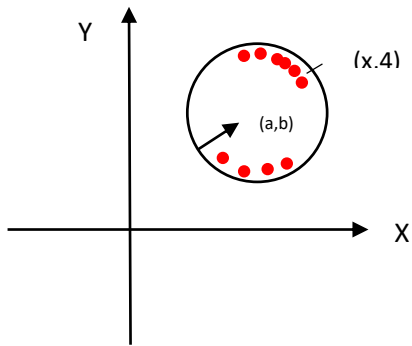


Equation of a circle

Center (a,b)

R Radius

(x,y) a point



The equation is

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

Or $x^2 + y^2 - 2ax - 2by + f = 0$

$$f = a^2 + b^2 - R^2$$

Example $x^2 + y^2 - 4x + 2y = 0$

Is the same as

$$(x-2)^2 + (y+1)^2 = 5$$

$$2^2 + 1^2 = 5 \quad R^2 = 5$$

$$R = \sqrt{5}$$

The line $y = -1$ meets the circle

$$(x-2)^2 + (-1+1)^2 = 5$$

$$(x-2)^2 = 5$$

$$x = 2 + \sqrt{5} \quad x = 2 - \sqrt{5}$$

$$A(2 + \sqrt{5}, -1) \quad B(2 - \sqrt{5}, -1)$$