

Ex 5.1.8

$$\gamma_1: x^2 + y^2 = 10x + 10y$$

$$C_1(5; 5) \quad r_1 = \sqrt{50}$$

$$\gamma_2: x^2 + y^2 + 6x + 2y = 40$$

$$C_2(-3; -1) \quad r_2 = \sqrt{50}$$

$$\vec{C_1 C_2} = \begin{pmatrix} -8 \\ -6 \end{pmatrix} \Rightarrow d(C_1, C_2) = \|\vec{C_1 C_2}\| = 10 < r_1 + r_2$$

$$\gamma_1 \cap \gamma_2: \begin{cases} x^2 + y^2 - 10x - 10y = 0 \\ x^2 + y^2 + 6x + 2y = 40 \end{cases} \stackrel{|+1|}{\Leftrightarrow} \begin{cases} x^2 + y^2 - 10x - 10y = 0 \\ 16x + 12y = 40 \end{cases}$$

$$\Leftrightarrow \begin{cases} x^2 + y^2 - 10x - 10y = 0 \\ 4x + 3y = 10 \end{cases} \Leftrightarrow y = \frac{10 - 4x}{3}$$

subst. 1^e

\Rightarrow

$$x^2 + \left(\frac{10 - 4x}{3}\right)^2 - 10x - 10\left(\frac{10 - 4x}{3}\right) = 0$$

$$x^2 + \frac{100 - 80x + 16x^2}{9} - 10x - \frac{100 - 40x}{3} = 0 \quad | \cdot 9$$

$$9x^2 + 100 - 80x + 16x^2 - 90x - 300 + 120x = 0$$

$$25x^2 - 50x - 200 = 0$$

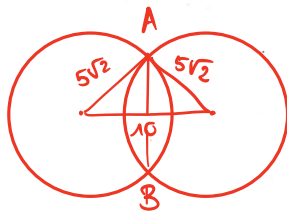
$$x^2 - 2x - 8 = 0$$

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

$$x = \begin{cases} -2 \Rightarrow y = \frac{10+8}{3} = 6 \Rightarrow A(-2; 6) \\ 4 \Rightarrow y = \frac{10-16}{3} = -2 \Rightarrow B(4; -2) \end{cases}$$

$$\|\vec{AB}\| = \left\| \begin{pmatrix} 6 \\ -8 \end{pmatrix} \right\| = \sqrt{36 + 64} = \underline{\underline{10}}$$

Avec la trigo :



$$h^2 = (5\sqrt{2})^2 - 5^2 = 50 - 25 = 25$$

$$\Rightarrow h = 5$$

$$\Rightarrow AB = 10$$