

Exemple: Soit  $d: y - 2x + 1 = 0$

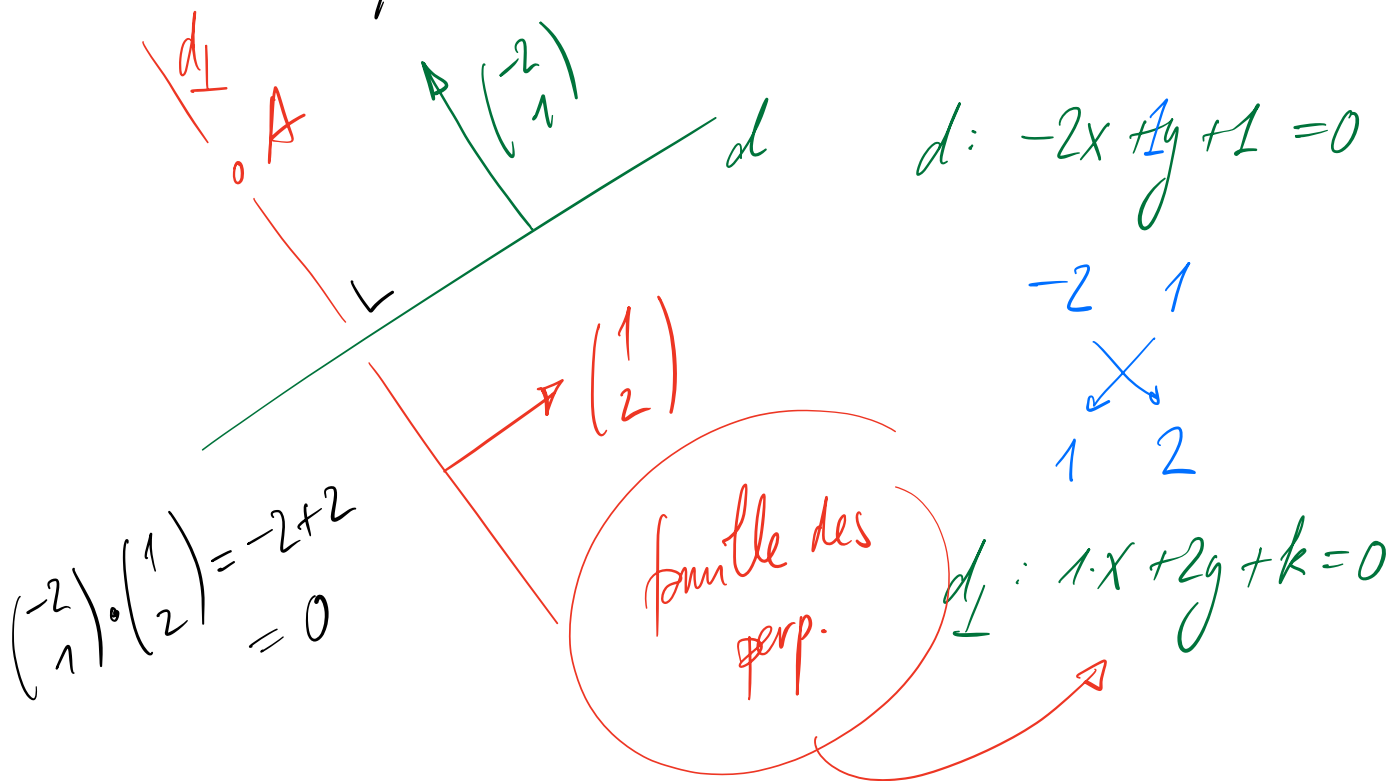
et  $A(-10; 12)$

$A \notin d$

car  $12 - 2 \cdot (-10) + 1 \neq 0$

$A$  n'est pas sur  $d$

Trouver l'éq. de la perpendiculaire à  $d$  par  $A$ .



$d_{\perp}$  passe par  $A(-10; 12)$ :

$$-10 + 2 \cdot 12 + k = 0$$

$$14 + k = 0$$

$$k = -14$$

$$\Rightarrow \boxed{d_{\perp}: x + 2y - 14 = 0}$$

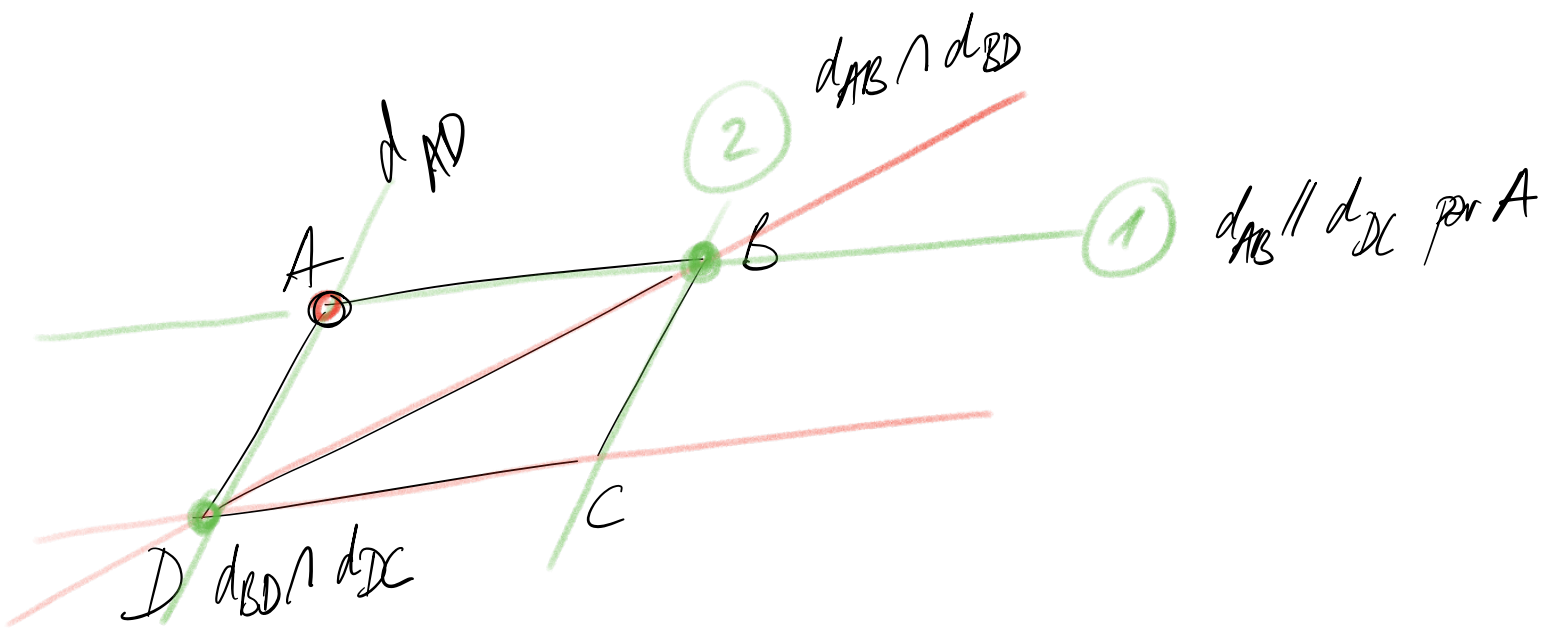
$$2x + by + c = 0$$

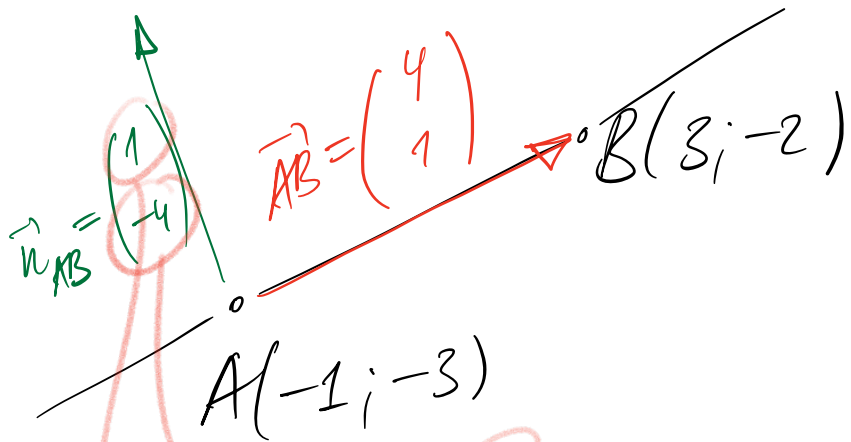
perpendiculaires

parallèles

$$bx - 2y + m = 0$$

$$2x + by + k = 0$$





$$d_{AB} : \begin{pmatrix} x \\ y \end{pmatrix} = A + k \vec{AB}$$

peran.

$$d_{AB} : x - 4y + k = 0 \quad \text{per } A(-1; -3)$$

$$(-1) - 4(-3) + k = 0$$

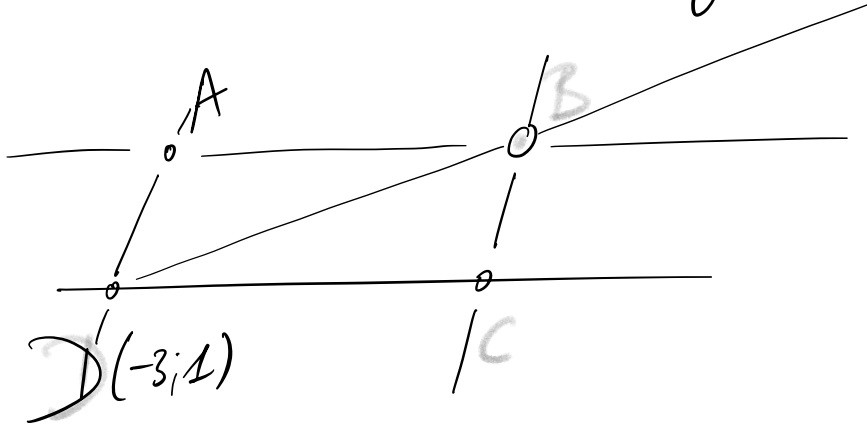
$$-1 + 12 + k = 0 \quad | \quad k = -11$$

$$d_{AB} : x - 4y - 11 = 0$$

$$A(8;0)$$

$$d_{CD}: x - 2y + 5 = 0$$

$$d_{BD}: 6x - 25y = -43$$



$$D: d_{CD} \wedge d_{BD}$$

$$\begin{cases} x - 2y + 5 = 0 \\ 6x - 25y + 43 = 0 \end{cases} \quad \begin{cases} 6x - 12y + 30 = 0 \\ 6x - 25y + 43 = 0 \end{cases} \quad \begin{cases} 13y - 13 = 0 \\ y = 1 \\ x = -3 \end{cases}$$

$$D(-3;1)$$

$$d_{AD}: \vec{AD} = \begin{pmatrix} -11 \\ 1 \end{pmatrix}$$

$$\vec{n} = \begin{pmatrix} 1 \\ 11 \end{pmatrix}$$

$$x + 11y + k = 0 \quad \text{per } D(-3;1)$$

$$-3 + 11 + k = 0 \quad | \quad k = -8$$

$$d_{AD}: x + 11y - 8 = 0$$

$$d_{AB} \wedge d_{CD} \quad \text{per } A(8;0)$$

$$d_{AB}: x - 2y + k = 0$$

$$8 - 2 \cdot 0 + k = 0 \quad | \quad k = -8$$

$$d_{AB}: x - 2y - 8 = 0$$

$$\mathcal{B} = d_{BD} \cap d_{AB}$$

$$\mathcal{B}(22; 7)$$

$$\begin{cases} 6x - 25y + 43 = 0 \\ x - 2y - 8 = 0 \end{cases}$$

$$\begin{cases} 6(2y+8) - 25y + 43 = 0 \\ x = 2y + 8 \end{cases}$$

$$-13y + 91 = 0 \quad | y = 7$$

$d_{BC} \parallel d_{AD}$  per  $\mathcal{B}$

$$d_{BC}: x + 11y + k = 0 \quad \text{per } (22; 7)$$

$$22 + 77 + k = 0 \quad | \quad k = -99$$

$$\Rightarrow d_{BC}: x + 11y - 99 = 0$$

