

Revision Notes

Class 9 Maths

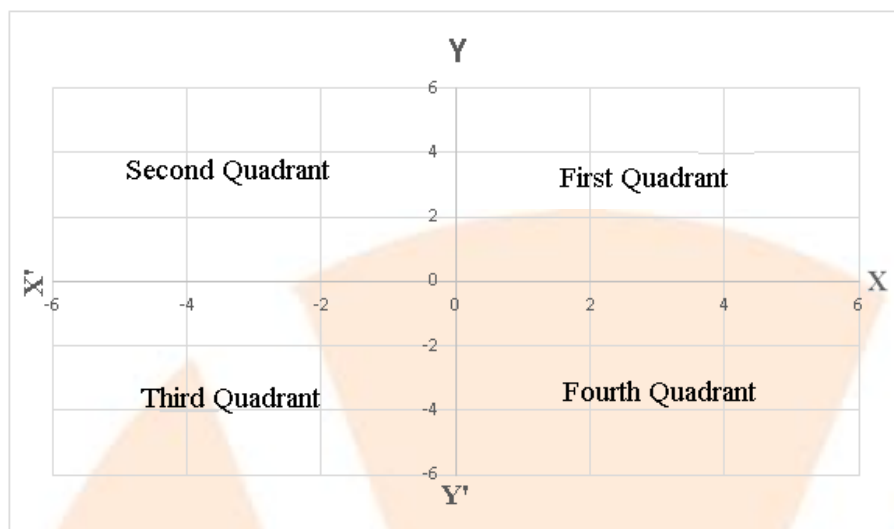
Chapter 3 - Coordinate Geometry

Coordinate geometry is a subject of mathematics that bridges the gap between algebra and geometry.

With the use of algebra, we describe a variety of geometrical relationships.

Coordinate Axes:

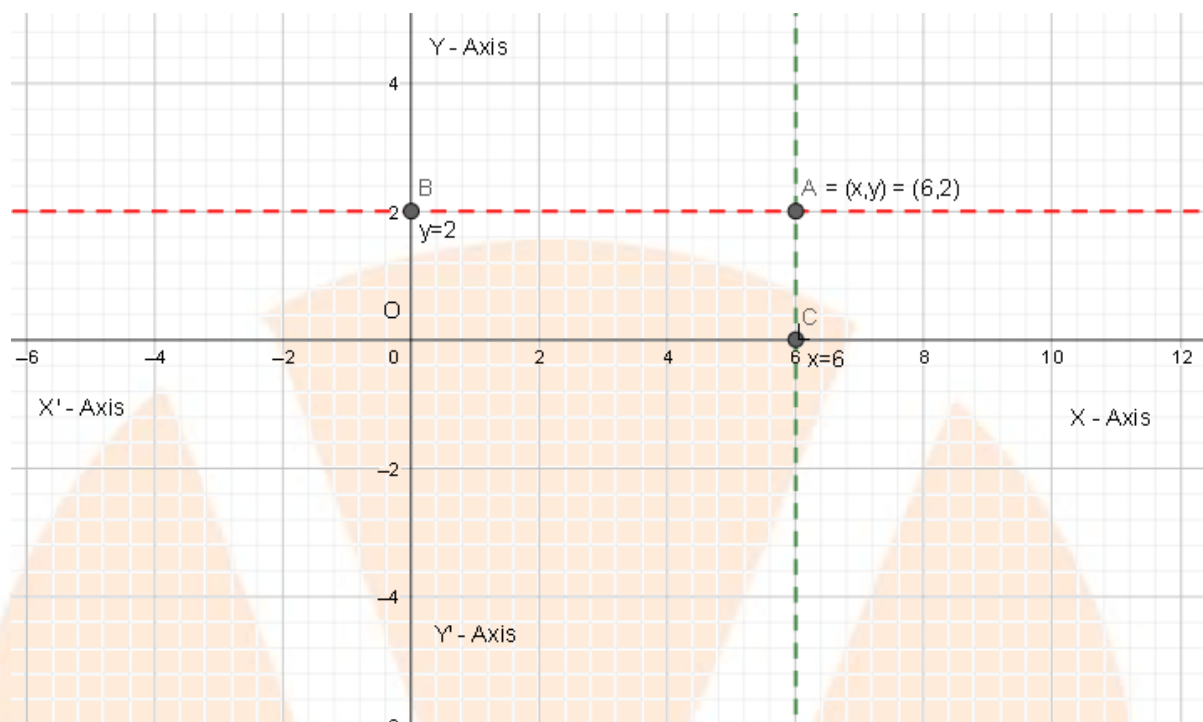
- Coordinate axes are formed when two perpendicular lines, XOX' and YOY' , connect at the point O .
- The **origin** that is point O is the starting point for measuring distances.
- The plane is divided into **four quadrants** by the axes, number as I, II, III and IV.
- The plane is known as the Cartesian plane, coordinate plane, or xy -plane.
- The Cartesian plane is the plane that contains the axes.
- The lines XOX' and YOY' are known as the x -axis and y -axis, respectively, and are normally drawn horizontally and vertically.
- The origin is defined as the point O where two axes connect.
- **Abscissae** are the values of x measured along the x -axis from O .
- As seen in the image, the values of x are positive along OX and negative along OX' .
- Similarly, the values of y are called **ordinates** because they are measured from O along the y axis.
- As seen in the picture, the values of y are **positive** along OY and **negative** along OY' .
- When we express a point's abscissa and ordinate as (abscissa, ordinate), we get its **coordinates**.



Example:

If a point's abscissa is 6 and its ordinate is 2, the point's co-ordinates are expressed as $(6, 2)$.

- Assume that A is a point on the plane. $AC \perp XOY'$ and $AB \perp YOY'$ should be drawn.
- The ordered pair (x, y) is said to define the point A if $OC=x$ and $OB=y$.
- A's Cartesian coordinates are also known as x and y.
- As a result, we can associate an ordered pair (x, y) of real numbers with each point in the plane.
- We can, on the other hand, map a point in the plane given an ordered pair of numbers.



- If $x \neq y$, then the location of (x, y) in the Cartesian plane differs from the position of (y, x) .
- As a result, if we swap the x and y coordinates, the position of (y, x) will be different from that of (x, y) . This indicates that the sequence in which x and y appear is crucial (x, y) .
- (x, y) is so referred to as an **ordered pair**.
- **The ordered pair $(x, y) \neq$ ordered pair (y, x) .**