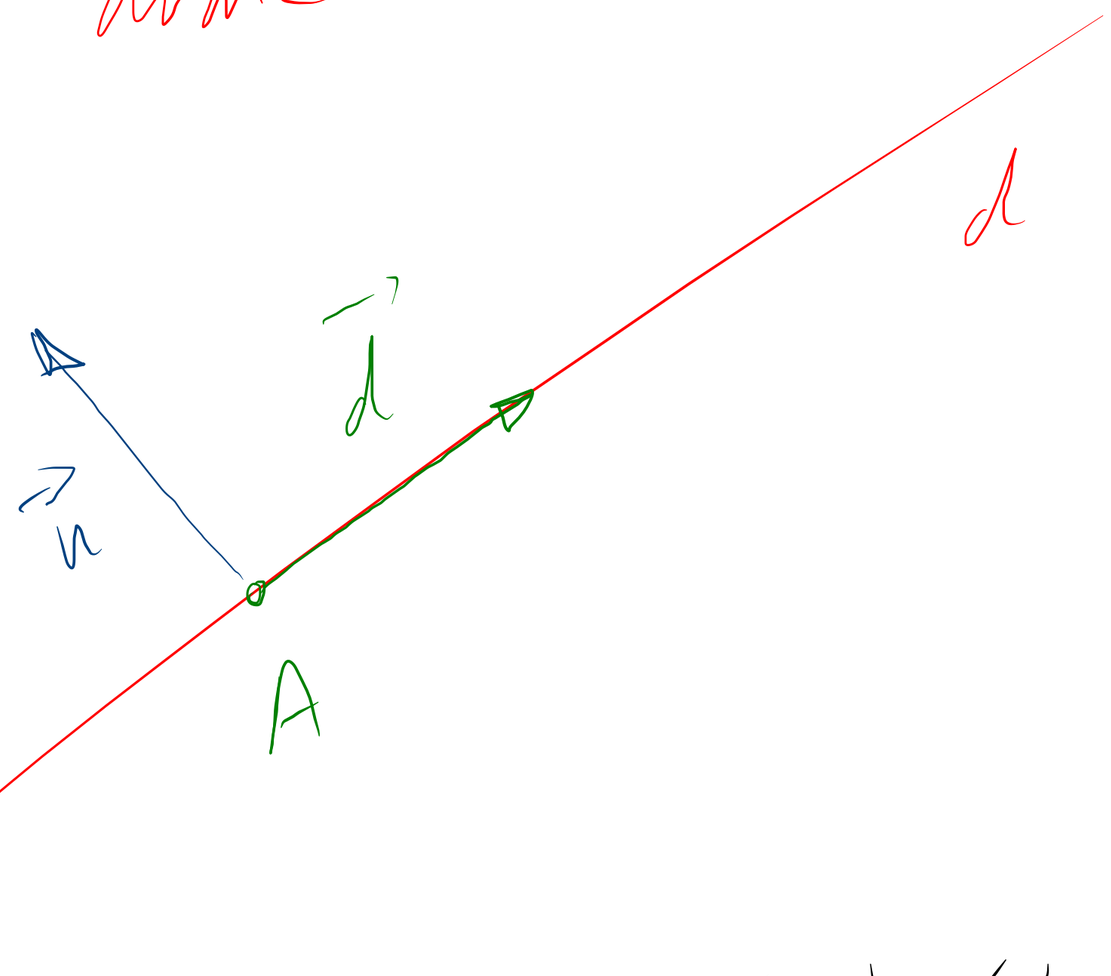
$$ax + by + c = 0$$

dvěte



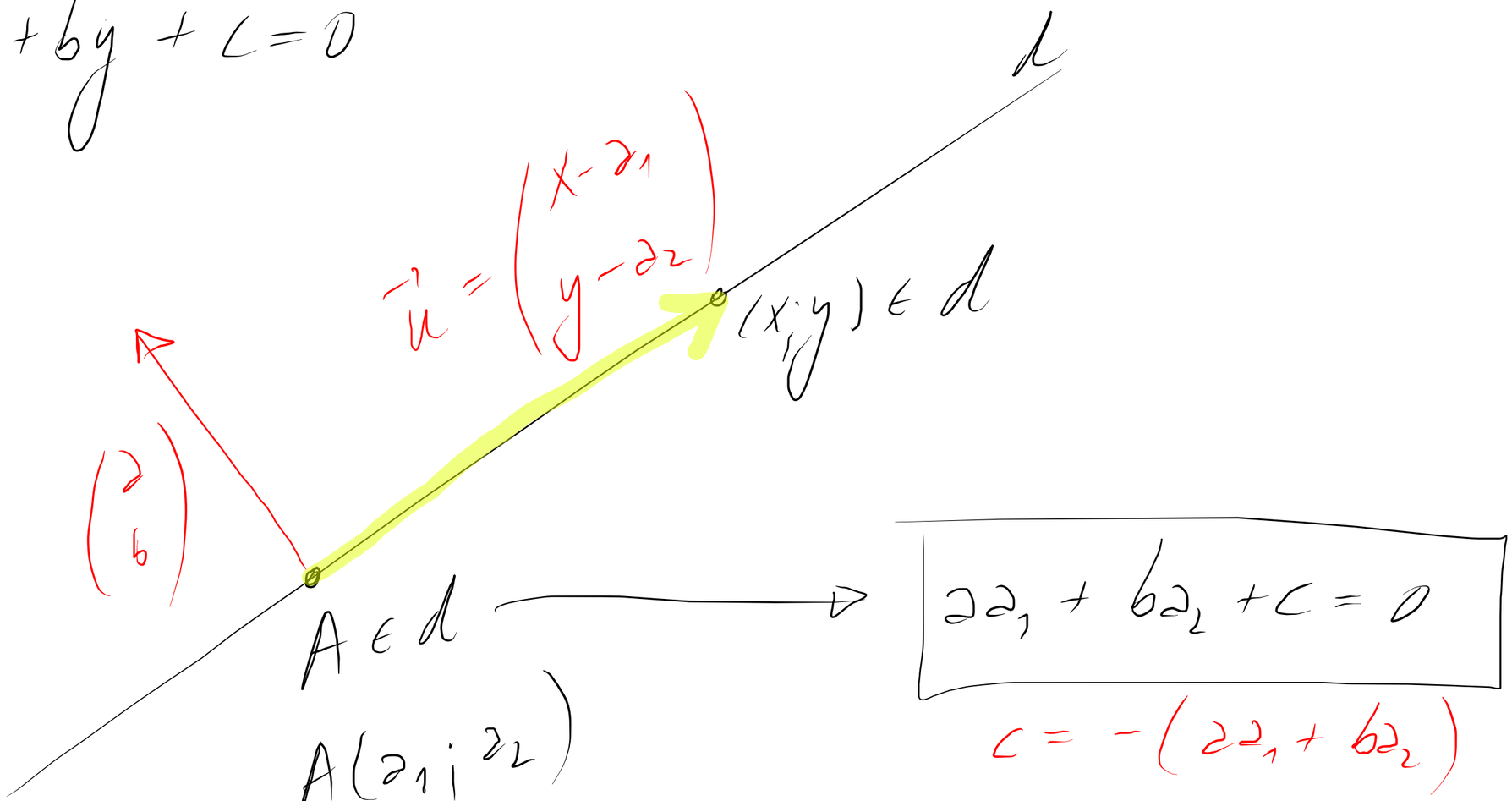

$$\vec{n} = \begin{pmatrix} a \\ b \end{pmatrix}$$

$$\vec{d} = \begin{pmatrix} b \\ -a \end{pmatrix}$$

$\vec{n} \perp \vec{d}$ tedy $\begin{pmatrix} a \\ b \end{pmatrix} \cdot \begin{pmatrix} b \\ -a \end{pmatrix} =$

$a \cdot b + b \cdot (-a) = 0$

$d: ax + by + c = 0$




$aa_1 + ba_2 + c = 0$

$c = -(aa_1 + ba_2)$

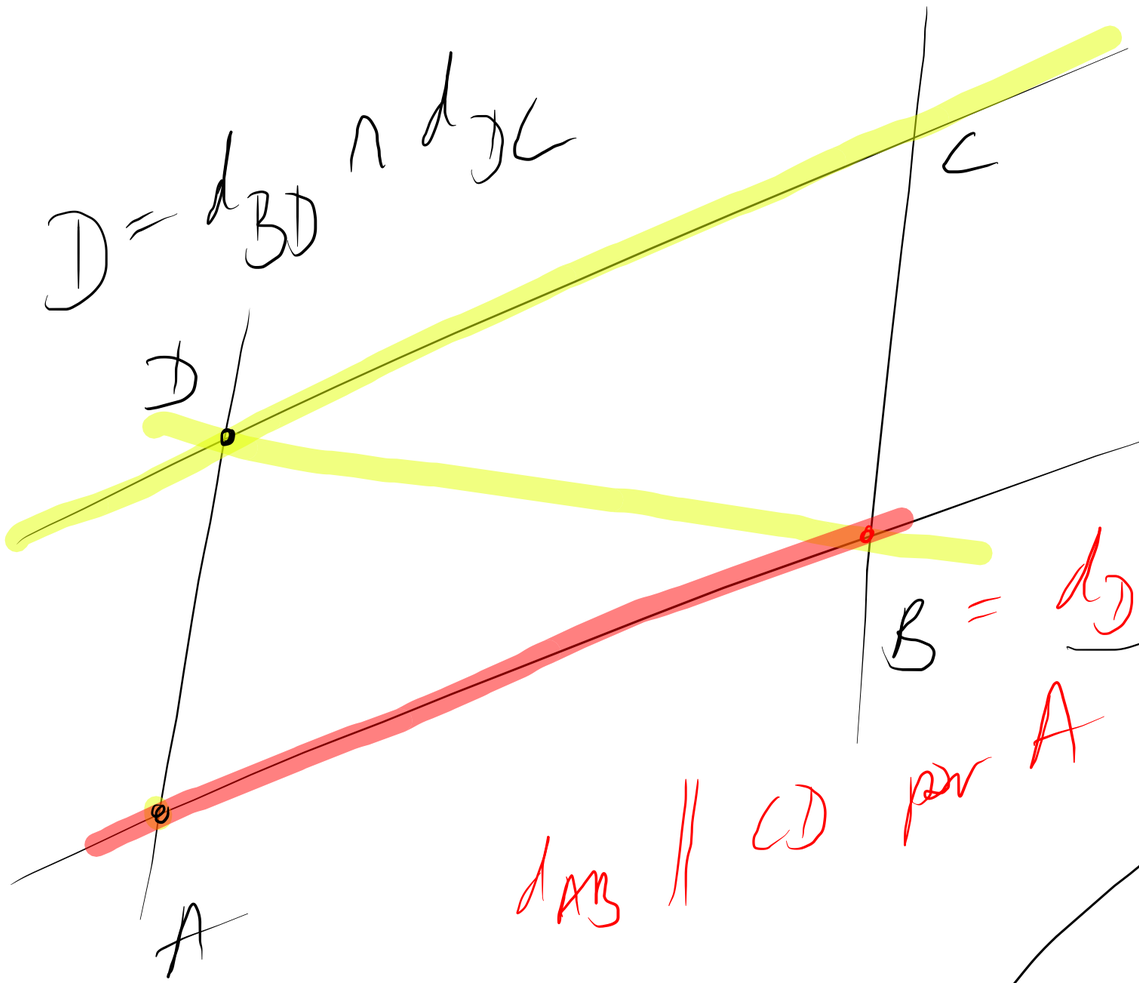
A' vonr: $\begin{pmatrix} a \\ b \end{pmatrix} \perp \vec{u}$

$$\begin{pmatrix} a \\ b \end{pmatrix} \cdot \begin{pmatrix} x-a_1 \\ y-a_2 \end{pmatrix} =$$

$$ax - aa_1 + by - ba_2 =$$

$$ax + by \underbrace{- (aa_1 + ba_2)}_{c} = ax + by + c = 0$$

$(x;y) \in d$

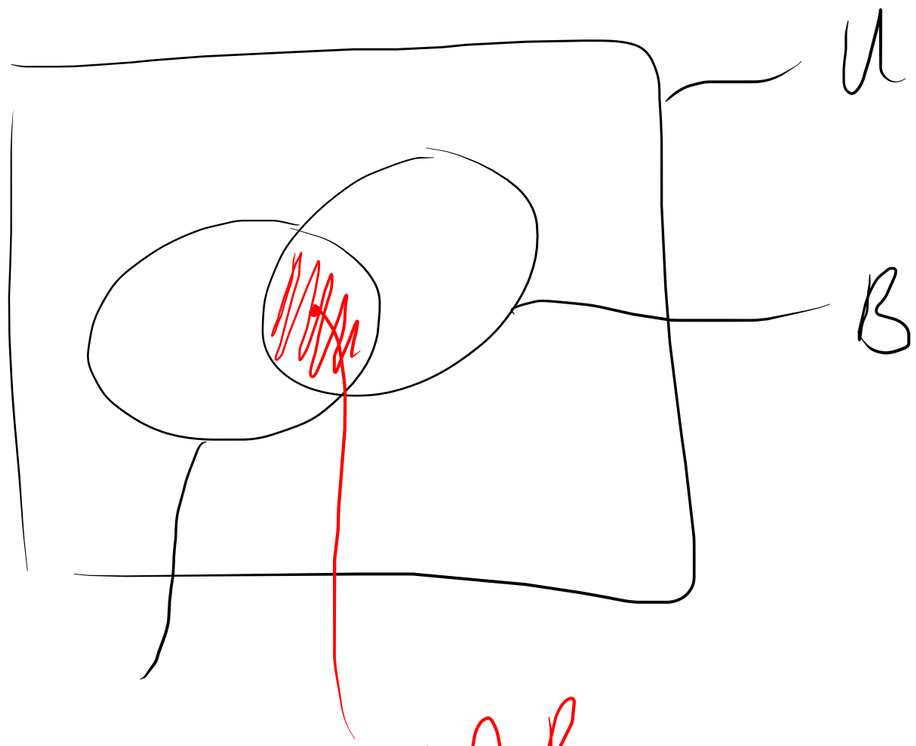




$$\begin{cases} 6x - 25y + 43 = 0 \mid \cdot(-1) \\ x - 2y - 8 = 0 \mid \cdot 6 \end{cases}$$

$$13y - 91 = 0$$

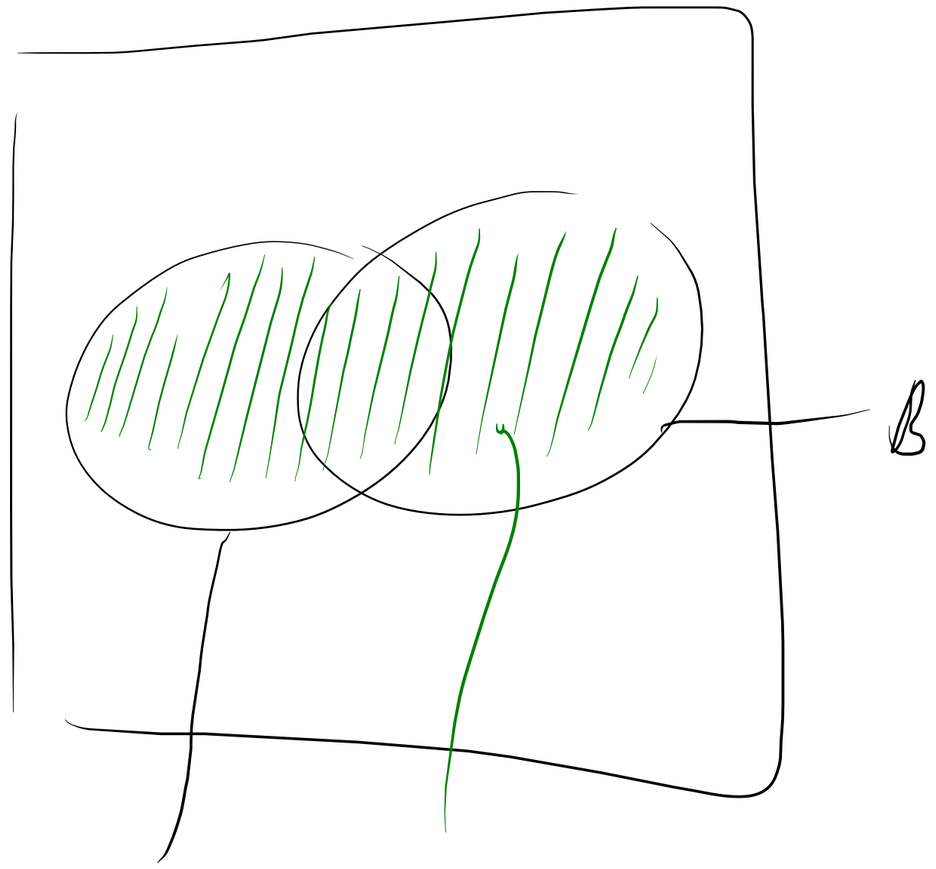
$$\boxed{y = 7} \qquad \boxed{x = 22}$$




A

A ∩ B

Inter(section)




A

A ∪ B

Union

$\vec{n} \perp d$

$d: \; -3x + 2y - 5 = 0$

$\vec{n} = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$

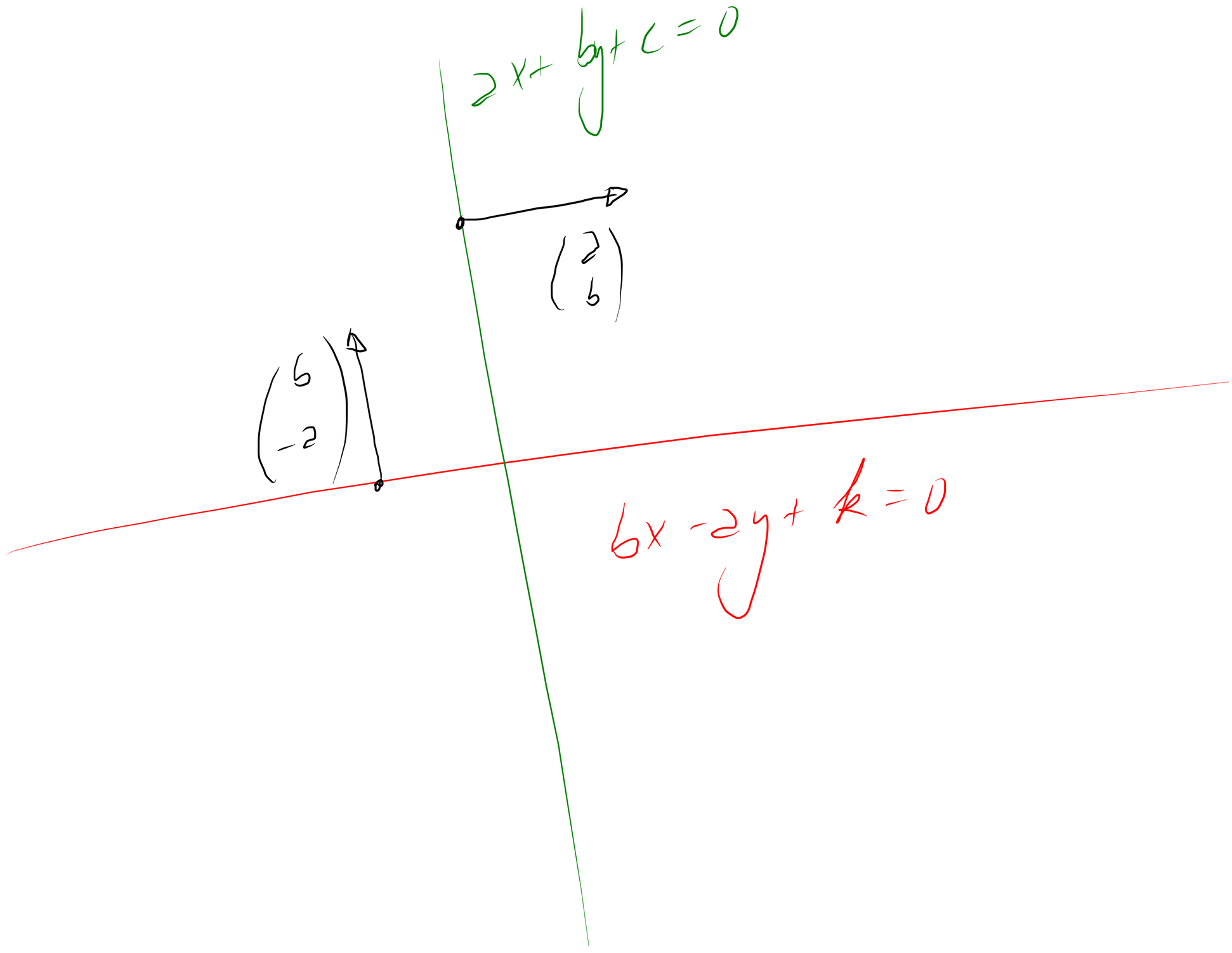
$f: 2x + 3y + k = 0$

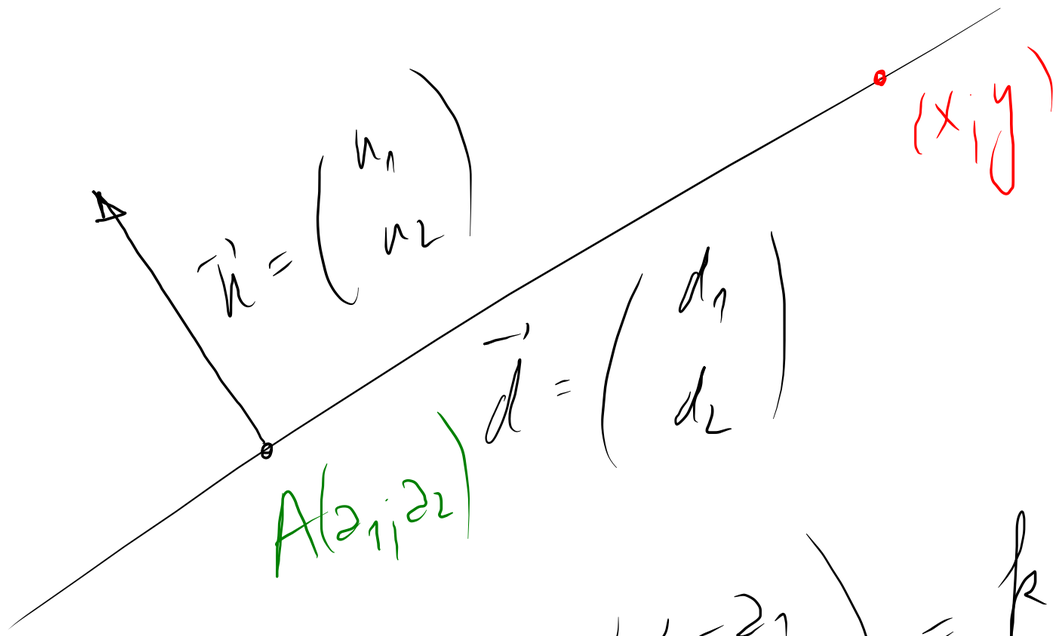
$d \parallel e$

$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$

$e: -3x + 2y + 10 = 0$

$\vec{n} \perp e$


$2x+by+c=0$
$\begin{pmatrix} 2 \\ b \end{pmatrix}$
$\begin{pmatrix} b \\ -2 \end{pmatrix}$
$6x-2y+k=0$




$(x,y) \in d \Rightarrow \begin{pmatrix} x-a_1 \\ y-a_2 \end{pmatrix} = k \cdot \begin{pmatrix} d_1 \\ d_2 \end{pmatrix}$

$\begin{pmatrix} x-a_1 \\ y-a_2 \end{pmatrix} \cdot \begin{pmatrix} n_1 \\ n_2 \end{pmatrix} = k \left( \begin{pmatrix} d_1 \\ d_2 \end{pmatrix} \cdot \begin{pmatrix} n_1 \\ n_2 \end{pmatrix} \right)$ $= 0$ par choix de $\vec{n}$

$\Rightarrow n_1 x - a_1 n_1 + n_2 y - a_2 n_2 = 0$

$\Rightarrow \underbrace{n_1}_{a} x + \underbrace{n_2}_{b} y \underbrace{- (a_1 n_1 + a_2 n_2)}_{c} = 0$