

Determina l'equazione della circonferenza di centro  $C$  e passante per il punto  $P$ .

207  $C(3; -2), \quad P(4; 0).$

$$[x^2 + y^2 - 6x + 4y + 8 = 0]$$

1° MODO (LORENZO M.)

Calcolo  $\overline{CP}$ , usi il raggio

$$r = \overline{CP} = \sqrt{(3-4)^2 + (-2-0)^2} = \sqrt{1+4} = \sqrt{5}$$

$$(x-\alpha)^2 + (y-\beta)^2 = r^2 \Rightarrow (x-3)^2 + (y+2)^2 = (\sqrt{5})^2$$

$$x^2 + 9 - 6x + y^2 + 4 + 4y - 5 = 0$$

$$\boxed{x^2 + y^2 - 6x + 4y + 8 = 0}$$

2° MODO (OLGA)

$$-\frac{a}{2} = 3 \quad -\frac{b}{2} = -2 \Rightarrow a = -6 \quad b = 4$$

coordinate del centro  $r = \overline{CP} = \dots = \sqrt{5}$  (come prima)

$$r^2 = \alpha^2 + \beta^2 - c \Rightarrow c = \alpha^2 + \beta^2 - r^2 = 9 + 4 - 5 = 8$$

$$\left. \begin{array}{l} a = -6 \\ b = 4 \\ c = 8 \end{array} \right\} \Rightarrow \boxed{x^2 + y^2 - 6x + 4y + 8 = 0}$$

3° MODO (RICCARDO)

$$-\frac{a}{2} = 3 \quad -\frac{b}{2} = -2 \Rightarrow a = -6 \quad b = 4$$

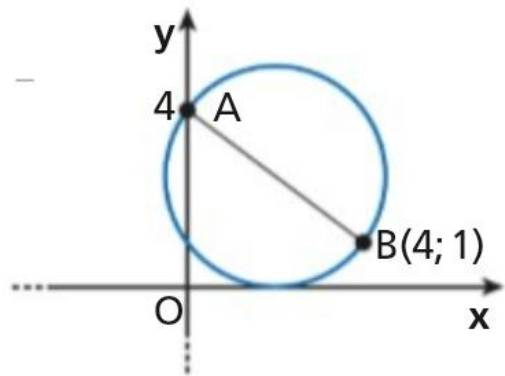
coordinate del centro

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

$$P(4,0) \Rightarrow 4^2 + 0^2 - 6 \cdot 4 + 4 \cdot 0 + c = 0 \quad 16 - 24 + c = 0$$

$$\Rightarrow c = 8$$

$$\boxed{x^2 + y^2 - 6x + 4y + 8 = 0}$$



$$[x^2 + y^2 - 4x - 5y + 4 = 0]$$

TROVARE L'EQ. DELLA  
CIRCONFERENZA

$$A(0, 4) \quad B(4, 1) \quad \text{DIAMETRO}$$

$$\text{raggio } r = \frac{\overline{AB}}{2} = \frac{\sqrt{4^2 + 3^2}}{2} = \frac{5}{2}$$

$$\text{centro } C\left(\frac{0+4}{2}, \frac{4+1}{2}\right) \quad \text{PUNTO MEZZO DI AB}$$

$$C\left(2, \frac{5}{2}\right)$$

$$(x-2)^2 + \left(y - \frac{5}{2}\right)^2 = \frac{25}{4}$$

$$x^2 + 4 - 4x + y^2 - 5y + \frac{25}{4} = \frac{25}{4}$$

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

TROVARE L'EQ. DELLA CIRCONF. CHE PASSA PER A, B, C

$$229 \quad A(3; 4), \quad B(0; -5), \quad C(-2; -1).$$

$$[x^2 + y^2 - 6x + 2y - 15 = 0]$$

↑  
PUNTO DI PASSAGGIO  
(NON È IL CENTRO!)

$$x^2 + y^2 + ax + by + c = 0$$

$$\begin{array}{l} A(3, 4) \\ B(0, -5) \\ C(-2, -1) \end{array} \left\{ \begin{array}{l} 9 + 16 + 3a + 4b + c = 0 \\ 0 + 25 + 0 - 5b + c = 0 \\ 4 + 1 - 2a - b + c = 0 \end{array} \right. \left\{ \begin{array}{l} 25 + 3a + 4b + c = 0 \\ 25 - 5b + c = 0 \\ 5 - 2a - b + c = 0 \end{array} \right.$$

$$\left\{ \begin{array}{l} 25 + 3a + 4b + 5b - 25 = 0 \\ c = 5b - 25 \\ 5 - 2a - b + 5b - 25 = 0 \end{array} \right.$$

$$\left\{ \begin{array}{l} 9b = -3a \\ // \\ -2a + 4b - 20 = 0 \end{array} \right. \left\{ \begin{array}{l} a = -3b \\ // \\ -a + 2b - 10 = 0 \end{array} \right.$$

$$\left\{ \begin{array}{l} a = -3b \\ // \\ 3b + 2b = 10 \end{array} \right. \left\{ \begin{array}{l} a = -6 \\ c = 10 - 25 = -15 \\ b = 2 \end{array} \right.$$

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

Trovare le intersezioni fra le 2 circonferenze

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$$x^2 + y^2 - 2x + 4y - 12 = 0,$$

$$x^2 + y^2 - 8x + 14y - 20 = 0.$$

$$[A(2; 2); B(-3; -1)]$$

$$\begin{cases} x^2 + y^2 - 2x + 4y - 12 = 0 \\ x^2 + y^2 - 8x + 14y - 20 = 0 \end{cases}$$

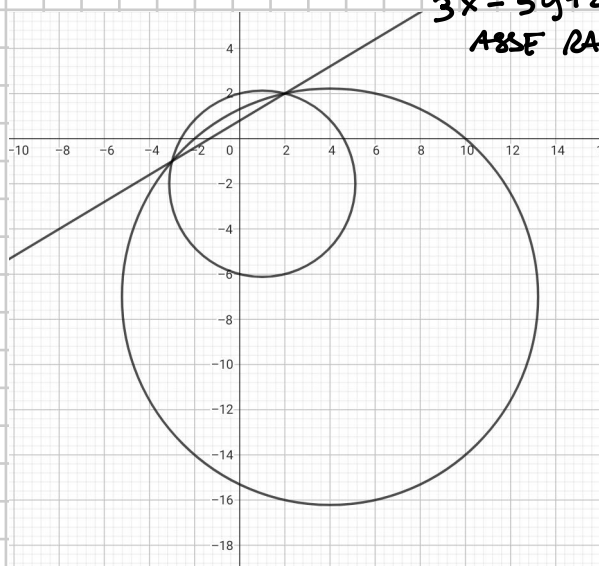
↓ SOTTRAFFO

$$\begin{aligned} // // \quad 6x - 10y + 8 &= 0 \\ 3x - 5y + 4 &= 0 \end{aligned}$$

$$\begin{cases} x^2 + y^2 - 2x + 4y - 12 = 0 \\ 3x - 5y + 4 = 0 \end{cases}$$

ASSE RADICALE

$$\begin{cases} \left(\frac{5y-4}{3}\right)^2 + y^2 - 2\frac{5y-4}{3} + 4y - 12 = 0 \\ x = \frac{5y-4}{3} \end{cases}$$



$$\frac{25y^2 + 16 - 40y}{9} + y^2 - \frac{10y - 8}{3} + 4y - 12 = 0$$

$$\frac{25y^2 + 16 - 40y + 9y^2 - 30y + 24 + 36y - 108}{9} = 0$$

$$34y^2 - 34y - 68 = 0$$

$$y^2 - y - 2 = 0$$

$$(y-2)(y+1) = 0 \begin{cases} \nearrow y=2 \Rightarrow x=2 \\ \searrow y=-1 \Rightarrow x=-3 \end{cases}$$

$$A(2, 2) \quad B(-3, -1)$$