

Graphing Ordered Pairs

Points in the coordinate plane are named by **ordered pairs** of the form (x, y) . The first number, or **x -coordinate**, corresponds to a number on the x -axis. The second number, or **y -coordinate**, corresponds to a number on the y -axis.

EXAMPLE

1 Write the ordered pair for each point.

a. A

The x -coordinate is 4.

The y -coordinate is -1 .

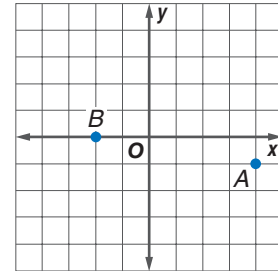
The ordered pair is $(4, -1)$.

b. B

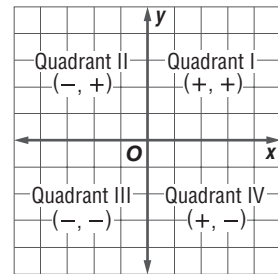
The x -coordinate is -2 .

The point lies on the x -axis,
so its y -coordinate is 0.

The ordered pair is $(-2, 0)$.



The x -axis and y -axis separate the coordinate plane into four regions, called **quadrants**. The point at which the axes intersect is called the **origin**. The axes and points on the axes are not located in any of the quadrants.



EXAMPLE

2 Graph and label each point on a coordinate plane. Name the quadrant in which each point is located.

a. $G(2, 1)$

Start at the origin. Move 2 units right, since the x -coordinate is 2. Then move 1 unit up, since the y -coordinate is 1. Draw a dot, and label it G .

Point $G(2, 1)$ is in Quadrant I.

b. $H(-4, 3)$

Start at the origin. Move 4 units left, since the x -coordinate is -4 . Then move 3 units up, since the y -coordinate is 3. Draw a dot, and label it H .

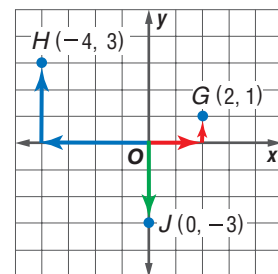
Point $H(-4, 3)$ is in Quadrant II.

c. $J(0, -3)$

Start at the origin. Since the x -coordinate is 0, the point lies on the y -axis.

Move 3 units down, since the y -coordinate is -3 . Draw a dot, and label it J .

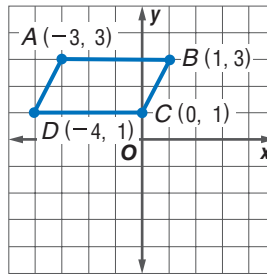
Because it is on one of the axes, point $J(0, -3)$ is not in any quadrant.



EXAMPLE

- 3** Graph a polygon with vertices $A(-3, 3)$, $B(1, 3)$, $C(0, 1)$, and $D(-4, 1)$.

Graph the ordered pairs on a coordinate plane. Connect each pair of consecutive points. The polygon is a parallelogram.



EXAMPLE

- 4** Graph four points that satisfy the equation $y = 4 - x$.

Make a table.

Choose four values for x .

Evaluate each value of x for $4 - x$.

x	$4 - x$	y	(x, y)
0	$4 - 0$	4	(0, 4)
1	$4 - 1$	3	(1, 3)
2	$4 - 2$	2	(2, 2)
3	$4 - 3$	1	(3, 1)

Plot the points.

