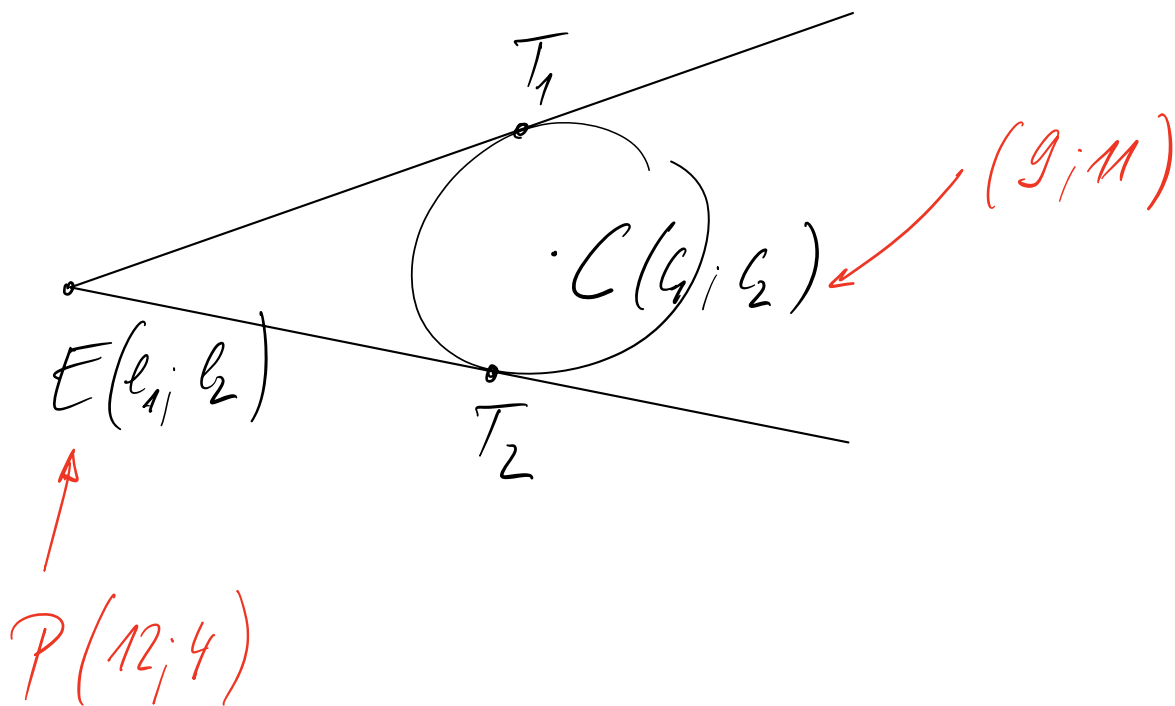


Exo 1

$$(12-9)^2 + (4-11)^2 = 9 + 49 = 56 \neq 29$$

Dans le formulaire, on trouve : $\Rightarrow E \notin \Gamma$

$$(l_2 - l_1) = m(l_1 - l_2) \pm \sqrt{2g} \cdot \sqrt{m^2 + 1}$$



$$4 - 11 = m(12 - 9) \pm \sqrt{2g} \sqrt{m^2 + 1}$$

$$-7 = 3m \pm \sqrt{2g} \sqrt{m^2 + 1}$$

$$\pm \sqrt{2g} \sqrt{m^2 + 1} = 3m + 7$$

$$29(m^2+1) = 9m^2 + 42m + 49$$

$$29m^2 + 29 = 9m^2 + 42m + 49$$

$$20m^2 - 42m - 20 = 0$$

$$10m^2 - 21m - 10 = 0$$

$$m = \frac{21 \pm \sqrt{21^2 - 4 \cdot 10 \cdot (-10)}}{20} = \frac{21 \pm 29}{20}$$

$$m_1 = \frac{50}{20} = \frac{5}{2}$$

$$m_2 = -\frac{8}{20} = -\frac{2}{5}$$

$$t_1: y = \frac{5}{2}x + h \quad \text{per } P(12; 4)$$

$$4 = 30 + h \quad / \quad h = -26$$

$$\Rightarrow \boxed{t_1: y = \frac{5}{2}x - 26}$$

$$5x - 2y - 52 = 0$$

$$t_2: y = -\frac{2}{5}x + h \text{ per } P(12; 4)$$

$$4 = -\frac{24}{5} + h \quad / \quad h = \frac{44}{5}$$

$$\Rightarrow \boxed{t_2: y = -\frac{2}{5}x + \frac{44}{5}}$$

$$2x + 5y - 44 = 0$$

Exo 2

$$a) (x+3)^2 + (y+5)^2 = 135 + 9 + 25 = 169 = 13^2$$

$$\Rightarrow C(-3; -5) \text{ et } r = 13$$

$$b) (2+3)^2 + (7+5)^2 = 5^2 + 12^2 = 25 + 144 = 169 \quad \checkmark$$

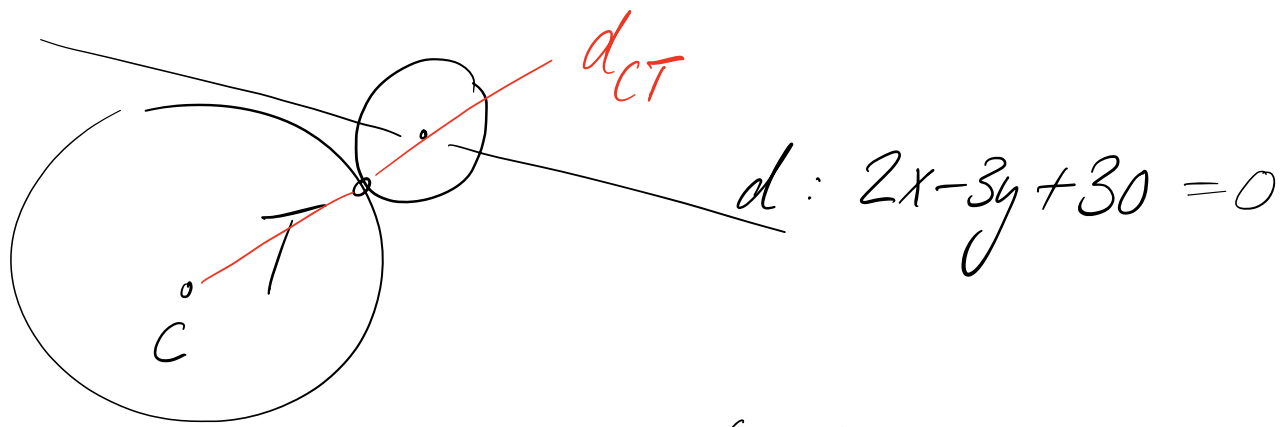
Le point T est bien sur le cercle

$$(2+3)(x+3) + (7+5)(y+5) = 169$$

$$5x + 15 + 12y + 60 = 169$$

$$\Rightarrow t: 5x + 12y - 94 = 0$$

c)



$$d_{CT}: \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -3 \\ -5 \end{pmatrix} + k \begin{pmatrix} 5 \\ 12 \end{pmatrix}$$

$$2x - 3y + 30 = 0$$

$$2(-3 + 5k) - 3(-5 + 12k) + 30 = 0$$

$$-6 + 10k + 15 - 36k + 30 = 0$$

$$39 = 26k$$

$$k = \frac{39}{26} = \frac{3}{2} = 1,5$$

$$\Rightarrow P = (-3 + 7,5; -5 + 18) = (4,5; 13)$$

$$\alpha: (x-4,5)^2 + (y-13)^2 = r^2$$

$$r = \|\vec{C_\alpha T}\| = \left\| \begin{pmatrix} -2,5 \\ -6 \end{pmatrix} \right\|$$

$$= \sqrt{\frac{5^2}{4} + 36} = \sqrt{\frac{169}{4}}$$

$$= \frac{13}{2}$$

$$\Rightarrow \alpha: (x-4,5)^2 + (y-13)^2 = \left(\frac{13}{2}\right)^2$$