Coordinate geometry - Points to Remember

1. Basics of Co-ordinate geometry:

(i) The abscissa and ordinate of a given point are the distances of the point from y- axis and x- axis respectively.

(ii) The coordinates of any point on x- axis are of the form (x, 0).

(iii) The coordinates of any point on y- axis are of the form (0, y).

2. Distance Formula:

(i) The distance between points Px1, y1 and Qx2, y2 is given by PQ=(x2-x1)2+(y2-y1)2

(ii) The distance of a point P(x, y) from the origin O(0, 0) is given by OP=x2+y2

3. Section Formula:

The coordinates of the point which divides the join of points Px1, y1 and Qx2, y2 internally in the ratio m:n are mx2+nx1m+n, my2+ny1m+n

4. Mid-point Formula:

The coordinates of the mid-point of the line segment joining the points Px1, y1 and Qx2, y2 are x1+x22, y1+y22.

5. Centroid Formula:

The coordinates of the centroid of a triangle formed by the points Ax1, y1, Bx2, y2 and Cx3, y3 are x1+x2+x33, y1+y2+y33.

6. Area of Triangle:

The area of the triangle formed by the points
Ax1, y1, Bx2, y2 and Cx3, y3 is 12x1y2-y3+x2y3-y1+x3y1-y2 or 12x1y2+x2y3+x3y1-x1y3+x2y1+x3y2

7. Collinearity of Points:

If points Ax1, y1, Bx2, y2 and Cx3, y3 are collinear, then x1(y2-y3)+x2(y3-y1)+x3(y1-y2)=0