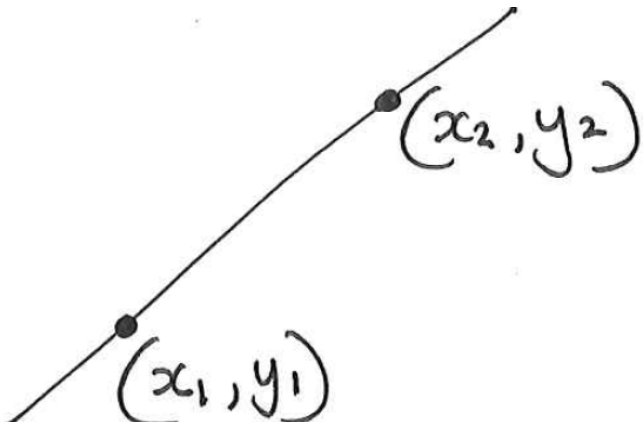


Year 1 Pure Chapter 6 - Circles

Mid Points



$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Equation of a Circle

$$(x - a)^2 + (y - b)^2 = r^2$$

$$\text{Centre} = (a, b)$$

$$\text{Radius} = r$$

Example

Find the centre and radius.

$$x^2 + y^2 + 6x + 8y = 0$$

Rearrange

$$x^2 + 6x + y^2 + 8y = 0$$

Complete the Square

$$(x + 3)^2 - 9 + (y + 4)^2 - 16 = 0$$

Equation Form

$$(x + 3)^2 + (y + 4)^2 = 25$$

$$\text{Centre } (-3, -4)$$

$$\text{Radius} = \sqrt{25} = 5$$

Circle Properties

