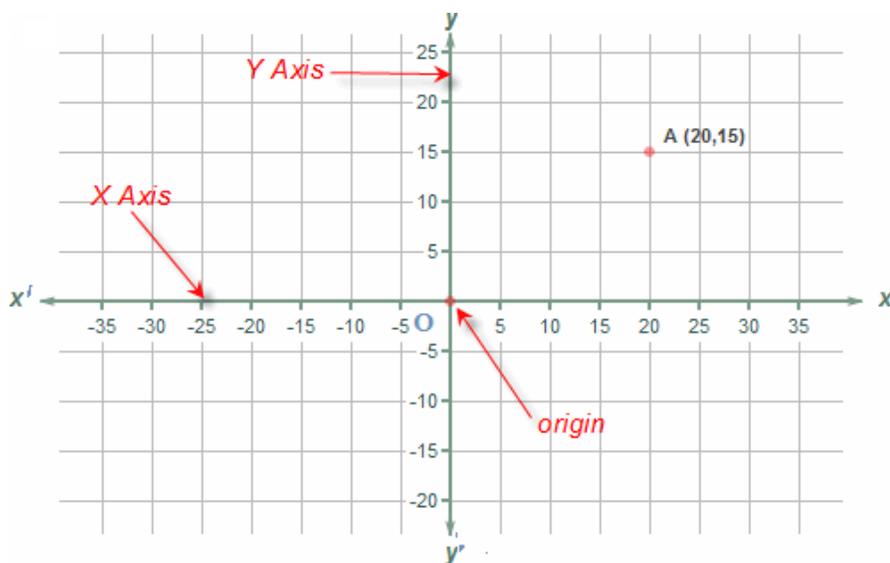


Coordinate Geometry

Coordinate Geometry is the branch of geometry in which we use two numbers called co-ordinates to indicate the position of a point in a plane. Rene Descartes (French mathematician) was the inventor of it.

Ordered pair: A pair of numbers 'a' and 'b' listed in a specific order with 'a' at first place and 'b' at the second place is called an ordered pair (a, b). But $(a, b) \neq (b, a)$

Cartesian System: The position of a point is determined with reference to two fixed mutually perpendicular lines, called the coordinate axes. Two lines XX' (horizontal line) and YY' (vertical line) which intersect at point 'O'. This point 'O' is called **origin** and two lines are called coordinate axes.



Quadrant: The axes divide the plane into four parts. These four parts are called quadrant.

(i) XOY is called the I quadrant.

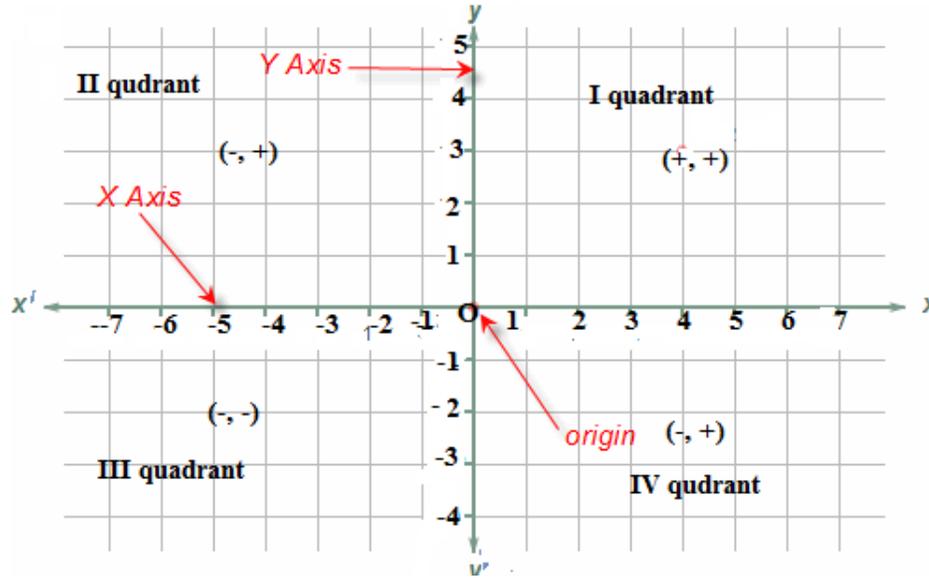
(ii) X'OY is called the II quadrant.

(iii) X'OY' is called III quadrant.

(iv) XOY' is called the IV quadrant.

- The x-coordinate of a point is called its abscissa.
- The y-coordinate of a point is called its ordinate.
- The coordinate of a point = (its x-coordinate, its y-coordinate)
- In diagram coordinate of point A(20, 15) so, x-coordinate = 20, y-coordinate = 15

Sign in quadrants: I quadrant (+, +), II quadrant (-, +), III quadrant (-, -), IV quadrant (+, -)



Example: A point lies on X- axis at a distance of 9 units from Y- axis. What are its coordinates?

Solution: since, the given point lies on X-axis at a distance of 9 units from Y- axis, so its coordinates are (9, 0) or (-9, 0).

Assignment

- Q1.** If the coordinates of two points are A (3, 4) and B (-2, 5), then find
(Abscissa of A) – Abscissa of B)
- Q2.** Find the values of x and y, if two ordered points (x – 3, -6) and (4, x + y) are equal.
- Q3.** On which axes do the following points (3, 0) and (0, 4) lie?
- Q4.** Find the distance of point (-3, 6) from Y- axis.
- Q5.** A point lies on Y- axis at a distance of 3 units from the X – axis. Find the coordinates of point.
- Q6.** In which quadrant following point lie?
a) (-5, 3) b) (5, 4) c) (-2, 4) d) (1, -3) e) (-3, -5) f) (4, -6)

Note: This worksheet is prepared from home.