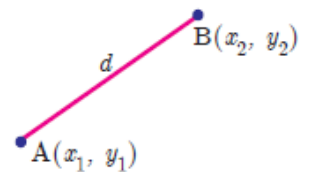# COORDINATE GEOMETRY

## Learning Outcomes:

- To find area of a triangle formed by three given points.
- To find area of a quadrilateral formed by four given points.
- To find the slope of a straight line.
- To determine equation of a straight line in various forms.
- To find the equation of a line parallel to the line $ax+by+c=0$.
- To find the equation of a line perpendicular to the line $ax+by+c=0$.

### Distance between two points

Distance between two points $A(x_1, y_1)$ and $B(x_2, y_2)$ is

$$\left|AB\right| = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \ .$$

### Mid-point of line segment

The mid-point $M$, of the line segment joining $A(x_1, y_1)$ and $B(x_2, y_2)$ is $\left( \dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2} \right)$.