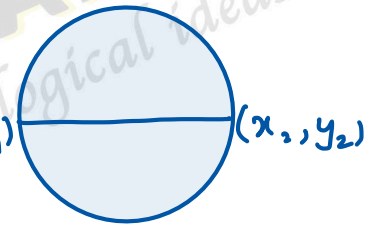
Plane Geometry

Circle

Diameter form of Circle

$$(x - x_1)(x - x_2) + (y - y_1)(y - y_2) = 0$$



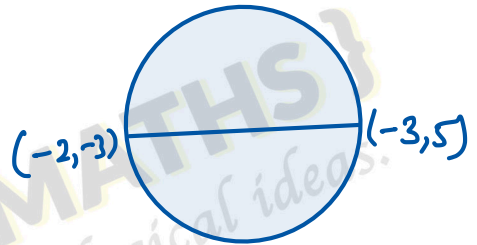
1. Find the equation of the circle when the end points of a diameter are $(-2,-3)$ and $(-3,5)$

2. Find the equation of the circle drawn on the diagonal of the rectangle as its diameter whose sides are $x=4$, $x=-2$ and $y=5$ $y=-2$

① Sol:

A $(-2,-3)$

B $(-3,5)$



$$(x-(-2))(x-(-3))+(y-(-3))(y-5)=0$$

$$(x+2)(x+3)+(y+3)(y-5)=0$$

$$x^2+3x+2x+6+y^2-5y+3y-15=0$$

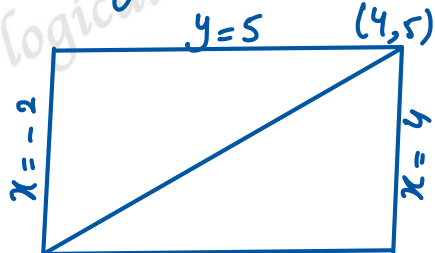
$$x^2+5x+6+y^2-2y-15=0$$

$$x^2 + y^2 + 5x - 2y - 9 = 0$$ Ans.

Sol. Given eq. of sides of rectangle

$$x = 4, \quad x = -2$$
$$y = 5, \quad y = -2$$

$$(x - x_1)(x - x_2) + (y - y_1)(y - y_2) = 0$$



$$(x+2)(x-4)+(y+2)(y-5)=0$$

$$x^2-4x+2x-8+y^2-5y+2y-10=0$$

$$x^2-2x-8+y^2-3y-10=0$$

$$\boxed{x^2+y^2-2x-3y-18=0}$$

which is required eq.