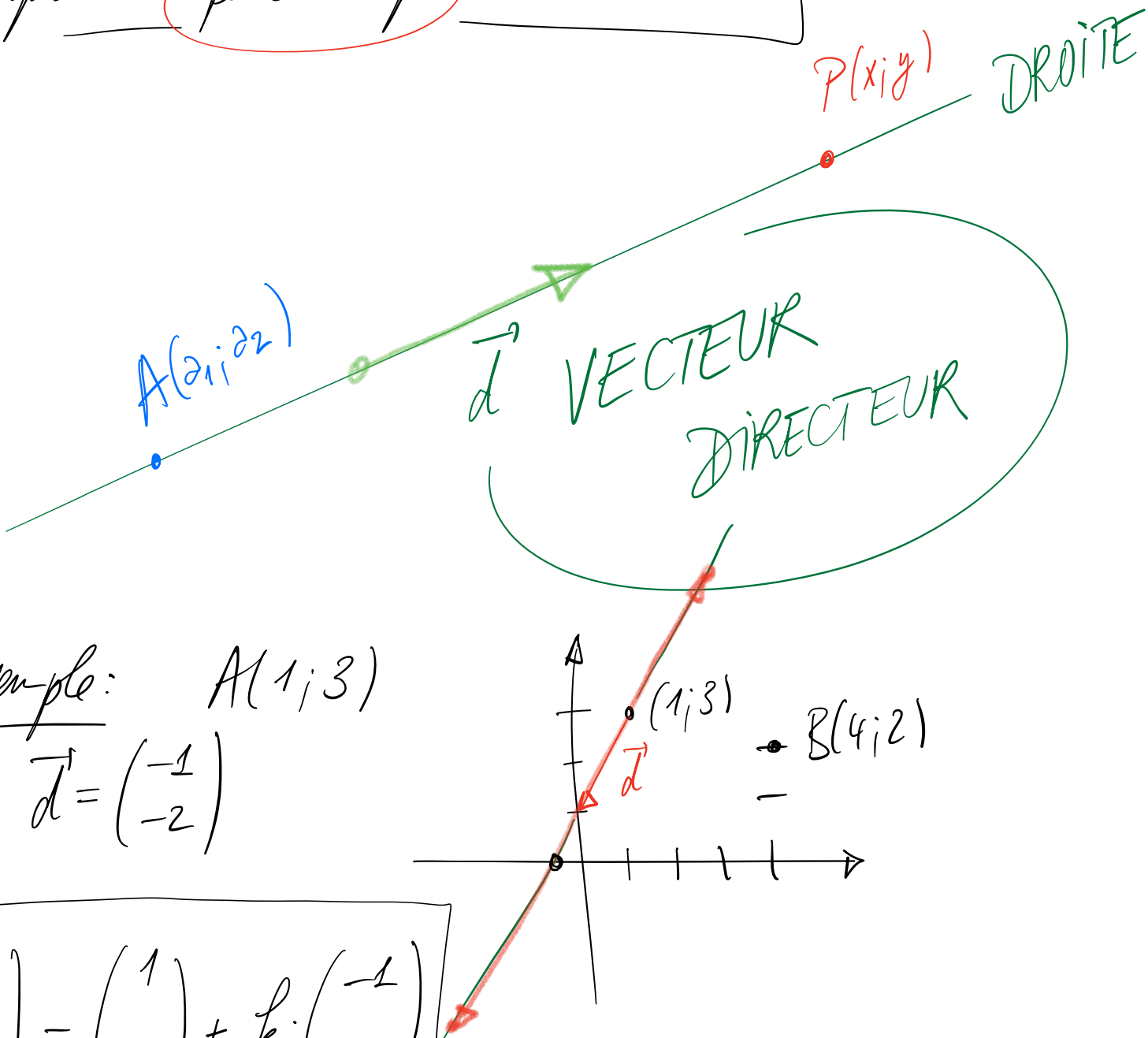
Equation paramétrique d'une droite



Exemple : $A(1;3)$

$\vec{d} = \begin{pmatrix} -1 \\ -2 \end{pmatrix}$

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

ÉQUATIONS PARAMÉTRIQUES

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

DROITE $\longleftrightarrow$ $\begin{cases} x = 1 - k \\ y = 3 - 2k \end{cases}$ $\longleftrightarrow$ d

$(4;2)$ sur d. ?

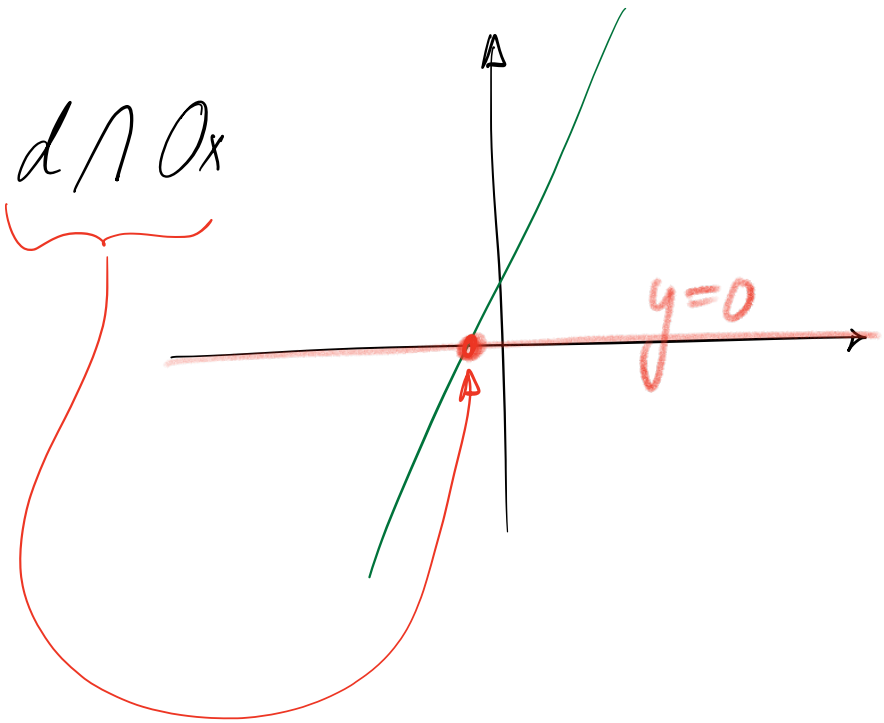
x y

$\begin{cases} 4 = 1 - k \\ 2 = 3 - 2k \end{cases}$ $\begin{cases} k = 1 - 4 = -3 \\ 2k = 3 - 2 \;/\; k = 1/2 \end{cases}$

$\Longrightarrow$ Vu que $-3 \neq 1/2$, le pt. $(4;2)$ n'est pas sur d.

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

$d \cap Ox$

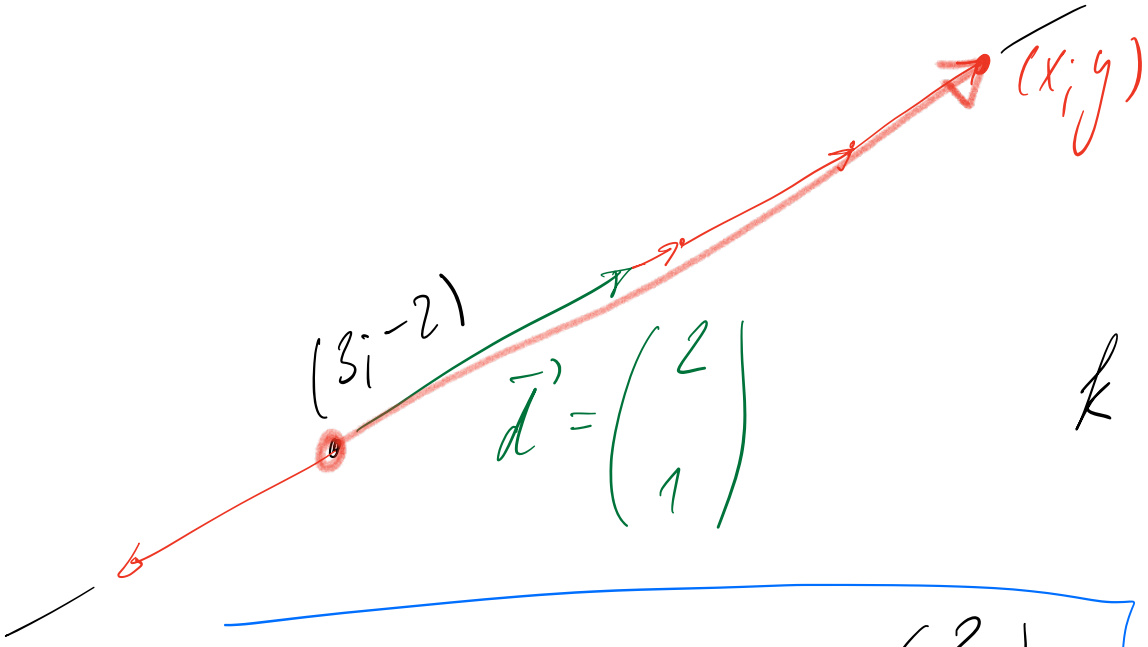


$y = 0$

$2k = 3$

$k = \frac{3}{2}$

$x = 1 - \frac{3}{2} = -\frac{1}{2}$



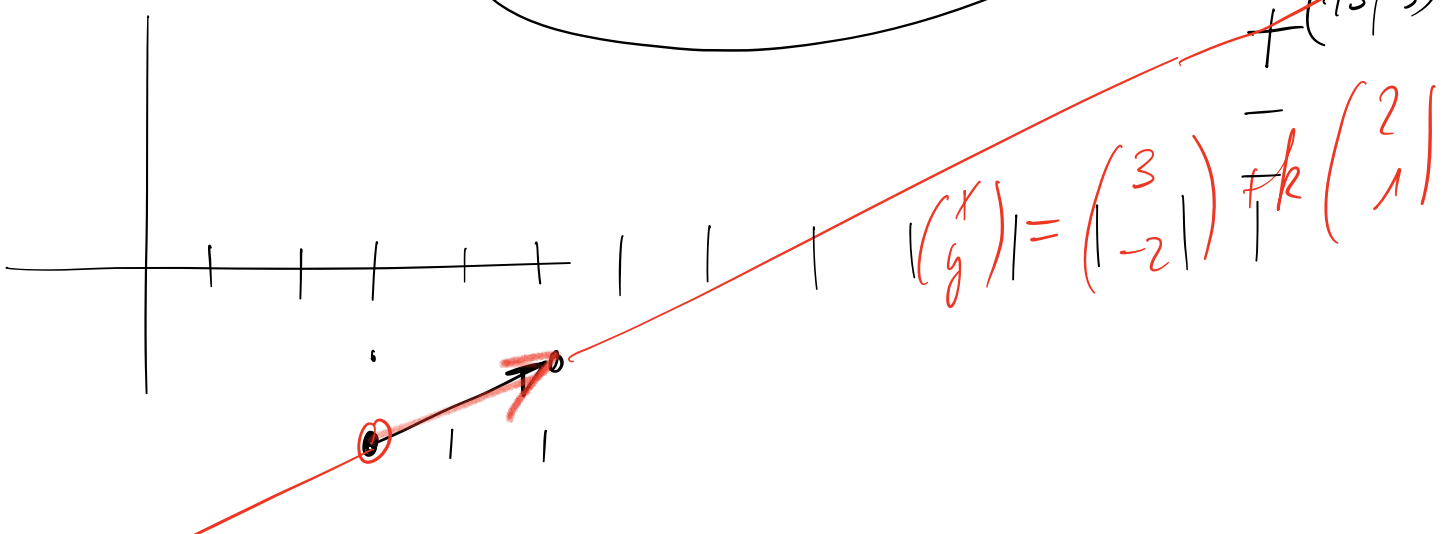
k paramètre qui varie

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

$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 3 \\ -2 \end{pmatrix} + 5 \begin{pmatrix} 2 \\ 1 \end{pmatrix} = \begin{pmatrix} 13 \\ 3 \end{pmatrix}$$

$\begin{pmatrix} 3+5\cdot 2 \\ -2+5\cdot 1 \end{pmatrix}$

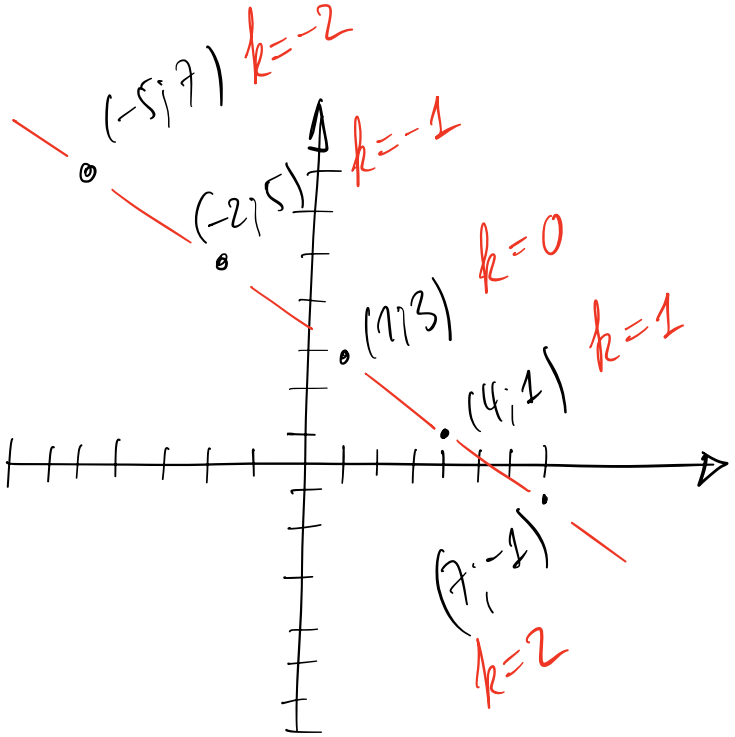
k fixé → Un seul point



EXO 3.1.1

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

k	$(x;y)$
-2	$(-5;7)$
-1	$(-2;5)$
0	$(1;3)$
1	$(4;1)$
2	$(7;-1)$



$6=1-5k$

$6-1=-5k$

$5=-5k$

$k=\frac{5}{-5}$

$6=1+(-5k)$

changement de signe

$6+5k=1$

$5k=1+(-6)$

$5k=-5$

$k=\frac{-5}{5}$

$$(\cos^2 x \cdot \sin^2 x)' = (u \cdot v)' \qquad u = \cos^2 x$$

$$v = \sin^2 x$$

$$= u'v + uv'$$

$$= (\cos^2 x)' \cdot \sin^2 x + \cos^2 x \cdot (\sin^2 x)'$$

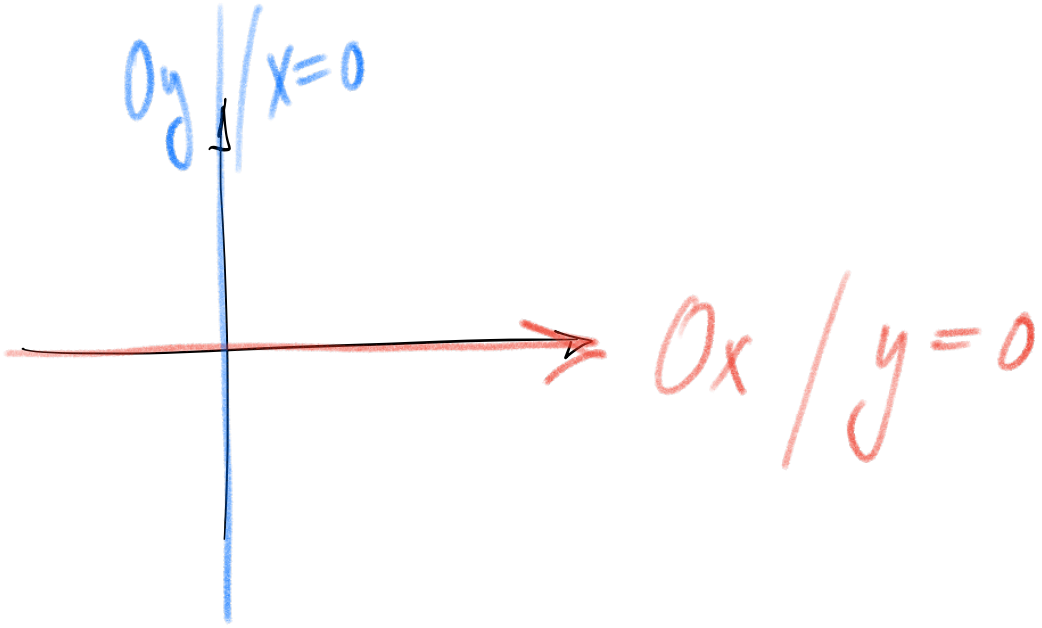
$$(\cos^2 x)' = ((\cos x)^2)' = 2 \cdot \cos x^{1} \cdot (\cos x)'$$

$$= 2\cos x \cdot (-\sin x) = -2 \sin x \cos x$$

$$(\sin^2 x)' = ((\sin x)^2)' = 2 \cdot \sin x^{1} \cdot \cos x = 2 \sin x \cos x$$

$$(\cos^2 x \sin^2 x)' = -2 \sin x \cos x \cdot \sin^2 x + \cos^2 x \cdot 2 \sin x \cos x$$

$$= -2 \sin^3 x \cos x + 2 \sin x \cos^3 x$$



$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 2 \\ 5 \end{pmatrix} + k \begin{pmatrix} -1 \\ 2 \end{pmatrix}$$

$x = 2 - k$ $\qquad x = 0$

$y = 5 + 2k$

$\boxed{2 - k = 0} \longrightarrow k = 0$

$\boxed{y = 5 + 2k}$

$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 3 \\ 5 \end{pmatrix} + k \begin{pmatrix} -4 \\ 1 \end{pmatrix}$$

$-4 \cdot y - 4 \cdot (-5) = -4y + 20$

$$\begin{cases} x = 3 - 4k \\ y = 5 + k \end{cases}$$

$x = 3 - 4(y - 5)$

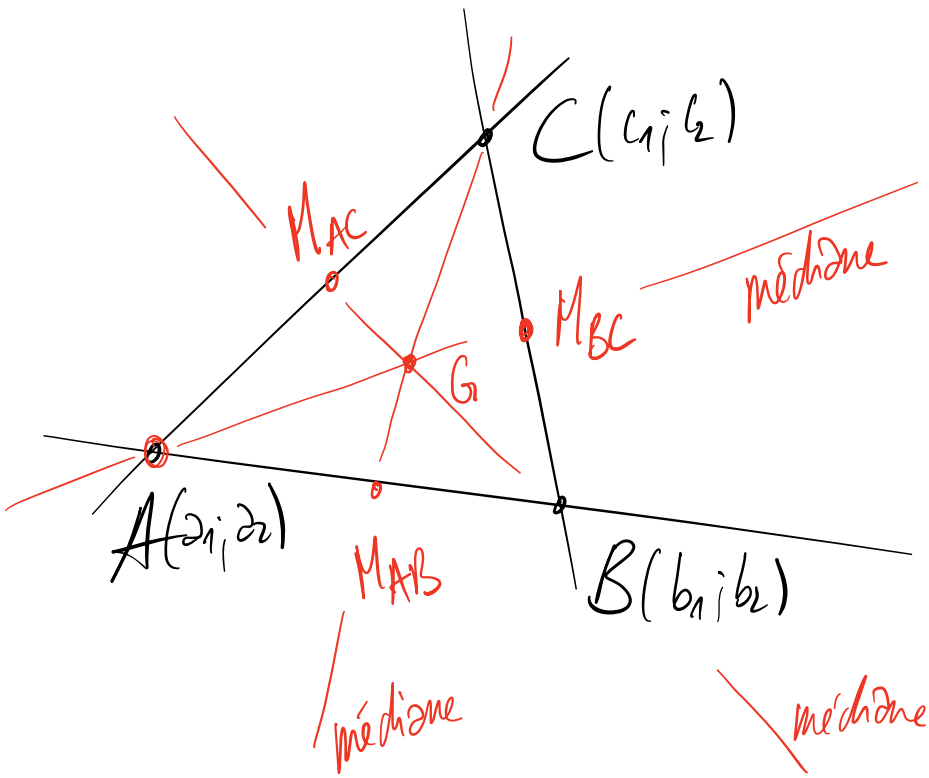
$k = y - 5$

$ax+by+c=0$

$x = 3-4y+20$

$1x+4y-23=0$

$a=1 \quad b=4 \quad c=-23$



$$M_{AB} = \left(\frac{a_1+b_1}{2} ; \frac{a_2+b_2}{2} \right)$$