

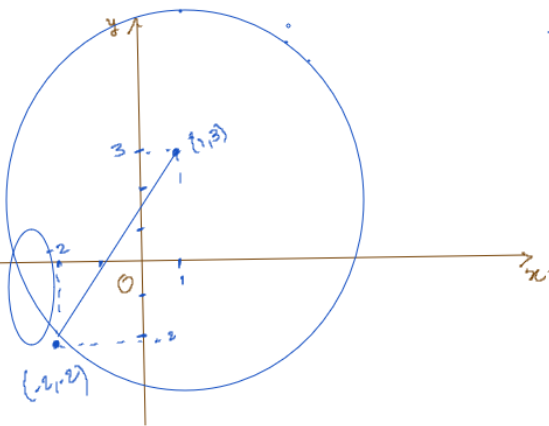
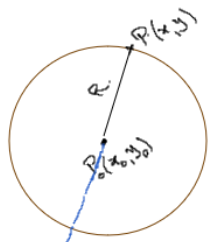
Cercles

• Cercle est = $\{ P(x,y) : P_0P = R \}$.

• $P_0P = \sqrt{(x-x_0)^2 + (y-y_0)^2} = R.$

$$(x-x_0)^2 + (y-y_0)^2 = R^2$$

Equation du Cercle de centre (x_0, y_0)
et de rayon R .



Ex: Trouver l'équation du cercle
centré en $(1, 3)$ et passant par
le point $(-2, -2)$.

$$R = \sqrt{(1-(-2))^2 + (3-(-2))^2} = \sqrt{3^2 + 5^2} = \sqrt{34}$$

L'équation est:

$$(x-1)^2 + (y-3)^2 = (\sqrt{34})^2 = 34.$$

• Diamètre = $2R$.

Ex: i) $x^2 + y^2 - 12x + 2y = -36.$

ii) $x^2 + y^2 - 12x + 2y = -37$

iii) $x^2 + y^2 - 12x + 2y = -38.$

i) $x^2 - 12x + y^2 + 2y = -36.$

$$x^2 - 2 \times 6x + y^2 + 2 \times 1y = -36.$$

$$\underbrace{x^2 - 2 \times 6x + 6^2}_{(x-6)^2} - 36 + \underbrace{y^2 + 2 \times 1y + 1^2}_{(y+1)^2} - 1 = -36.$$

$$(x-6)^2 + (y+1)^2 = 37 - 36 = 1^2.$$

Cercle de centre
 $(6, -1)$ et de
rayon 1 .

ii)

$$\underbrace{(x-6)^2 + (y+1)^2}_{\geq 0} = 37 - 37 = 0.$$

Le point: $(6, -1)$.

iii) $\underbrace{(x-6)^2 + (y+1)^2}_{\geq 0} = 37 - 38 = -1.$

pas de point