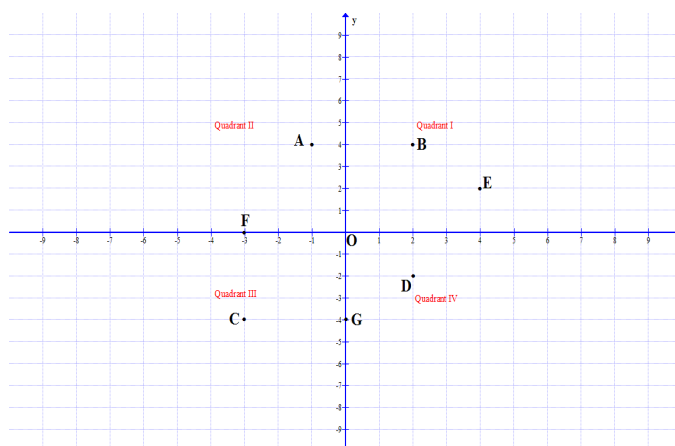


The Coordinate System

In mathematics, **ordered pairs** (x, y) are used to locate points in the plane.

A horizontal number line and a vertical number line intersect at their zero points to form a **coordinate system** for the plane. The horizontal number line is called **x-axis**, the vertical number line is called **y-axis**, and the point where the two lines intersect is called the **origin**. The number lines separate the plane into four **quadrants**. The quadrants I, II, III and IV are named in anti-clock wise direction. In any ordered pair x is called the **abscissa** and y is called the **ordinate**.



The x-coordinate (abscissa) of the ordered pair $(-1, 4)$ is -1 and the y-coordinate (ordinate) is 4 . The dot at $(-1, 4)$ is the graph of point A.

What are the coordinates of point B?

What are the coordinates of points labeled in quadrant III and IV?

What are the coordinates of the origin?

Ordered pairs that contain fractions and decimals can also be graphed on a coordinate system.

Notes:

- 1) If the point lies in quadrant I, then x is positive and y is positive.
- 2) If the point lies in quadrant II, then x is negative and y is positive.
- 3) If the point lies in quadrant III, then x is negative and y is negative.
- 4) If the point lies in quadrant IV, then x is positive and y is negative.
- 5) If the point lies on the x-axis, then x is any number and y is zero.
- 6) If the point lies on the y-axis, then x is zero and y any number.
- 7) Both x and y of the origin are zeros.