

1.3.1 à 1.3.5

1.3.7 à 1.3.16

TE VECTEURS

05/05/2025

1.3.18

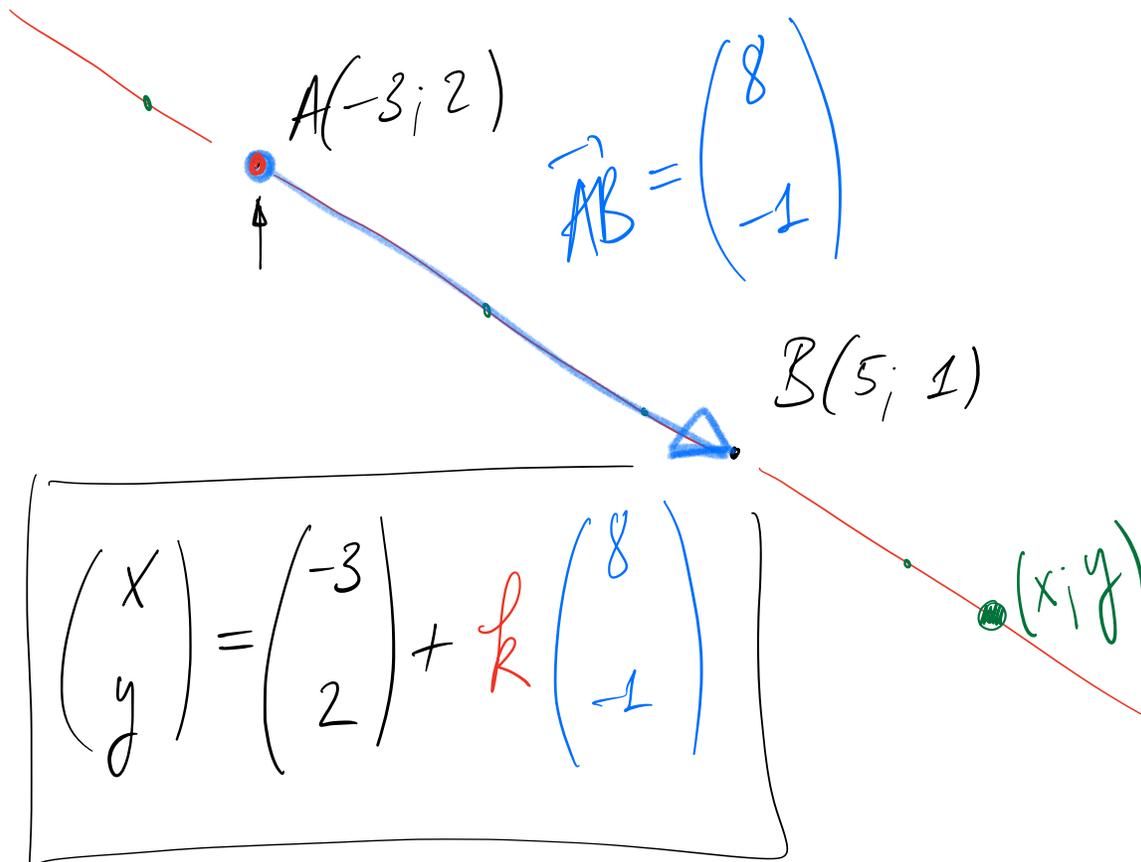
1.3.19

1.3.20

Alignement

colinéarité, coplanarité

Milieu



1.3.14

Équation de d_{AB}

Équation d'une droite dans le plan

$$d: \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -3 \\ 2 \end{pmatrix} + k \begin{pmatrix} 8 \\ -1 \end{pmatrix}$$

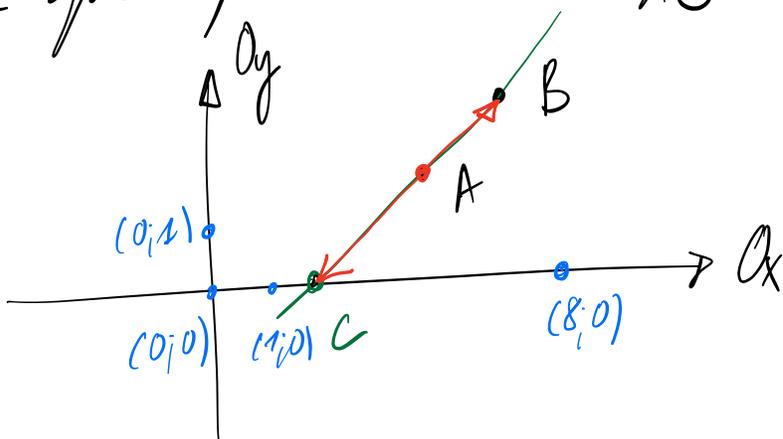
$$d: \begin{cases} x = -3 + k \cdot 8 \\ y = 2 + k(-1) \end{cases} \Leftrightarrow \begin{cases} x = -3 + 8k \\ y = 2 - k \end{cases}$$

1.3.14

Équation
de la droite
 d_{AB}

$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 7 \\ -3 \end{pmatrix} + k \begin{pmatrix} 16 \\ -3 \end{pmatrix}$$

En quel point la droite d_{AB} coupe l'axe Ox ?



$(x; y)$ sur Ox
 $\Rightarrow y = 0$

$$\textcircled{1} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 7 \\ -3 \end{pmatrix} + k \begin{pmatrix} 16 \\ -3 \end{pmatrix}$$

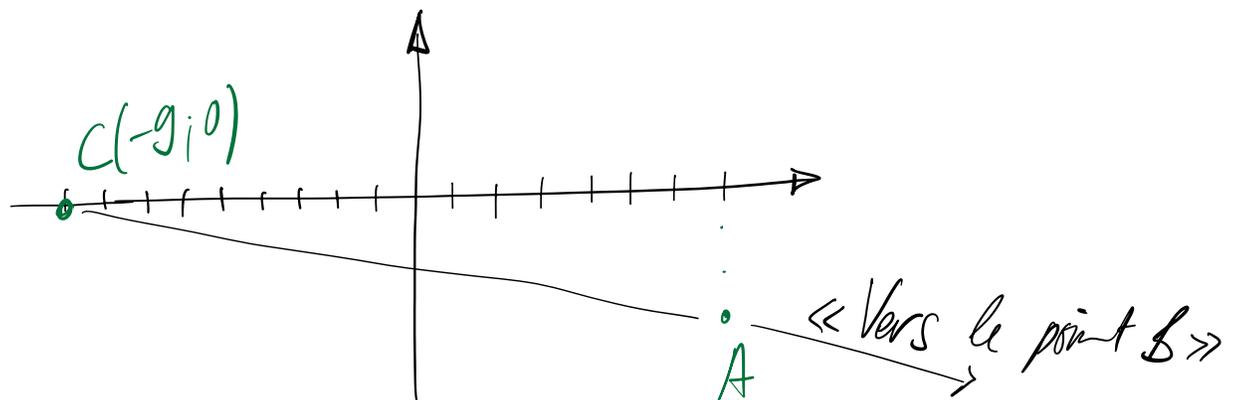
Tous les points alignés avec A et B

$$\textcircled{2} \text{ Sur } Ox \Rightarrow y = 0$$

$$\textcircled{1} \begin{cases} x = 7 + 16k \\ y = -3 - 3k \end{cases} \quad \textcircled{2} y = 0$$

$$\begin{cases} x = 7 + 16k \\ 0 = -3 - 3k \Rightarrow 3k = -3 \Rightarrow k = -1 \end{cases}$$

$$x = 7 - 16 \quad \boxed{x = -9}$$



1.3.15

$A(-2; 14) \quad B(6; -2) \quad \vec{AB} = \begin{pmatrix} 8 \\ -16 \end{pmatrix}$

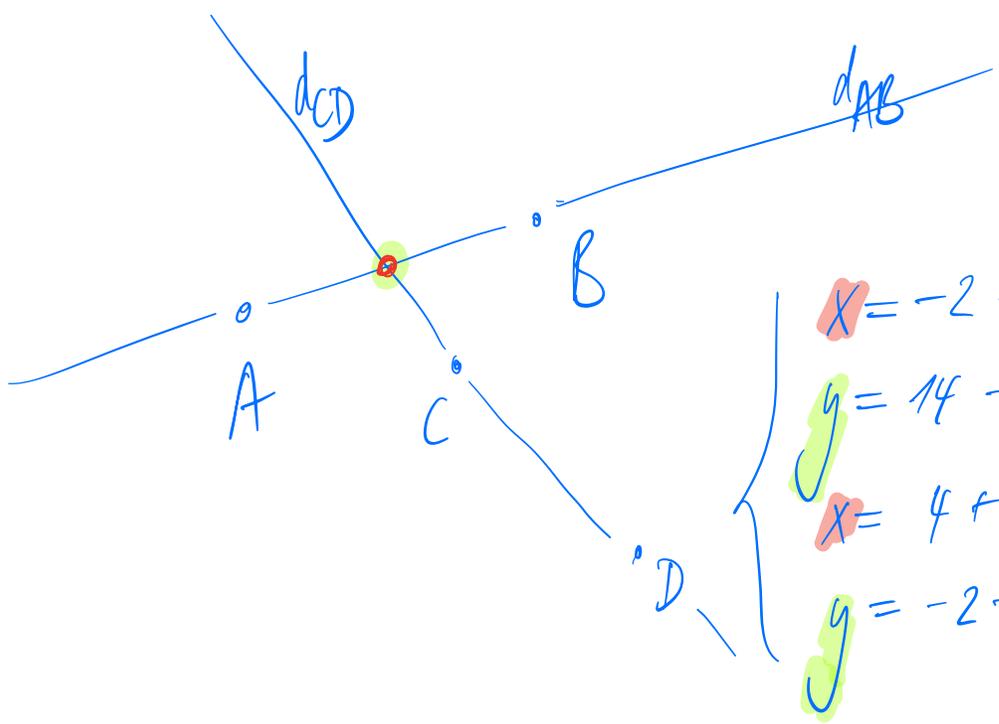
$d_{AB}: \begin{pmatrix} x \\ y \end{pmatrix} = A + k \cdot \vec{AB} \quad \text{(Eq}_1) \quad \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -2 \\ 14 \end{pmatrix} + k \begin{pmatrix} 8 \\ -16 \end{pmatrix}$

$x = -2 + 8k$
 $y = 14 - 16k$

$C(4; -2) \quad D(6; 10) \quad \vec{CD} = \begin{pmatrix} 2 \\ 12 \end{pmatrix}$

$d_{CD}: \begin{pmatrix} x \\ y \end{pmatrix} = C + l \cdot \vec{CD} \quad \text{(Eq}_2) \quad \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} + l \begin{pmatrix} 2 \\ 12 \end{pmatrix}$

$x = 4 + 2l$
 $y = -2 + 12l$



$x = -2 + 8k$
 $y = 14 - 16k$
 $x = 4 + 2l$
 $y = -2 + 12l$

$\begin{cases} -2 + 8k = 4 + 2l \\ 14 - 16k = -2 + 12l \end{cases}$

$\begin{cases} 8k - 2l = 6 \\ 16k + 12l = 16 \end{cases}$

$\begin{cases} 4k - l = 3 \\ 4k + 3l = 4 \end{cases}$

$4l = 1 \quad l = \frac{1}{4}$

$4k - \frac{1}{4} = 3$

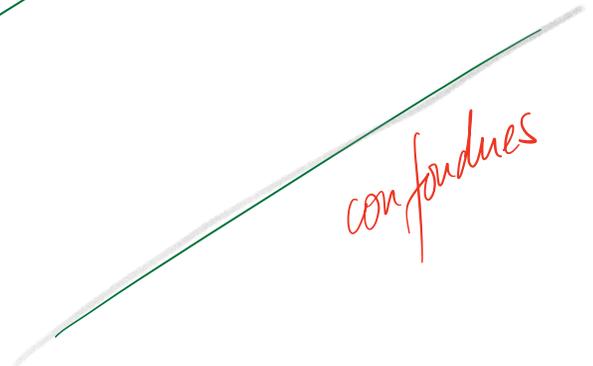
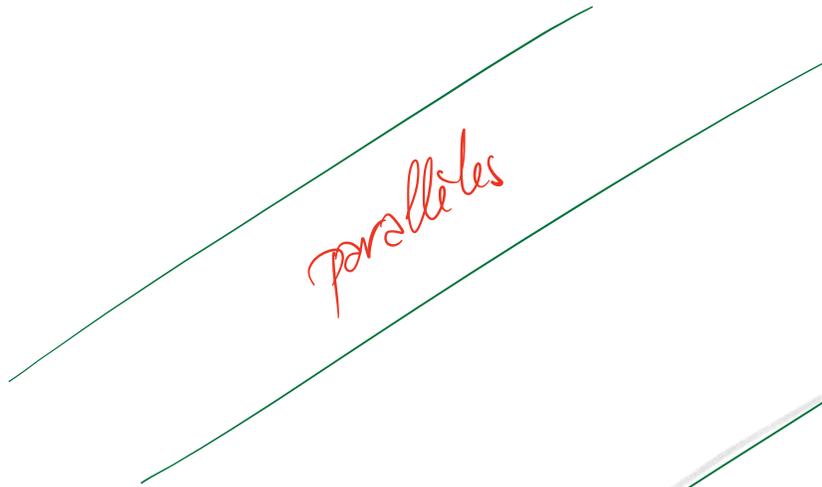
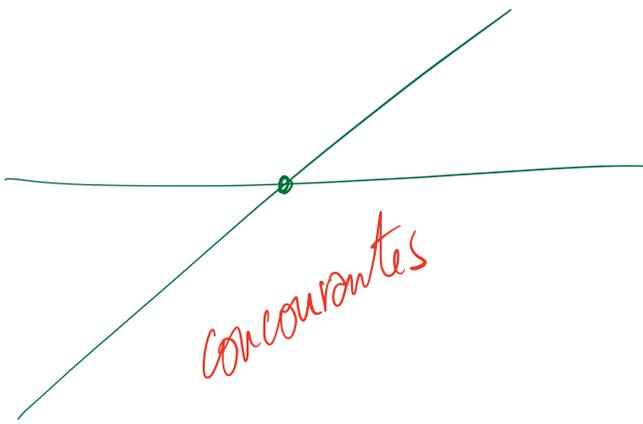
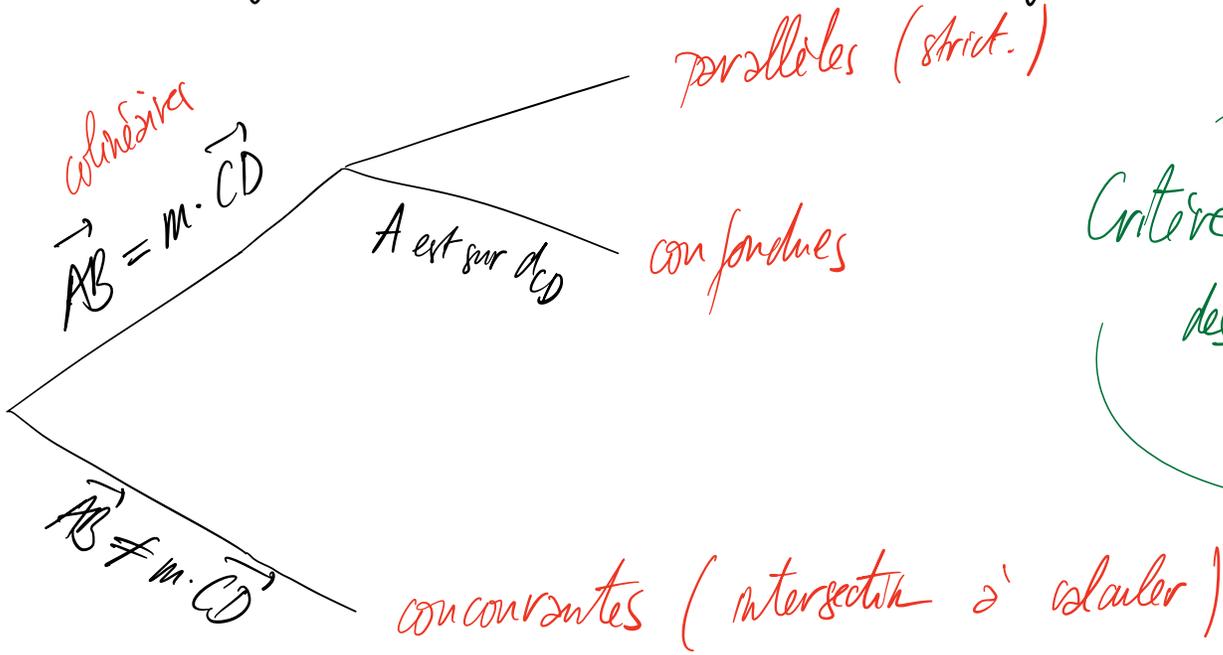
$4k = \frac{13}{4} \quad k = \frac{13}{16}$

$$\Rightarrow \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -2 \\ 14 \end{pmatrix} + \frac{13}{16} \cdot \begin{pmatrix} 8 \\ -16 \end{pmatrix} = \begin{pmatrix} -2 + \frac{13}{2} \\ 14 - 13 \end{pmatrix} \\ = \begin{pmatrix} 4,5 \\ 1 \end{pmatrix}$$

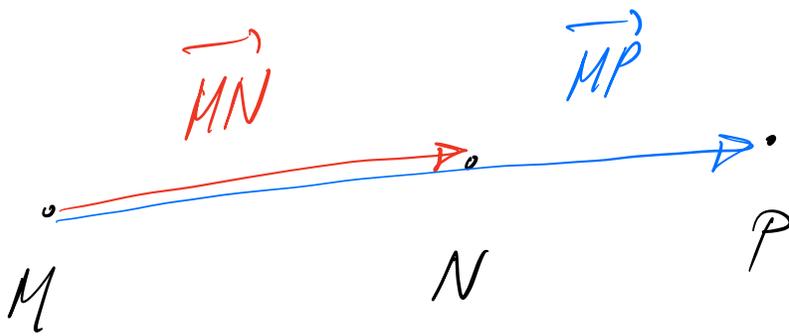
$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} + \frac{1}{4} \begin{pmatrix} 2 \\ 12 \end{pmatrix} = \begin{pmatrix} 4 + \frac{1}{2} \\ -2 + 3 \end{pmatrix} = \begin{pmatrix} 4,5 \\ 1 \end{pmatrix}$$

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

$$d_{CD} : \begin{pmatrix} x \\ y \end{pmatrix} = C + l \cdot \vec{CD}$$



1.3.11



$$\vec{MN} = \begin{pmatrix} -18 \\ -12 \\ 21 \end{pmatrix}$$

$$\vec{MP} = \begin{pmatrix} -51 \\ 34 \\ 58 \end{pmatrix}$$

M, N et P alignés

\Leftrightarrow

\vec{MN} et \vec{MP} colinéaires

\Leftrightarrow

$$\vec{MN} = k \cdot \vec{MP}$$

$$\begin{pmatrix} -18 \\ -12 \\ 21 \end{pmatrix} = k \begin{pmatrix} -51 \\ 34 \\ 58 \end{pmatrix} \Leftrightarrow$$

$$-18 = -51k$$

$$-12 = 34k$$

$$21 = 58k$$

$$\begin{cases} -2 + 8k = 4 + 2l \\ 14 - 16k = -2 + 12l \end{cases}$$

$$L_2 \leftarrow L_2 + 2L_1$$