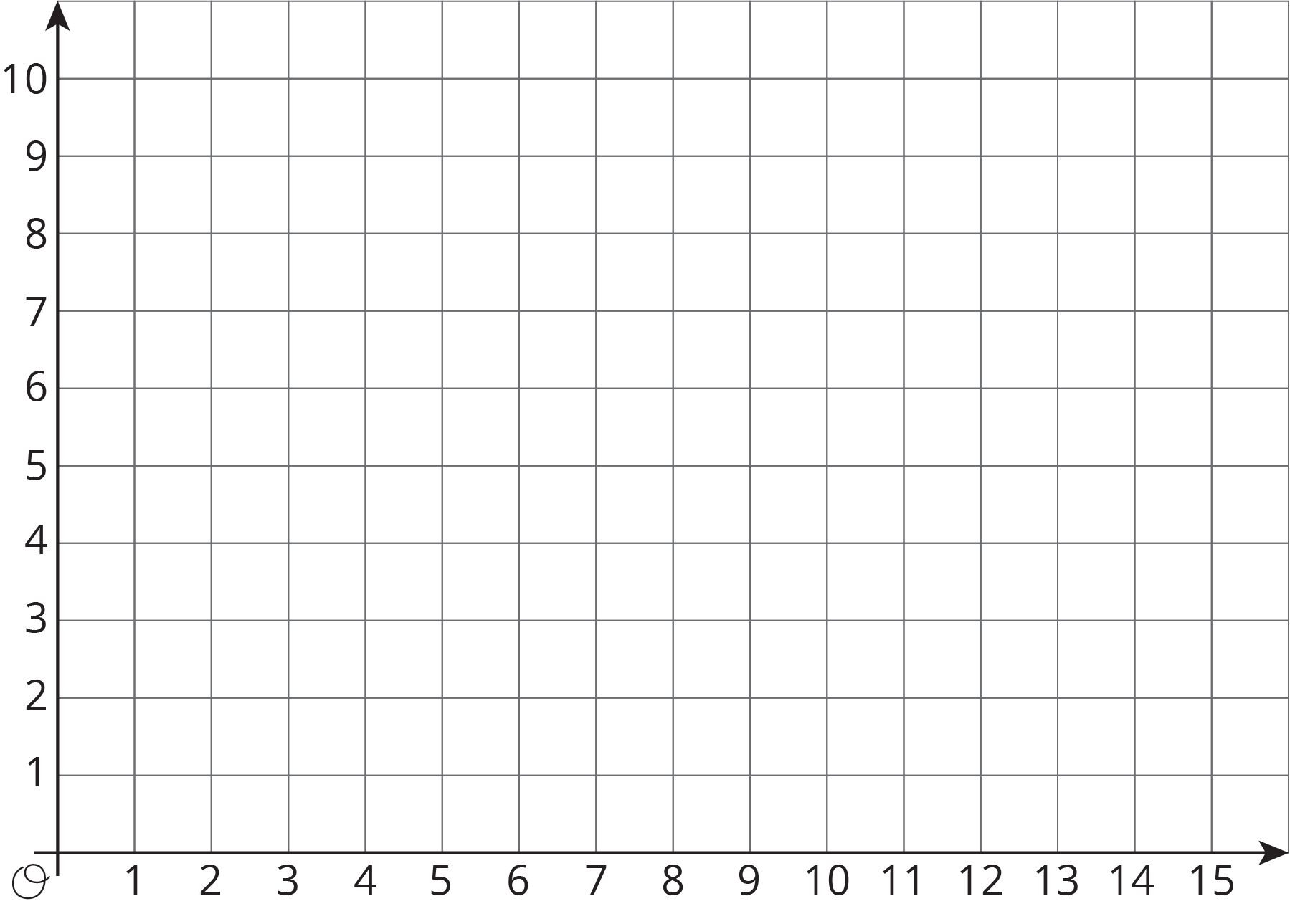
## Lesson 11: Constructing the Coordinate Plane

Let’s explore and extend the coordinate plane.

### 11.1: Guess My Line

1. Choose a horizontal or a vertical line on the grid. Draw 4 points on the line and label each point with its coordinates.

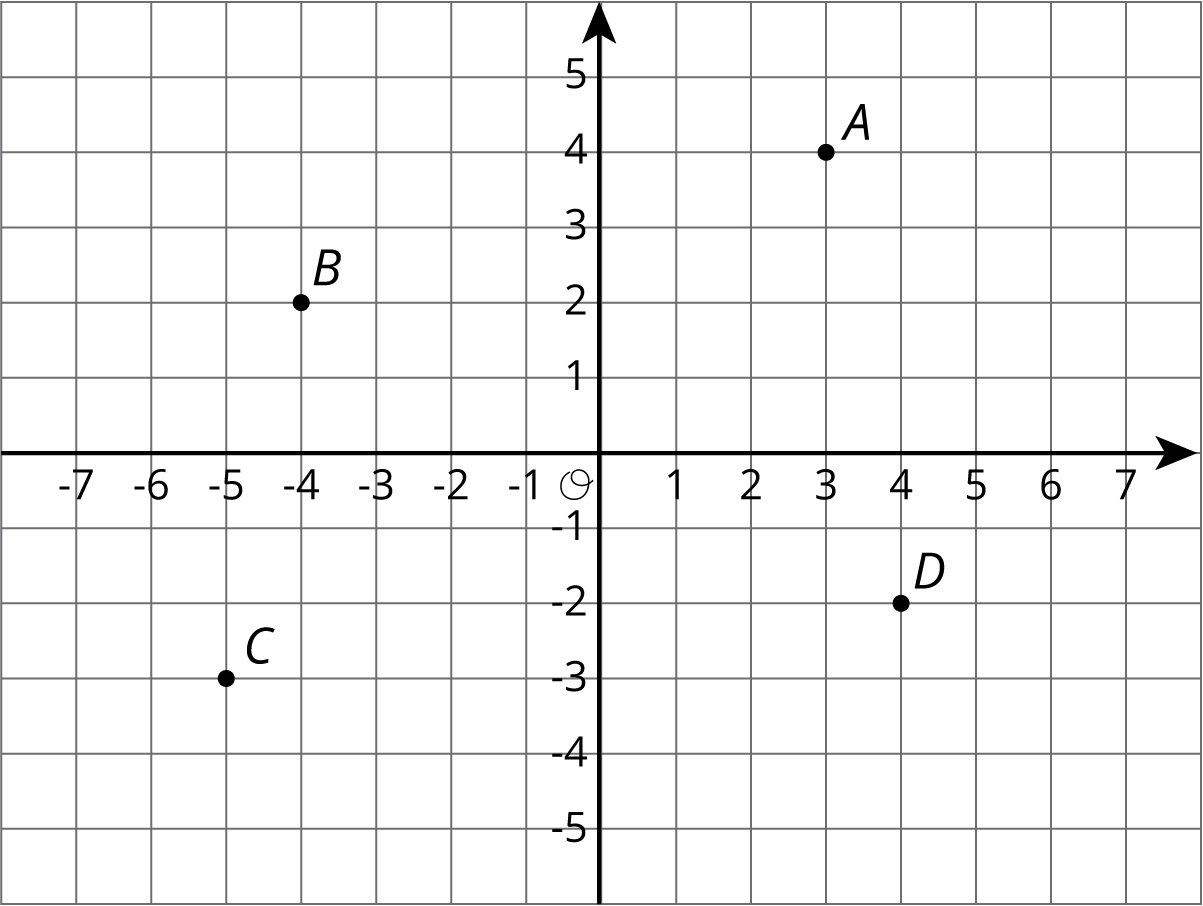
* 

1. Tell your partner whether your line is horizontal or vertical, and have your partner guess the locations of your points by naming coordinates.

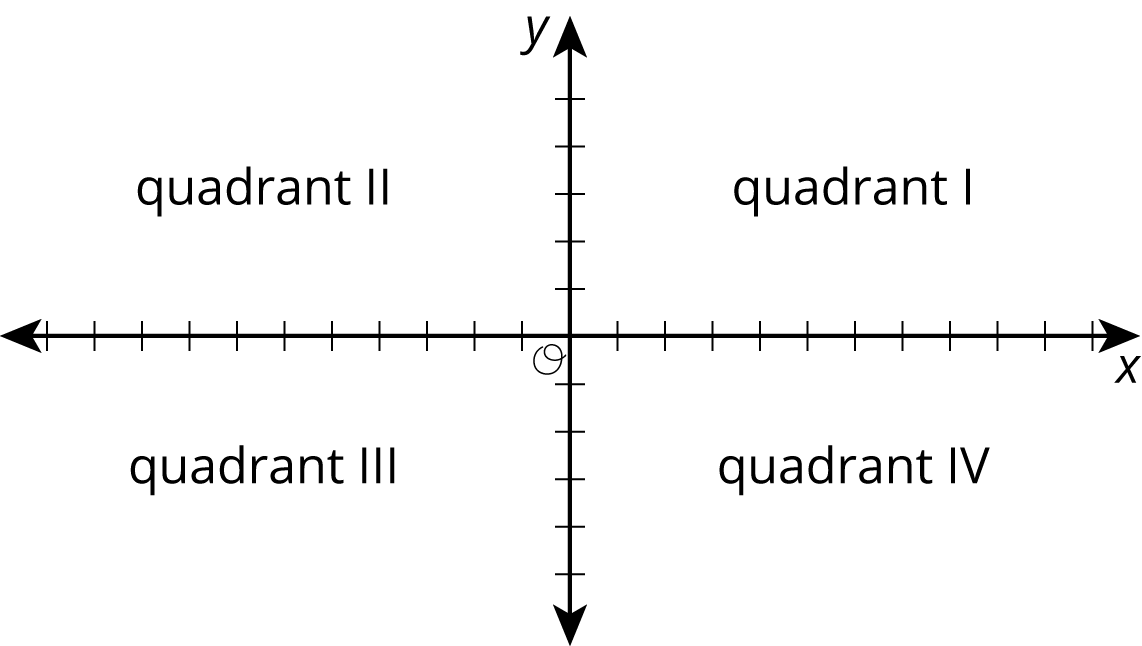
* If a guess is correct, put an X through the point. If your partner guessed a point that is on your line but not the point that you plotted, say, “That point is on my line, but is not one of my points.”
* Take turns guessing each other’s points, 3 guesses per turn.

### 11.2: The Coordinate Plane

1. Label each point on the coordinate plane with an ordered pair.

* 

1. What do you notice about the locations and ordered pairs of , , and ? How are they different from those for point ?
2. Plot a point at . Label it . Plot another point at . Label it .
3. The coordinate plane is divided into four **quadrants**, I, II, III, and IV, as shown here.

* 

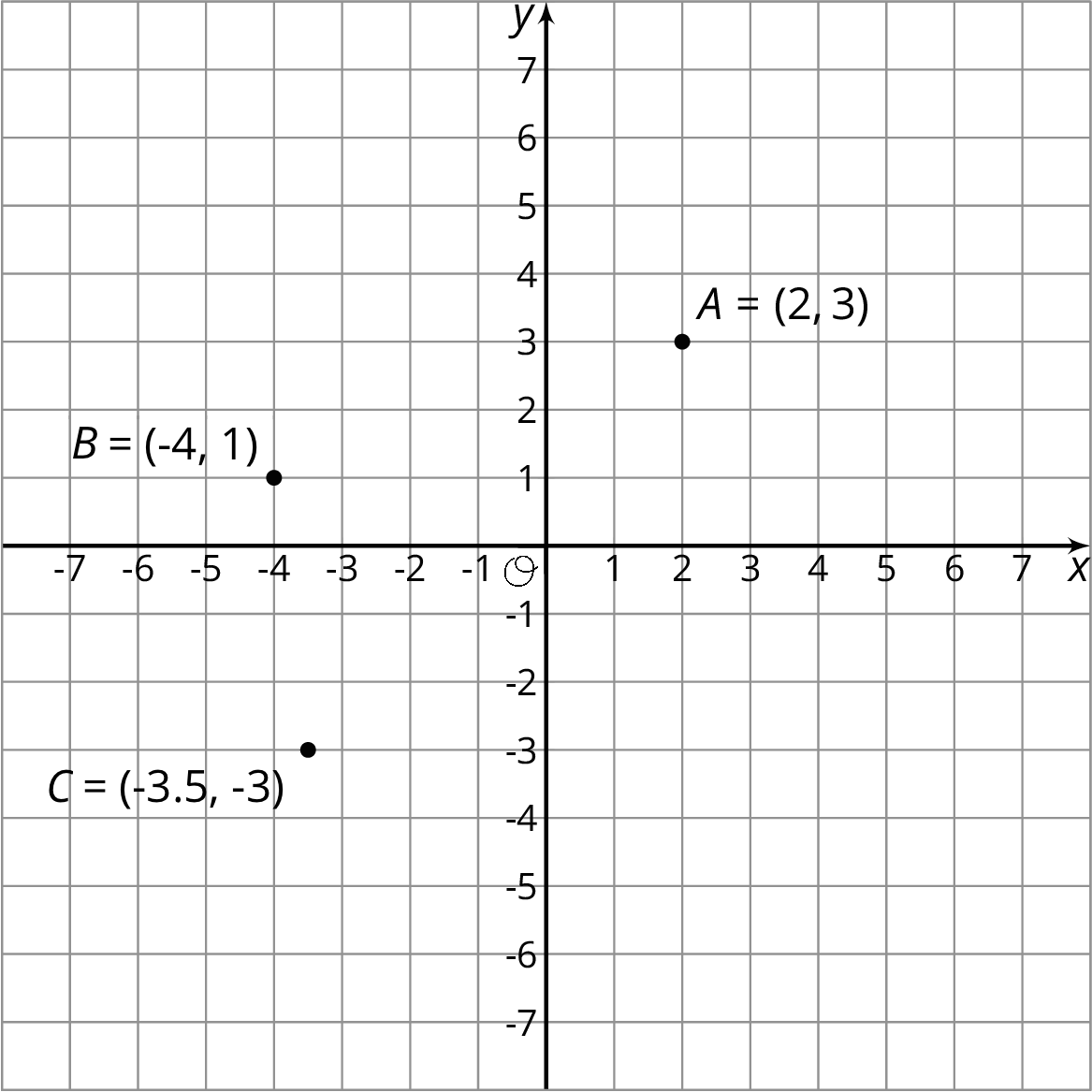
1. In which quadrant is point located? Point ? Point ?
2. A point has a positive -coordinate. In which quadrant could it be?

### 11.3: Axes Drawing Decisions

1. Here are three sets of coordinates. For each set, draw and label an appropriate pair of axes and plot the points.
   * 
   * 
   * 
2. Discuss with a partner:
   * How are the axes and labels of your three drawings different?
   * How did the coordinates affect the way you drew the axes and label the numbers?

### Lesson 11 Summary

Just as the number line can be extended to the left to include negative numbers, the - and -axis of a coordinate plane can also be extended to include negative values.



The ordered pair can have negative - and -values. For , the -value of -4 tells us that the point is 4 units to the left of the -axis. The -value of 1 tells us that the point is one unit above the -axis.

The same reasoning applies to the points and . The - and -coordinates for point are positive, so is to the right of the -axis and above the -axis. The - and -coordinates for point are negative, so is to the left of the -axis and below the -axis.



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