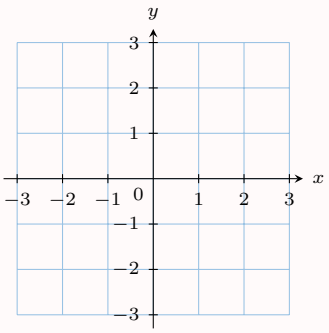
COORDINATE GEOMETRY

A COORDINATE PLANE

Definition Coordinate Plane

A **coordinate plane** is a grid formed by two number lines that intersect at their zero point, called the **origin**. The origin has coordinates $(0, 0)$.



Coordinate plane

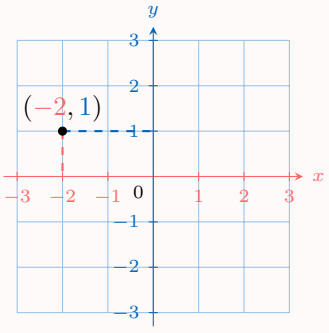
- The horizontal number line is called the x-**axis**.
- The vertical number line is called the y-**axis**.

Definition Coordinates of a Point

The **coordinates of a point** are a pair of numbers, written as (x, y), where x is the x-**coordinate** and y is the y-**coordinate**:

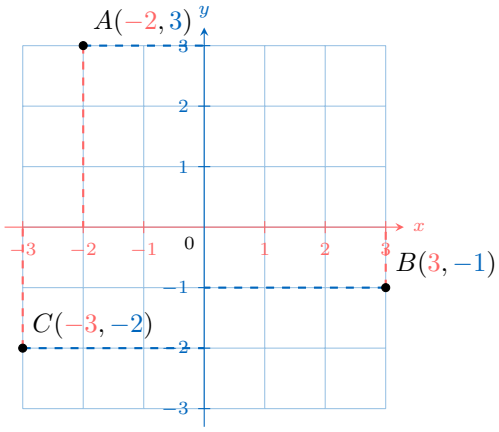
- The x-**coordinate** indicates the horizontal position along the x-axis, with positive numbers to the right of the origin and negative numbers to the left.
- The y-**coordinate** indicates the vertical position along the y-axis, with positive numbers above the origin and negative numbers below.

For example, the point $(-2, 1)$ has $x = -2$ (two units to the left) and $y = 1$ (one unit up).



Ex: Plot these points on a coordinate plane:

$$A(-2, 3), \quad B(3, -1), \quad \text{and} \quad C(-3, -2).$$



B TABLE OF POINTS

Definition **Table of Points**

A **table of points** lists the coordinates of several points in a coordinate plane.

- The first row represents the x-**coordinates**.
- The second row represents the y-**coordinates**.

Each column of the table gives the coordinates of one point: the number in the first row is its x-coordinate, and the number in the second row is its y-coordinate.

Ex:

x	-2	1	2
y	-3	3	-1

This table represents the points $(-2,-3), (1,3), (2,-1)$ on the coordinate plane: