**QUESTION 1**

**If one end of a diameter of the circle $x^2 + y^2 - 4x - 6y + 11 = 0$ is (3,4), then find the coordinate of the other end of the diameter.**

**Sol:** Given equation of the circle is:

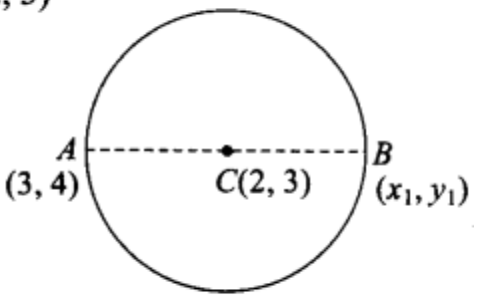
$$x^2 + y^2 - 4x - 6y + 11 = 0$$

$\therefore \quad 2g = -4$ and $2f = -6$

So, the centre of the circle is $C(-g, -f) \equiv C(2, 3)$

$A(3, 4)$ is one end of the diameter.

Let the other end of the diameter be $B(x_1, y_1)$.




Here, mid point of $AB$ is $C$.

$$\therefore \quad 2 = \frac{3 + x_1}{2} \text{ and } 3 = \frac{4 + y_1}{2}$$

$$\Rightarrow \quad x_1 = 1 \text{ and } y_1 = 2$$

So, the coordinates of other end of the diameter are (1, 2)