CHAPTER – 7

COORDINATE GEOMETRY

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FREE Education

S.no	Points
1	We require two perpendicular axes to locate a point in the plane. One of them is horizontal and other is Vertical
2	The plane is called Cartesian plane and axis are called the coordinates axis
3	The horizontal axis is called x-axis and Vertical axis is called Y-axis
4	The point of intersection of axis is called origin.
5	The distance of a point from y axis is called x –coordinate or abscissa and the distance of the point from x –axis is called y – coordinate or Ordinate
6	The distance of a point from y axis is called x –coordinate or abscissa and the distance of the point from x –axis is called y – coordinate or Ordinate
7	The Origin has zero distance from both x-axis and y-axis so that its abscissa and ordinate both are zero. So the coordinate of the origin is (0, 0)
8	A point on the x –axis has zero distance from x-axis so coordinate of any point on the x-axis will be (x, 0)
9	A point on the y –axis has zero distance from y-axis so coordinate of any point on the y-axis will be (0, y)
10	The axes divide the Cartesian plane in to four parts. These Four parts are called the quadrants

The coordinates of the points in the four quadrants will have sign according to the below table

Quadrant	x-coordinate	y-coordinate
Ist Quadrant	+	+
IInd quadrant	-	+
IIIrd quadrant	-	-
IVth quadrant	+	-

S.no	Terms	Descriptions
1	**Distance formula**	Distance between the points AB is given by $$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$ Distance of Point A from Origin $$D = \sqrt{x^2 + y^2}$$
2	**Section Formula**	A point P(x,y) which divide the line segment AB in the ratio m_1 and m_2 is given by $$x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$ $$y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$ The midpoint P is given by $\left(\frac{x_1+x_2}{2}\right), \left(\frac{y_1+y_2}{2}\right)$
3	Area of Triangle	*Area of triangle ABC of coordinates A(x_1,y_1) , B(x_2,y_2) and C(x_3,y_3)* $$A = \frac{1}{2}[x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$$ For point A,B and C to be collinear, The value of A should be zero