4.1 Plot Points in a Coordinate Plane

Goal • Identify and plot points in a coordinate plane.

Your Notes

VOCABULARY

Quadrant One of the four parts into which the axes divide a coordinate plane; labeled I, II, III, IV

Example 1 ***Name points in a coordinate plane***

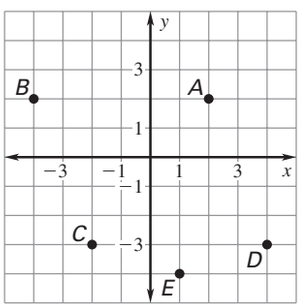
Give the coordinates of the point.

a. *A* **b.** *B*

Solution

a. Point *A* is 2 units to the right of the origin and 2 units up.
The *x*-coordinate is 2.
The *y*-coordinate is 2.
The coordinates are (2, 2).

b. Point *B* is 4 units to the left of the origin and 2 units up.
The *x*-coordinate is −4.
The *y*-coordinate is 2.
The coordinates are (−4, 2).



Points in Quadrant I have two positive coordinates. Points in the other three quadrants have at least one negative coordinate.

✔ ***Checkpoint*** **Complete the following exercise.**

1. Use the coordinate plane in Example 1 to give the coordinates of points *C*, *D*, and *E*.

C(−2, −3), *D*(4, −3), *E*(1, −4)

Your Notes

Example 2 ***Plot points in a coordinate plane***

Plot the point in a coordinate plane. Describe the location of the point.

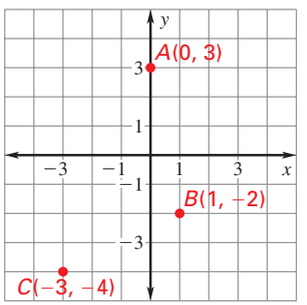
a. $A(0, 3)$ **b.** $B(1, -2)$ **c.** $C(-3, -4)$

Solution

a. Begin at the origin.
Move 3 units up.
Point A is on the y-axis.

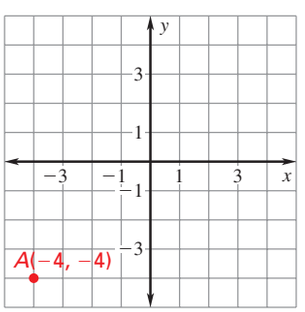
b. Begin at the origin.
Move 1 unit to the right.
Move 2 units down.
Point B is in Quadrant IV.

c. Begin at the origin.
Move 3 units to the left.
Move 4 units down.
Point C is in Quadrant III.



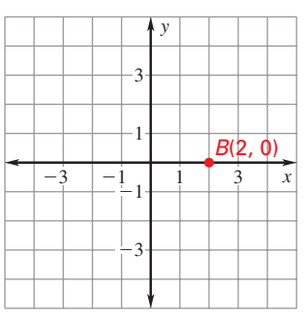
✔ ***Checkpoint*** **Plot the point in a coordinate plane. Describe the location of the point.**

2. $A(-4, -4)$



Quadrant III

3. $B(2, 0)$



x-axis

Your Notes

Example 3 ***Graph a function***

Graph the function $y = x + 1$ with domain $-2, -1, 0, 1, 2$. Then identify the range of the function.

Solution

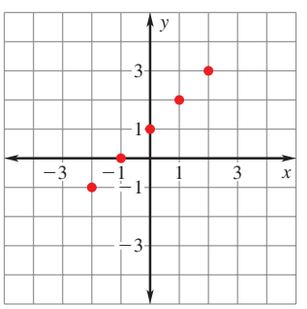
Step 1 Make a table.

x	$y = x + 1$
-2	$y = -2 + 1 =$ -1
-1	$y = -1 + 1 =$ 0
0	$y = 0 + 1 =$ 1
1	$y = 1 + 1 =$ 2
2	$y = 2 + 1 =$ 3

Step 2 List the ordered pairs:

(−2, -1), (−1, 0), (0, 1), (1, 2), (2, 3).

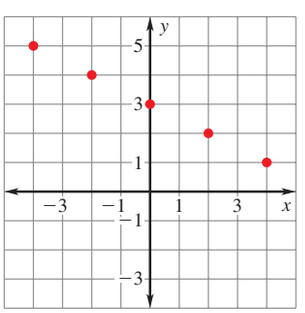
Then graph the function.



Step 3 Identify the range: $-1, 0, 1, 2, 3$.

✔ ***Checkpoint*** **Complete the following exercise.**

4. Graph the function $y = -\frac{1}{2}x + 3$ with domain $-4, -2, 0, 2$, and 4. Then identify the range.



range: 1, 2, 3, 4, 5

Homework