

ES PAG 263 N 3

$$C(2; -3) \quad r=4$$

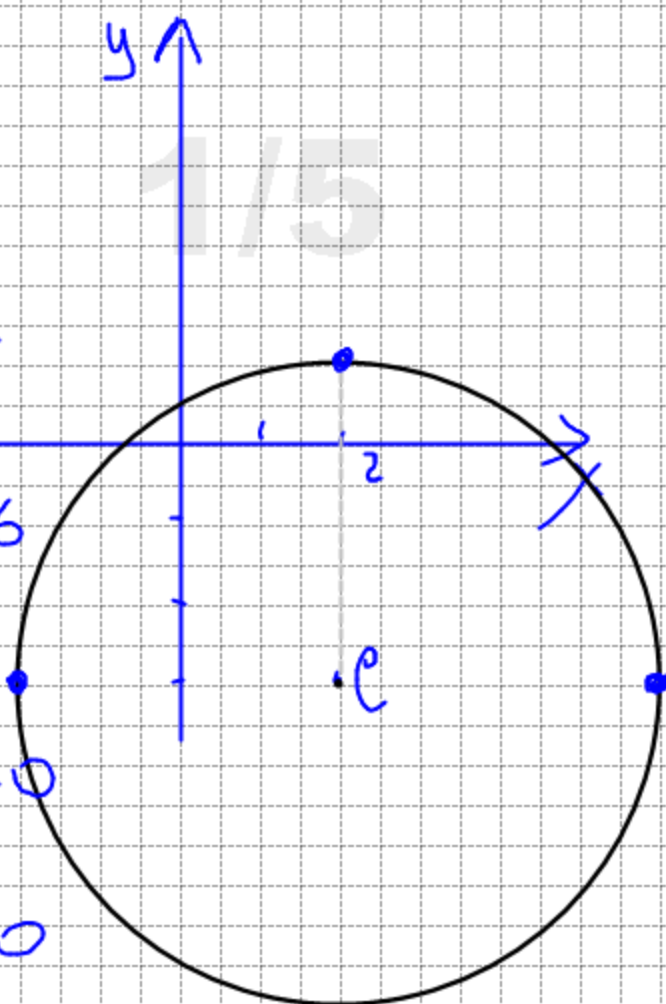
$$(x-x_c)^2 + (y-y_c)^2 = r^2$$

$$(x-2)^2 + (y-(-3))^2 = 16$$

$$x^2 + 4 - 4x + (y+3)^2 = 16$$

$$x^2 + 4 - 4x + y^2 + 9 + 6y - 16 = 0$$

$$x^2 + y^2 - 4x + 6y - 3 = 0$$



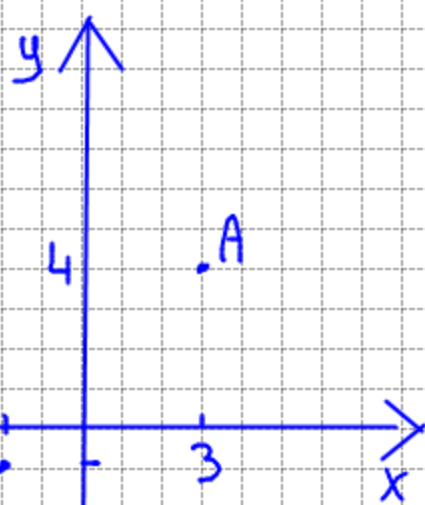
ES

Scrivere eq. C di pass. per A(3;4) B(9;-5)

$$C(-2; -1)$$

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

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



$$\begin{array}{l}
 r_1 \\
 r_2 \\
 r_3
 \end{array}
 \left\{
 \begin{array}{l}
 3a + 4b + c + 25 = 0 \\
 -5b + c + 25 = 0 \\
 -2a - b + c + 5 = 0
 \end{array}
 \right.$$

$$\begin{array}{l}
 r_1 - r_2 \\
 r_2 - r_3 \\
 r_2
 \end{array}
 \left\{
 \begin{array}{l}
 3a + 9b = 0 \\
 2a - 4b + 20 = 0 \\
 c = -25 + 5b
 \end{array}
 \right.$$

$$\left\{
 \begin{array}{l}
 a = -3b \\
 2(-3b) - 4b + 20 = 0 \\
 c = -25 + 5b
 \end{array}
 \right.
 \left\{
 \begin{array}{l}
 a = -6 \\
 b = 2 \\
 c = -25 + 10 = -15
 \end{array}
 \right.$$

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

$$C\left(-\frac{6}{2}, -\frac{2}{2}\right) \rightarrow C(3; -1)$$

$$r = \sqrt{(3)^2 + (-1)^2 + 15} =$$

$$= \sqrt{9 + 1 + 15} = 5$$

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$C(-1; 1)$ e passante per $A(0; -2)$

$$\begin{aligned} r = \overline{CA} \quad \overline{CA} &= \sqrt{(x_C - x_A)^2 + (y_C - y_A)^2} = \\ &= \sqrt{(-1 - 0)^2 + (1 - (-2))^2} = \\ &= \sqrt{(-1)^2 + (1+2)^2} = \\ &= \sqrt{1+9} = \sqrt{10} \end{aligned}$$

$$r = \sqrt{10} \quad C(-1; 1)$$

$$(x+1)^2 + (y-1)^2 = 10$$

PAG 264 N 18

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

$$C\left(-\frac{2k}{2}; -\frac{1}{2}\right) \quad r > 0$$

$$r = \sqrt{\left(k\right)^2 + \left(-\frac{1}{2}\right)^2 + 4} > 0$$

$$k^2 + \frac{1}{4} + 4 > 0$$

$$k^2 + \frac{17}{4} > 0 \quad \text{sempre } \forall k \in \mathbb{R}$$

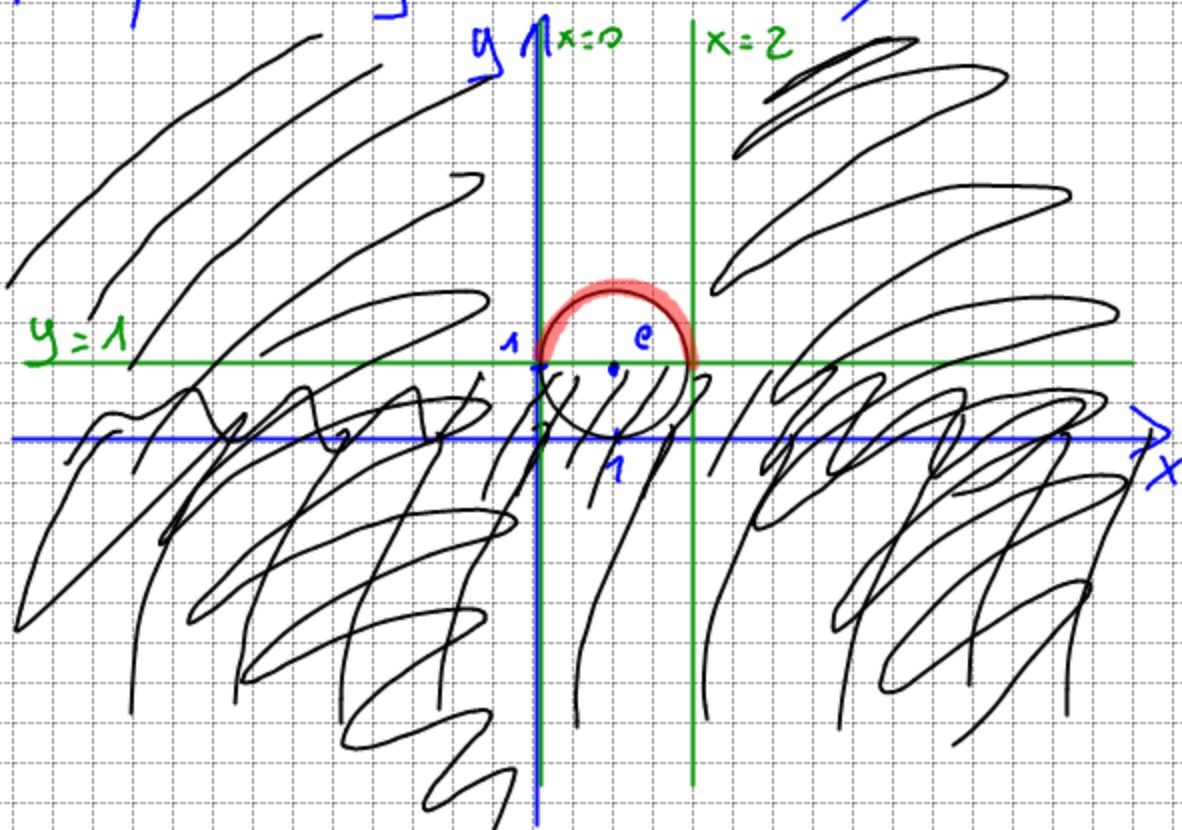
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$$y = 1 + \sqrt{2x - x^2}$$

$$y - 1 = \sqrt{2x - x^2} \Leftrightarrow \begin{cases} y - 1 \geq 0 \\ 2x - x^2 \geq 0 \\ (y-1)^2 = 2x - x^2 \end{cases}$$

$$\begin{cases} y \geq 1 \\ 0 \leq x \leq 2 \end{cases}$$

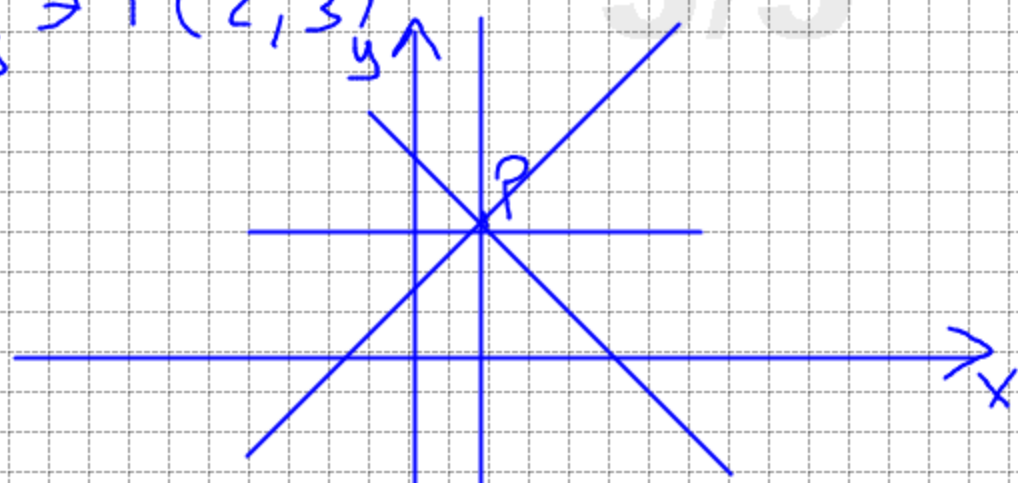
$$x^2 + y^2 - 2x - 2y + 1 = 0 \quad C(1; 1) \quad r = 1$$



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eq 18 a - C: $x^2 + y^2 - 4y + 3 = 0$

$r_{18} \Rightarrow P(2, 3)$



$(0, 2) \quad r = \sqrt{0 + 4 - 3} = 1$

$f_p: y - y_p = m(x - x_p)$

$y - 3 = m(x - 2)$

$y = mx - 2m + 3$

$$\begin{cases} x^2 + y^2 - 4y + 3 = 0 \\ y = mx - 2m + 3 \end{cases} \quad \begin{matrix} x^2 + (mx - 2m + 3)^2 - 4(mx - 2m + 3) + 3 = 0 \end{matrix}$$

$$x^2 + m^2x^2 + 4m^2 + 9 - 4m^2x + 6mx - 12m - 4mx + 8m - 12 + 3 = 0$$

$$(1 + m^2)x^2 + (-4m^2 + 2m)x + 4m^2 - 4m = 0$$

$$\Delta = 0$$

$$(-2m^2 + m)^2 - (1 + m^2)(4m^2 - 4m) = 0$$

$$4m^4 + m^2 - 4m^3 - 4m^2 + 4m - 4m^4 + 4m^3 = 0$$

$$-3m^2 + 4m = 0 \quad m(-3m + 4) = 0$$

$m = 0$

$y = 3$

$m = \frac{4}{3}$

$3y - 4x - 1 = 0$

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$P(k-1, 2k) \in C \quad x^2 + y^2 - 2x + 2y - 10 = 0$

$$(k-1)^2 + (2k)^2 - 2(k-1) + 2(2k) - 10 = 0$$

$$k^2 + 1 - 2k + 4k^2 - 2k + 2 + 4k - 10 = 0$$

$$5k^2 - 7 = 0 \quad k_{1,2} = \pm \sqrt{\frac{7}{5}}$$

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A: $x=2$ $\in r: x+3y-11=0$ (*)

B: $x=5$

$(\in r: 2x-5y-1=0 \quad C(\alpha; \frac{2\alpha-1}{5})$

$2\alpha-5y-1=0 \quad y=\frac{2\alpha-1}{5}$

(*) A: $x_A=2 \quad 2+3y-11=0 \rightarrow 3y=9 \quad y=3$

A(2; 3)

B: $x_B=5 \quad 5+3y-11=0 \quad 3y=6 \quad y=2$

B(5; 2)

$C(\alpha; \frac{2\alpha-1}{5})$

$\overline{CA} = \overline{CB}$

$$\sqrt{(\alpha-2)^2 + \left(\frac{2\alpha-1}{5} - 3\right)^2} = \sqrt{(\alpha-5)^2 + \left(\frac{2\alpha-1}{5} - 2\right)^2}$$

$$\cancel{\alpha^2} + 4 - 4\alpha + \left(\frac{2\alpha-16}{5}\right)^2 = \cancel{\alpha^2} + 25 - 10\alpha + \left(\frac{2\alpha-11}{5}\right)^2$$

risolvere... trova α
e prosegui!

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C(-1,1) s: $2x+y-4=0$

5/5

e) pt. de int. C e r: $r = \sqrt{10}$ con s. A, B

$$\begin{cases} (x+1)^2 + (y-1)^2 = 10 \\ 2x+y-4=0 \end{cases} \quad A(0,4) \quad B(2,0)$$

b) A(0,4) B(2,0)

• eq. circunf. de la diámetro AB \Rightarrow (*)

• eq. recta radical AB \Rightarrow (*)

(*) $x^2 + y^2 - 2x - 4y = 0$

(*) $2x + y - 4 = 0$

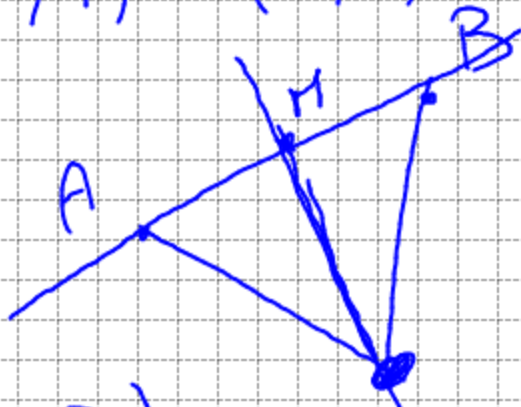
$$\lambda(x^2 + y^2 - 2x - 4y) + \mu(2x + y - 4) = 0$$

$$x^2 + y^2 - 2x + 4y + k(2x + y - 4) = 0 \cup$$

$$\cup 2x + y - 4 = 0$$

c) -----

d) A(0,4) B(2,0) $r = \sqrt{50}$



M(1, 2)

$$m_{AB} = \frac{4}{-2} = -2$$

$$m_{\perp AB} = \frac{1}{2}$$

$$y - 2 = \frac{1}{2}(x - 1)$$

$$y = \frac{1}{2}x + \frac{3}{2}$$

C(α ; $\frac{1}{2}\alpha + \frac{3}{2}$)

$\overline{CA} = \overline{CB}$

$$(\alpha - 0)^2 + \left(\frac{1}{2}\alpha + \frac{3}{2} - 4\right)^2 =$$