

3-11-2025

أنتقل من إحداثي (a, b)

$$\begin{pmatrix} 4 \\ -3 \end{pmatrix} = (a, b) \\ \begin{pmatrix} 2 \\ 0 \end{pmatrix} = (x, y)$$

$$r^2 = (x-a)^2 + (y-b)^2 \\ = (2-4)^2 + (0-(-3))^2 \\ = 2^2 + 3^2$$

$$r^2 = 4 + 9 \\ \sqrt{r^2} = \sqrt{13}$$

$$r = \sqrt{13}$$

$$(\sqrt{13})^2 = (x-4)^2 + (y-(-3))^2$$

$$(x-4)^2 + (y+3)^2 = 13$$

31.11.2025

الدروس

الدرس الرابع

الصورة العامة:

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

$$x^2 - 2ax + a^2 + y^2 - 2by + b^2 - r^2 = 0$$

$$x^2 + y^2 + fx + gy + a^2 + b^2 - r^2 = 0$$

$$x^2 + y^2 + fx + gy + c = 0$$

المركز:

$$\left(\frac{-f}{2}, \frac{-g}{2} \right)$$

$$\frac{f}{-2} = \frac{-2a}{-2} \quad | \quad \frac{g}{-2} = \frac{-2b}{-2}$$

$$c = a^2 + b^2 - r^2$$

$$r^2 = a^2 + b^2 - c$$

$$r = \sqrt{a^2 + b^2 - c}$$

$$|P| = 18$$

التحقق من صحة جوابي :-

$$x^2 + y^2 + 2x - 10y - 10 = 10$$

$$\left(\frac{-\text{معامل } x}{2}, \frac{-\text{معامل } y}{2} \right) \leftarrow \text{المركز}$$

$$\left(\frac{-2}{2}, \frac{-(-10)}{2} \right) = (a, b) = (-1, 5)$$

نصف القطر :-

$$r = \sqrt{a^2 + b^2 - c}$$

$$\sqrt{(-1)^2 + 5^2 - (-10)}$$

$$\sqrt{1 + 25 + 10} = \sqrt{36} = \boxed{6}$$

مثال 3. و اى :-

$$x^2 + y^2 - 8x + 6y - 56 = 0$$

$$\left(\frac{-\text{معامل } x}{2}, \frac{-\text{معامل } y}{2} \right) \leftarrow \text{المركز}$$

$$\left(\frac{-(-8)}{2}, \frac{-6}{2} \right) = (a, b) = (4, -3)$$

نصف القطر :-

$$r = \sqrt{a^2 + b^2 - c}$$

$$\sqrt{4^2 + (-3)^2 - (-56)}$$

$$\sqrt{16 + 9 + 56} = \sqrt{81} = \boxed{9}$$