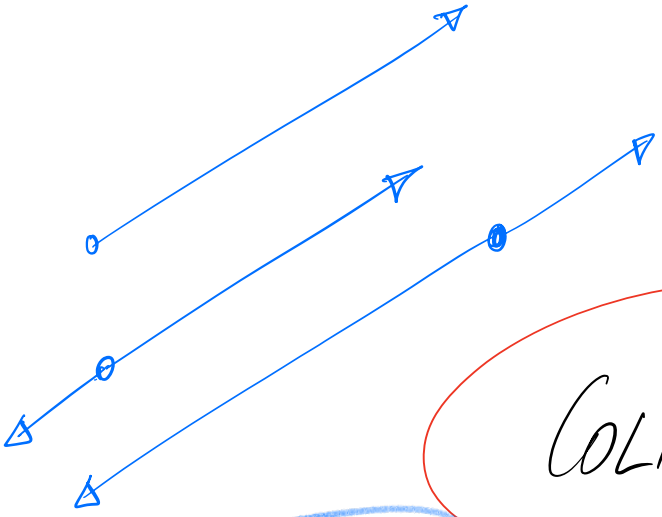


ALIGNÉS

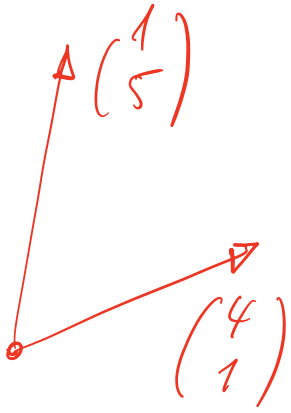
COLINÉARITÉ

PARALLÈLES

$\begin{pmatrix} -4 \\ -2 \end{pmatrix}$ $\begin{pmatrix} -2 \\ -1 \end{pmatrix}$

$\begin{pmatrix} 4 \\ 2 \end{pmatrix}$ $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$

COLINÉAIRES



$1 = \frac{1}{4} \cdot 4$

$5 = 5 \cdot 1$

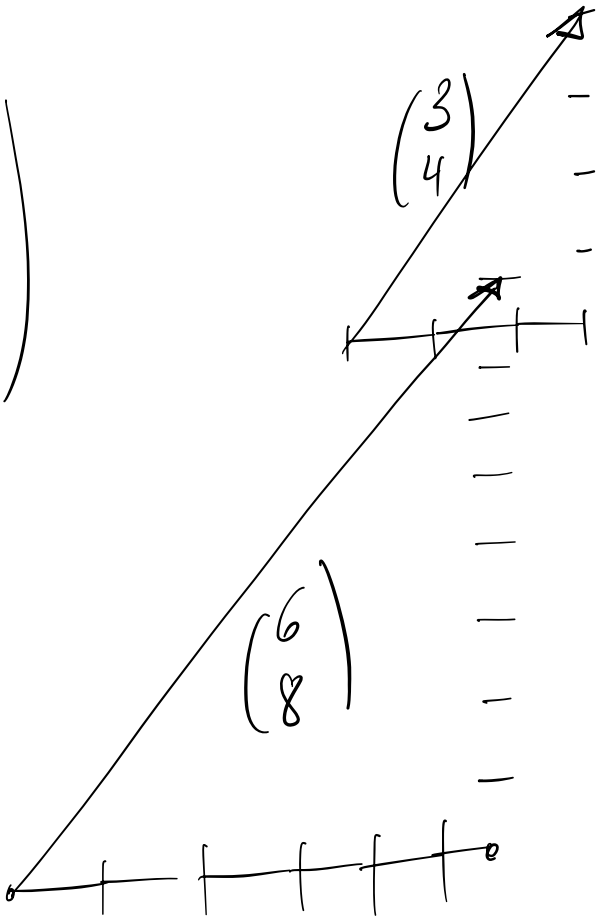
$\begin{pmatrix} 1 \\ 5 \end{pmatrix}$ $\begin{pmatrix} 4 \\ 1 \end{pmatrix}$

NON COLINÉAIRES

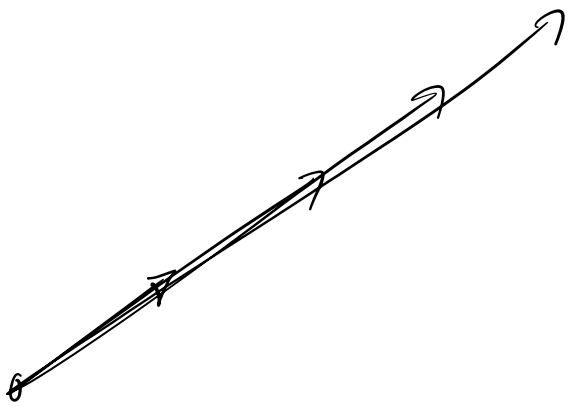
$$\begin{pmatrix} 1 \\ 5 \end{pmatrix} = 2 \begin{pmatrix} 1 \\ 5 \end{pmatrix} = \begin{pmatrix} 2 \\ 10 \end{pmatrix}$$

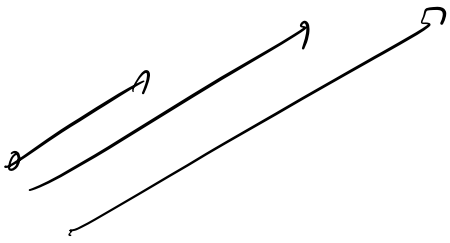
$\begin{pmatrix} 1 \\ 5 \end{pmatrix}$ et $\begin{pmatrix} 2 \\ 10 \end{pmatrix}$ colinéaires

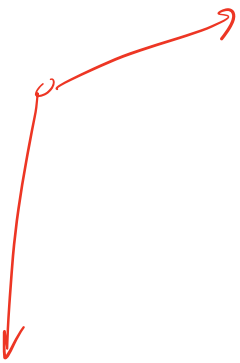
$$\begin{pmatrix} 3 \\ 4 \end{pmatrix}$$



$$2 \cdot \begin{pmatrix} 3 \\ 4 \end{pmatrix} = \begin{pmatrix} 6 \\ 8 \end{pmatrix}$$







$\begin{pmatrix} a \\ b \end{pmatrix}$ et $\begin{pmatrix} c \\ d \end{pmatrix}$ sont colinéaires

ssi $\begin{pmatrix} a \\ b \end{pmatrix} = k \begin{pmatrix} c \\ d \end{pmatrix} = \begin{pmatrix} kc \\ kd \end{pmatrix}$

$\begin{pmatrix} 0,43 \\ -0,57 \end{pmatrix}$ et $\begin{pmatrix} -1 \\ 1,29 \end{pmatrix}$

$\begin{pmatrix} m \\ m-1 \end{pmatrix}$ et $\begin{pmatrix} -1 \\ 3m \end{pmatrix}$ m inconnu

$$\begin{vmatrix} m & -1 \\ m-1 & 3m \end{vmatrix} = m \cdot 3m - (m-1) \cdot (-1)$$

$$= 3m^2 + m - 1 = 0$$

Pour que les vecteurs soient colinéaires.

$\Delta = 1 - 4 \cdot 3 \cdot (-1) = 1 + 12 = 13$

$m = \dfrac{-1 \pm \sqrt{13}}{6} \simeq$

$\dfrac{-1 + 3,6}{6} \simeq \dfrac{2,6}{6} \simeq \boxed{0,43}$

$\dfrac{-1 - 3,6}{6} \simeq \dfrac{-4,6}{6} \simeq \boxed{0,76}$

Critère $\begin{pmatrix} a \\ b \end{pmatrix}$ et $\begin{pmatrix} c \\ d \end{pmatrix}$ sont

colinéaires $\Leftrightarrow \begin{vmatrix} a & c \\ b & d \end{vmatrix} = a \cdot d - b \cdot c$

$= 0$

Exemples:

$\begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$ $\begin{pmatrix} c \\ d \end{pmatrix} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$

$\begin{vmatrix} 1 & 3 \\ 2 & 4 \end{vmatrix} = 1 \cdot 4 - 2 \cdot 3 = 4 - 6 = -2 \neq 0$

$\begin{pmatrix} 1 \\ 2 \end{pmatrix}$ $\begin{pmatrix} -4 \\ -8 \end{pmatrix}$ $\begin{vmatrix} 1 & -4 \\ 2 & -8 \end{vmatrix} = -8 - 2 \cdot (-4)$

$= -8 + 8 = 0$