4.1 HW
1. Read Section 4.1
2. Complete these notes
3. Bookwork: pg 209 #'s 1, 4-12 (even), 14-19, 25, 26

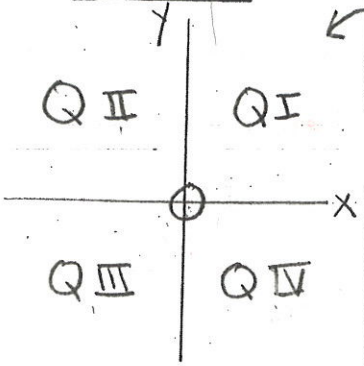
# 4.1 Plot Points in a Coordinate Plane

**Goal** • Identify and plot points in a coordinate plane.

**Your Notes**

**VOCABULARY**

**Quadrant**: one of four parts into which the axes (x + y) divide a coordinate plane; labeled I, II, III, IV.




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

**Give the coordinates of the point.**

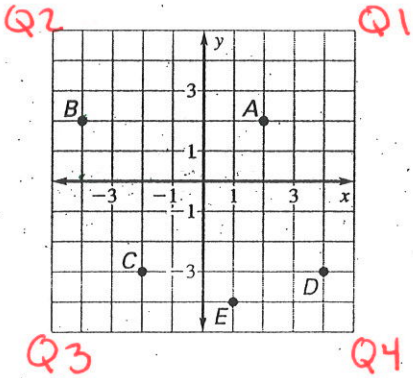
**a.** *A* **b.** *B*

**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.




ORDER PAIR (x, y)
L+R
UP+DOWN

**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.**

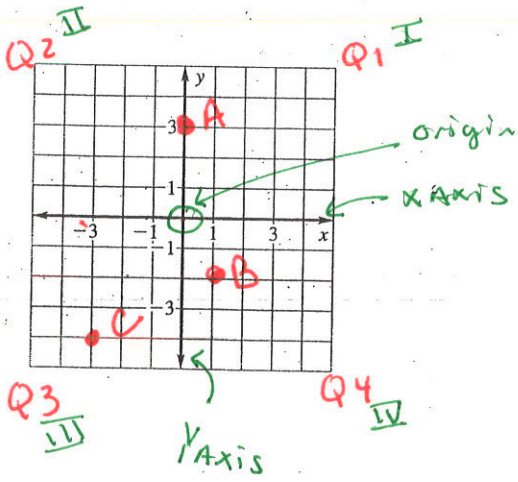
a. $A(0, 3)$ b. $B(1, -2)$ c. $C(-3, -4)$

**Solution**

a. Begin at the ORIGIN.
Move 3 units UP.
Point $A$ is on the Y axis.

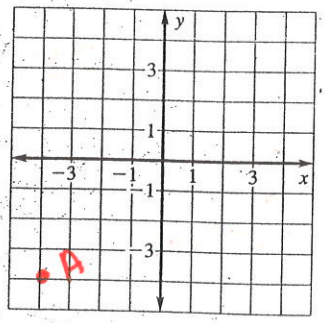
b. Begin at the ORIGIN.
Move 1 unit to the RIGHT.
Move 2 units DOWN.
Point $B$ is in Quadrant 4.

c. Begin at the ORIGIN
Move 3 units to the LEFT.
Move 4 units DOWN.
Point $C$ is in Quadrant 3.



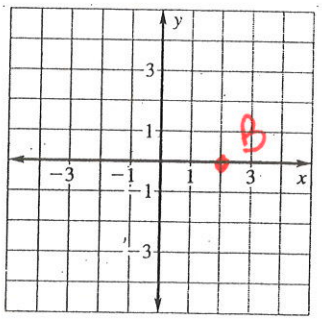

✔ ***Checkpoint*** **Plot the point in a coordinate plane. Describe the location of the point.**

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




→ QUADRANT 3

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.

Remember, the DOMAIN is THE X-VALUES

| X | -2 | -1 | 0 | 1 | 2 |
|---|---|---|---|---|---|
| Y | -1 | 0 | 1 | 2 | 3 |

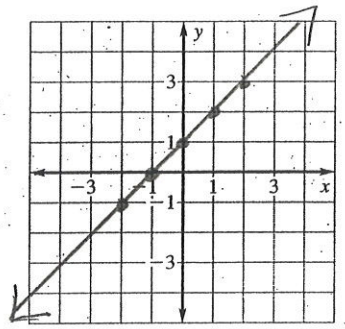
| $x$ | $y = x + 1$ |
|---|---|
| $-2$ | $y = -2 + 1 = -1$ |
| $-1$ | $y = -1 + 1 = 0$ |
| $0$ | $y = 0 + 1 = 1$ |
| $1$ | $y = 1 + 1 = 2$ |
| $2$ | $y = 2 + 1 = 3$ |

This table shows the mental work. You DO NOT need to show this work.

**Step 2** List the ordered pairs:

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

Then graph the function.



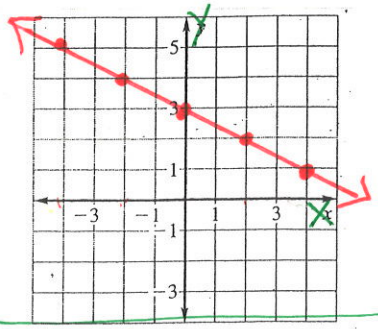

**Step 3** Identify the range: $-1, 0, 1, 2, 3$.

**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.

Domain – List of X values

Range – List of Y values




| X | Y |
|---|---|
| -4 | 5 |
| -2 | 4 |
| 0 | 3 |
| 2 | 2 |
| 4 | 1 |

Range: 1, 2, 3, 4, 5

The List of all possible y-values in SEQUENTIAL ORDER (LOW TO HIGH)

Template

NAME
DATE
PERIOD

4.1 Pg 209 #'s 1, 4-12(E), 14-19, 25-26

① Write the sentence

FOR THE POINT (5, -3), (x, y)
the x coordinate is 5
the y coordinate is -3.

4
:
12

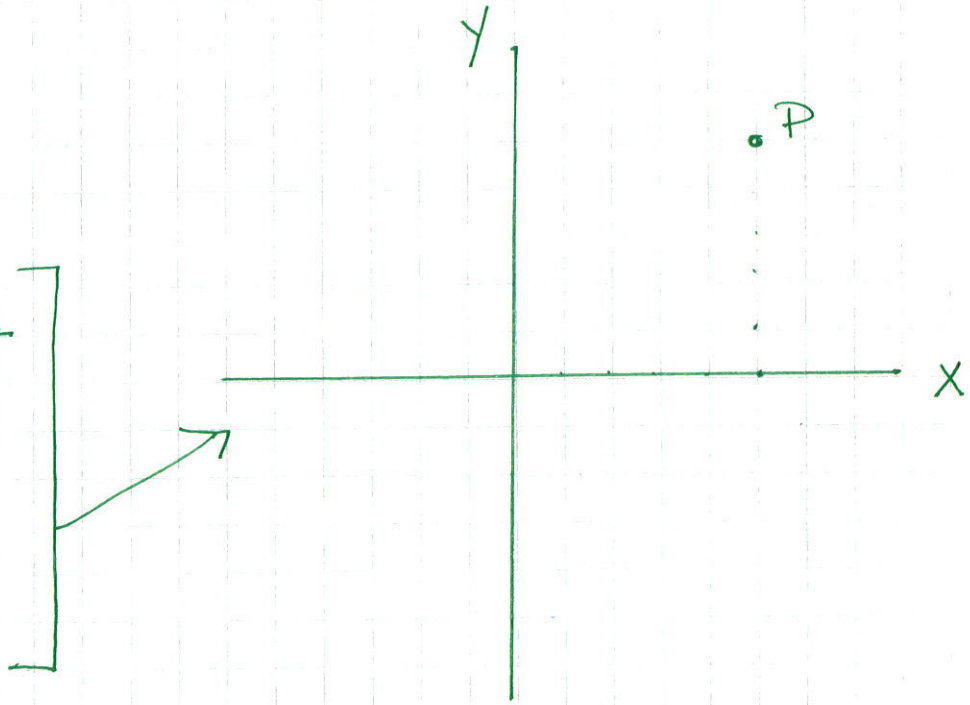
Write the ordered pair

#'s 14-19

14 P(5,5) - Q1

:

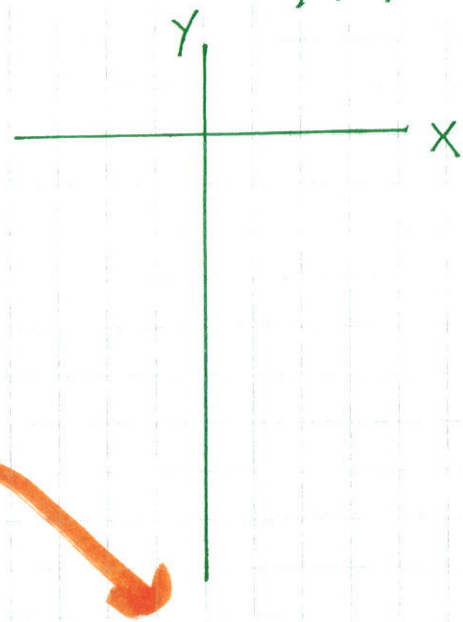
19




25 $Y = 2x - 5$
Domain $x = -2, -1, 0, 1, 2$

26

| X | Y |
|---|---|
| -2 | |
| -1 | |
| 0 | |
| 1 | |
| 2 | |




Range: $Y =$ _____