

The Coordinate Plane Guided Notes

A **coordinate plane** is formed by two number lines in a plane that intersect at right angles.

The point of intersection is the zero on each.

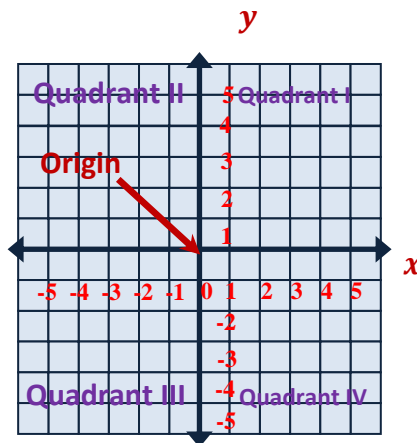
The two number lines are called the **axis**.

The horizontal axis is called the **x – axis**.

The vertical axis is called the **y – axis**.

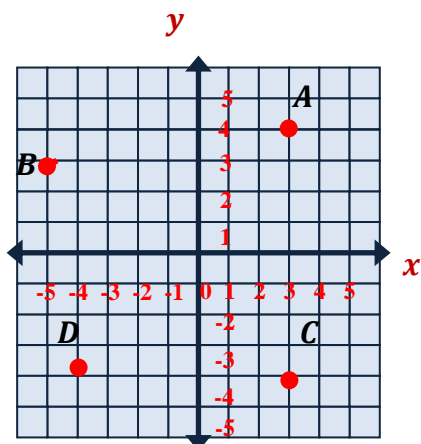
The two axes divide the coordinate plane into four **quadrants**.

The point where the axes intersect is called the **origin**.



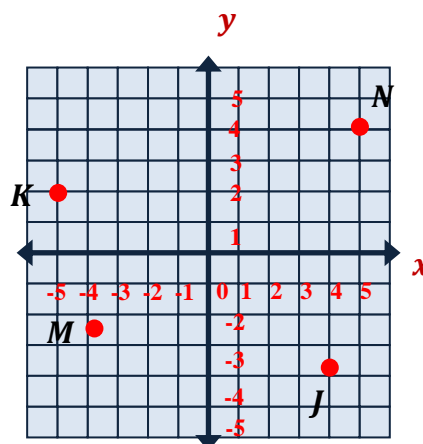
Sample Problem 1: Name the quadrant where each point is located.

a.



- A – Quadrant I**
- B – Quadrant II**
- C – Quadrant IV**
- D – Quadrant III**

b.



- M – Quadrant III**
- N – Quadrant I**
- K – Quadrant II**
- J – Quadrant IV**

An ordered pair gives the location of a point on a coordinate plane.

The first number tells how far to move right (positive) or left (negative) from the origin.

The second number tells how far to move up (positive) or down (negative).

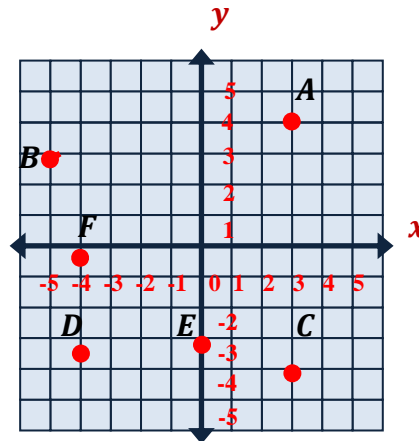
The numbers in an ordered pair are called **coordinates**. The first number is called the **x – coordinate**.

The second number is called the **y – coordinate**. The ordered pair for the origin is **(0, 0)**.

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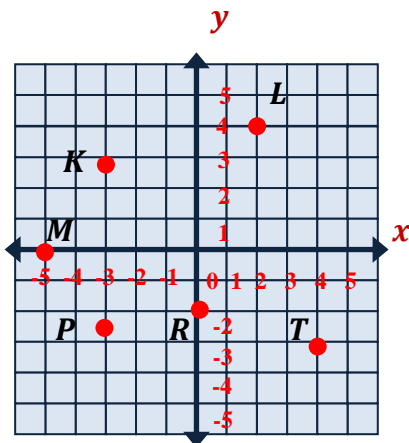
Sample Problem 2: Graph each point on a coordinate plane.

- a. $A (3, 4)$
 $B (-5, 3)$
 $C (3, -4)$
 $D (-4, -3)$
 $E (0, -3)$
 $F (-4, 0)$



Sample Problem 3: Give the coordinates of each point.

a.



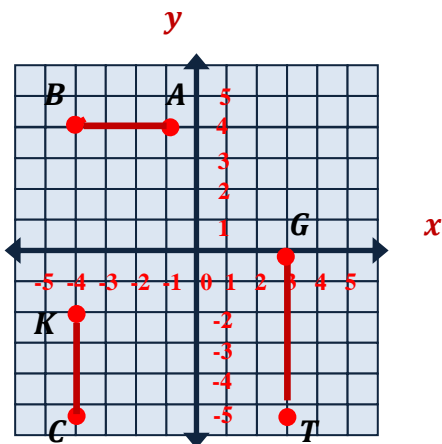
- $K (-3, 3)$
 $L (2, 4)$
 $M (-5, 0)$
 $P (-3, -2)$
 $R (0, -2)$
 $T (4, -3)$

The Coordinate Plane Guided Notes

Finding Segment Lengths and Area

Sample Problem 4: Graph each point on a coordinate plane and find the line segment lengths.

- a. $A(-1, 4)$ and $B(-4, 4)$ $G(3, 0)$ and $T(3, -5)$ $C(-4, -5)$ and $K(-4, -2)$



\overline{AB} is horizontal

$$\overline{AB} = |\text{difference of } x\text{-coordinates}|$$

$$\overline{AB} = |-1 - (-4)| = |-1 + 4| = 3$$

$$\overline{AB} = \mathbf{3 \text{ units}}$$

\overline{GT} is vertical

$$\overline{GT} = |\text{difference of } y\text{-coordinates}|$$

$$\overline{GT} = |0 - (-5)| = |0 + 5| = 5$$

$$\overline{GT} = \mathbf{5 \text{ units}}$$

\overline{KC} is vertical

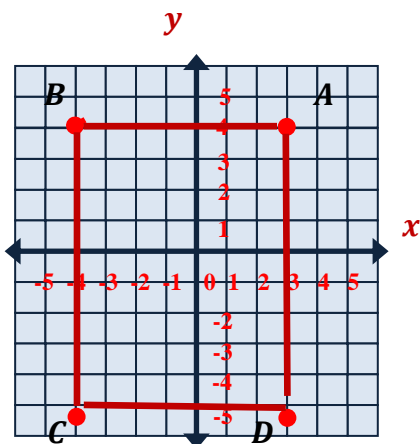
$$\overline{KC} = |\text{difference of } y\text{-coordinates}|$$

$$\overline{KC} = |-5 - (-2)| = |-5 + 2| = 3$$

$$\overline{KC} = \mathbf{3 \text{ units}}$$

Sample Problem 5: Graph each point on a coordinate plane and find the area of the figure.

- a. $A(3, 4)$, $B(-4, 4)$, $C(-4, -5)$ and $D(3, -5)$



\overline{AB} is horizontal

$$\overline{AB} = |\text{difference of } x\text{-coordinates}|$$

$$\overline{AB} = |3 - (-4)| = |3 + 4| = 7$$

$$\overline{AB} = \mathbf{7 \text{ units}}$$

\overline{BC} is vertical

$$\overline{BC} = |\text{difference of } y\text{-coordinates}| =$$

$$\overline{BC} = |4 - (-5)| = |4 + 5| = 9$$

$$\overline{BC} = \mathbf{9 \text{ units}}$$

Rectangle

$$A = \overline{AB} * \overline{BC}$$

$$A = 7 \text{ units} * 9 \text{ units}$$

$$\mathbf{A = 63 \text{ units}^2}$$