SOL 6.11 – Coordinate Planes

6.11 The student will

a) identify the coordinates of a point in a coordinate plane; &

b) graph ordered pairs in a coordinate plane.

Understanding the Standard:

- In a coordinate plane, the coordinates of a point are typically represented by the ordered pair (x, y), where x is the first coordinate and y is the second coordinate. However, any letters may be used to label the axes and the corresponding ordered pairs.
- The quadrants of a coordinate plane are the four regions created by the two intersecting perpendicular number lines. Quadrants are named in counterclockwise order. The signs on the ordered pairs for quadrant I are (+,+); for quadrant II, (–,+); for quadrant III, (–, –); and for quadrant IV, (+,–).
- In a coordinate plane, the origin is the point at the intersection of the x-axis and y-axis; the coordinates of this point are (0,0).
- For all points on the x-axis, the y-coordinate is 0. For all points on the y-axis, the x-coordinate is 0.
- The coordinates may be used to name the point. (e.g., the point (2,7)). It is not necessary to say "the point whose coordinates are (2,7)".

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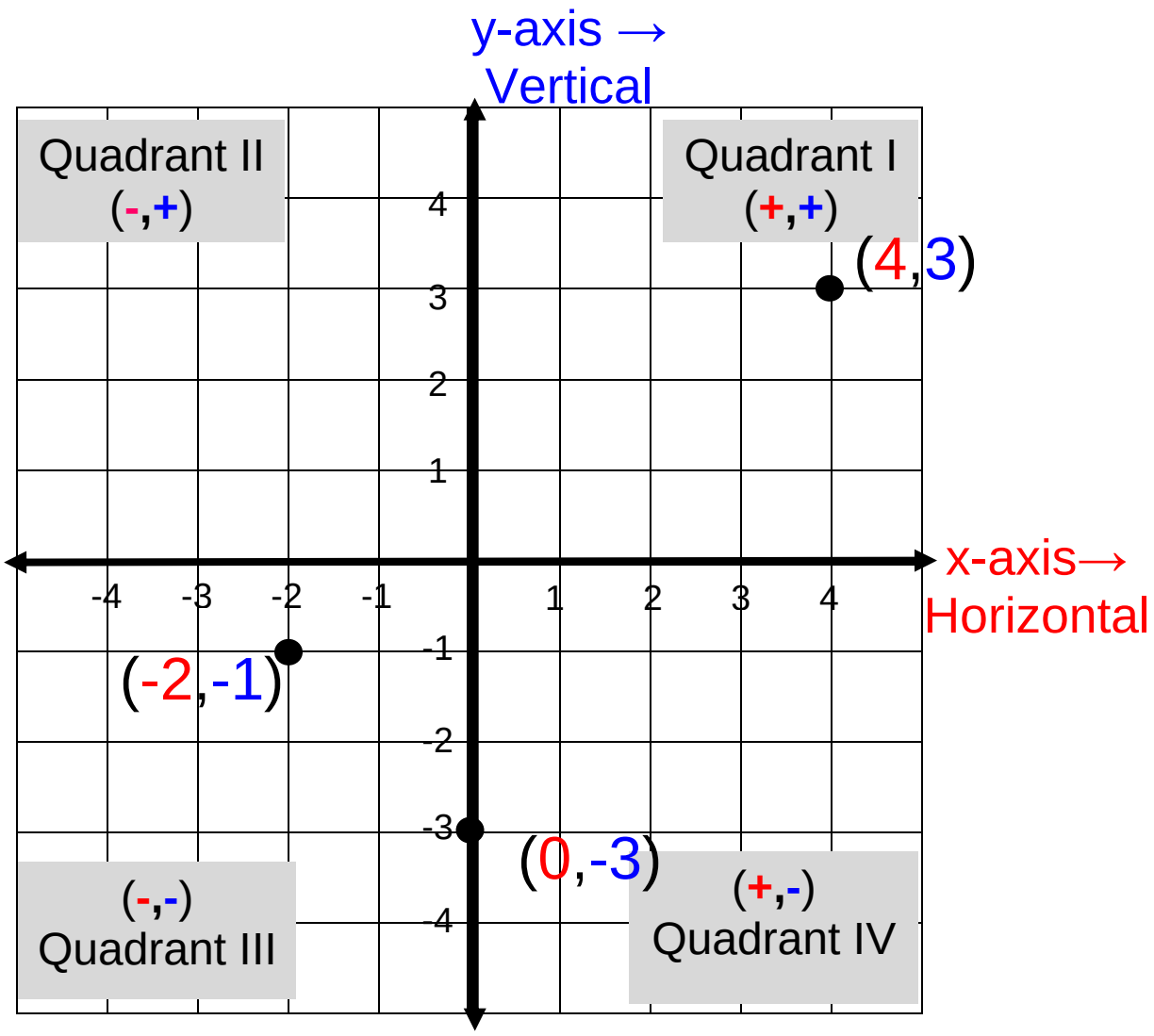


Coordinate or ordered pair	(x,y)
Origin	(0,0)
Any point on the x-axis	(x,0)
Any point on the y-axis	(0,y)

Essential Understandings:

Can any given point be represented by more than one ordered pair? NO

The coordinates of a point define its unique location.

In naming a point in the plane, does the order of the two coordinates matter?

Yes the first coordinate tells the location of the point to the left or right of the y-axis. and the second coordinate tells the location of the point above or below the x-axis.
*walk before you fly

Point (0,0) is the origin

Essential Knowledge & Skills:

The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to

- Identify and label the axes of a coordinate plane.
- Identify and label the quadrants of a coordinate plane.
- Identify the quadrant or the axis on which a point is positioned by examining the coordinates (ordered pair) of the point.
- Graph ordered pairs in the four quadrants and on the axes of a coordinate plane.
- Identify ordered pairs represented by points in the four quadrants and on the axes of the coordinate plane.
- Relate the coordinate of a point to the distance from each axis and relate the coordinates of a single point to another point on the same horizontal or vertical line.

Practice:

1) **Identify the location of the point (10,0).**

   a) **In Quadrant I**

   b) **In Quadrant III**

   c) **On the x-axis**

   d) **On the y-axis**

2) **Select the two points that are located on the y-axis.**

(0,0) **(0,1)** **(1,1)** **(-1,-1)** **(1,0)**

Released SOL questions:

Which of these best describes the location of (0, 9) on a coordinate grid?

A In Quadrant I

B In Quadrant II

C On the x-axis

D On the y-axis

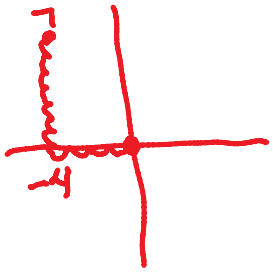
Ava placed the point of her pencil on the origin of a regular coordinate plane. She marked a point after moving her pencil 4 units to the left and 7 units up. Which ordered pair identifies where Ava marked her point?

A (4, 7)

B (−4, 7)

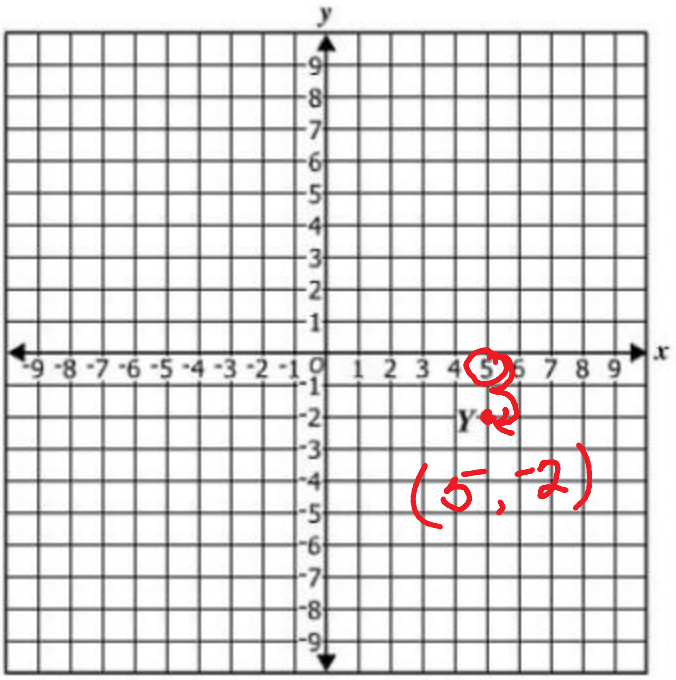
C (7, 4)

D (7, −4)



walk before you fly

Which ordered pair best represents point Y on the grid?



A $(6, -3)$

B $(5, -2)$

C $(-2, 5)$

D $(-3, 6)$