MATHS FORMULA SHEET

COORDINATE GEOMETRY

Reflection

- Co–ordinates of origin = (0,0)
- Co–ordinates of X-axis = (x,0)
- Co–ordinates of Y-axis = (0,y)
- Equation of X-axis is y=0
- Equation of Y-axis is x=0
- $M_{X}(\mathbf{x},\mathbf{y}) = (\mathbf{x},-\mathbf{y})$
- $\bigstar M_{Y}(\mathbf{x},\mathbf{y}) = (-\mathbf{x},\mathbf{y})$
- $M_0(x,y) = (-x,-y)$

Section and Midpoint Formula

Section formula is
$$\left[\frac{\mathbf{m}\mathbf{x}_2 + \mathbf{n}\mathbf{x}_1}{\mathbf{m}+\mathbf{n}}, \frac{\mathbf{m}\mathbf{y}_2 + \mathbf{n}\mathbf{y}_1}{\mathbf{m}+\mathbf{n}}\right]$$

Midpoint formula is $\left(\frac{\mathbf{x}_1 + \mathbf{x}_2}{2}, \frac{\mathbf{y}_1 + \mathbf{y}_2}{2}\right)$

Centroid of a triangle is divides each median in the ratio 2:1

Equation of a line

- m = tan Θ
- $m = \Delta y / \Delta x = (y_2 y_1) / (x_2 x_1)$
- ✤ For parallel lines having slopes m_1 and m_2 , $m_1 = m_2$
- For perpendicular lines slopes m_1 and m_2 , $m_1^* m_2 = -1$
- For three collinear points A, B and C, slope of AB = slope of BC
- Slope-intercept form \rightarrow y = mx+c
- Point-slope form \rightarrow (y-y₁) = m(x-x₁)
- Two- point form $(y-y_1) = m(x-x_1)$