Trovare l'eq. della circonf. di centro

$C(-1,-2)$ e raggio $r=5$

$$(x-\alpha)^2 + (y-\beta)^2 = r^2$$

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

$$x^2 + 2x + 1 + y^2 + 4y + 4 - 25 = 0$$

$$x^2 + y^2 + 2x + 4y - 20 = 0$$

Eq. circonf. centro $C(0,3)$

e passante per $P(2,-1)$

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

$$= \sqrt{4+16} = \sqrt{20}$$

$$(x-0)^2 + (y-3)^2 = 20$$

$$x^2 + y^2 - 6y + 9 - 20 = 0$$

$$\boxed{x^2 + y^2 - 6y - 11 = 0}$$

Dire se le seguenti equazioni rappresentano circonferenze

$$x^2 + y^2 + 2xy + 3 = 0 \quad \textcolor{red}{NO}$$

$$3x^2 - 3y^2 + x + y + 1 = 0 \quad \textcolor{red}{NO}$$

$$-3x^2 - 3y^2 + x + y + 1 = 0 \quad \textcolor{red}{SI}$$

↳ DIVIDO per -3

$$x^2 + y^2 - \frac{1}{3}x - \frac{1}{3}y - \frac{1}{3} = 0 \qquad C\left(\frac{1}{6}, \frac{1}{6}\right)$$

$$R = \sqrt{\left(\frac{1}{6}\right)^2 + \left(\frac{1}{6}\right)^2 + \frac{1}{3}} = \sqrt{\frac{7}{18}}$$

$x^2 + y^2 + 1 = 0$ $\underline{\underline{NO}}$ $C(0,0)$ $r = \cancel{\sqrt{-1}}$

$x^2 + y^2 - 1 = 0$ SI $C(0,0)$ $r = 1$

$\begin{cases} 6x^2 + 6y^2 - 2 = 0 \\ \searrow diviso\ per\ 6 \end{cases}$

$x^2 + y^2 - \dfrac{1}{3} = 0$ $\qquad C(0,0)$ $r = \sqrt{0^2 + 0^2 + \dfrac{1}{3}} = \sqrt{\dfrac{1}{3}}$

$$5x^2 + 5y^2 - x - 2y + 2 = 0 \quad \textcolor{red}{NO}$$

$$\hookrightarrow x^2 + y^2 - \frac{1}{5}x - \frac{2}{5}y + \frac{2}{5} = 0$$

$$C\left(\frac{1}{10}, \frac{1}{5}\right) \quad R = \sqrt{\frac{1}{100} + \frac{1}{25} - \frac{2}{5}} =$$

$$= \sqrt{\frac{\textcolor{red}{1 + 4 - 40}}{100}} \textcolor{red}{< 0}$$

$$(x-1)^2 + y^2 = 4 \quad \textcolor{red}{SI}$$

$$\hookrightarrow (x-1)^2 + (y-0)^2 = 2^2 \quad C(1,0) \quad R = 2$$

$$x^2 + (y-2)^2 + 9 = 0 \qquad \text{NO}$$

$$x^2 + (y-2)^2 = -9$$

$$x^2 + 2y^2 + x + 3y - 5 = 0 \qquad \text{NO}$$

$$x^2 + y^2 - x + y + 1 = 0 \qquad \text{NO} \qquad C\left(\tfrac{1}{2}, -\tfrac{1}{2}\right) \qquad r = \sqrt{\tfrac{1}{4} + \tfrac{1}{4} - 1} \quad 0$$

$$x^2 + y^2 - 2x - 2y - 2 = 0 \quad \text{SÌ}$$

$$C(1,1) \qquad r = \sqrt{1+1+2} = \sqrt{4} = 2$$

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

$$(-3y-4)^2 + y^2 + 4(-3y-4) - 2y = 0$$

$$9y^2 + \cancel{16} + 24y + y^2 - 12y - \cancel{16} - 2y = 0$$

$$10y^2 + 10y = 0 \rightsquigarrow y^2 + y = 0$$

$$y(y+1) = 0$$

$$\begin{cases} y=0 \\ x=-4 \end{cases} \quad \begin{cases} y=-1 \\ x=-1 \end{cases}$$

$$A(-4,0) \quad B(-1,-1)$$

SECANTE