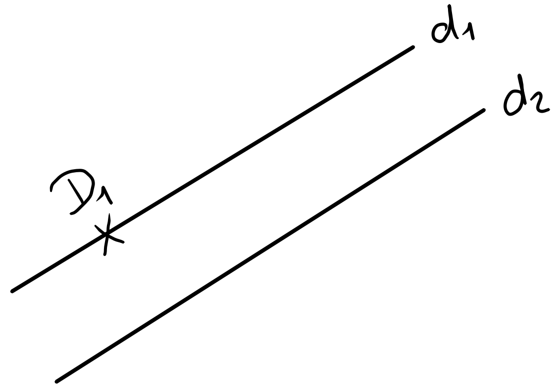
Position relative de deux droites

Soit $d_1 : a_1x + b_1y + c_1 = 0$ et $d_2 : a_2x + b_2y + c_2 = 0$



parallèles : $d_1 /\!/ d_2$

1) $\vec{d_1} \sim \vec{d_2}$

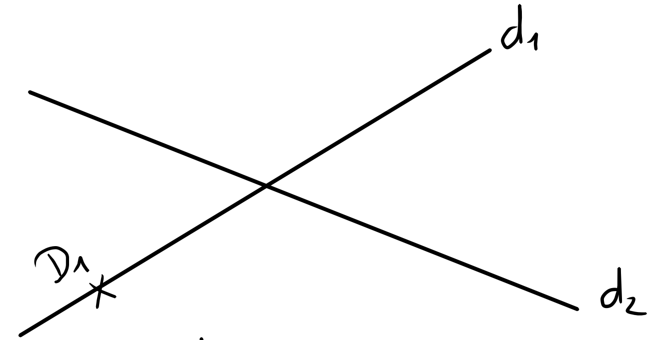
$m_1 = m_2$

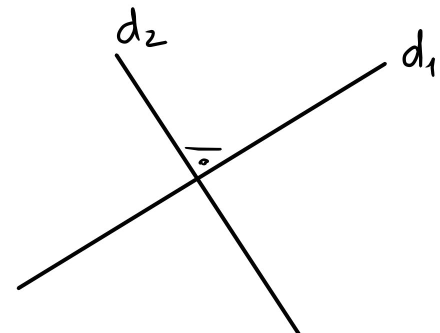
$\vec{n_1} \sim \vec{n_2}$

2) Si $D_1 \in d_1$ et $D_1 \notin d_2$

ou $a_1 = a_2 \quad b_1 = b_2 \quad c_1 \neq c_2$

après avoir simplifié au max les équations cartésiennes.



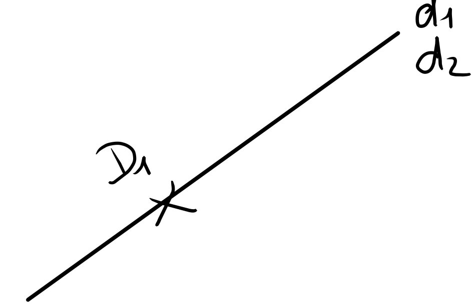


sécantes

$\vec{d_1} \not\sim \vec{d_2}$

$m_1 \neq m_2$

$\vec{n_1} \not\sim \vec{n_2}$



confondues : $d_1 \equiv d_2$

1) $\vec{d_1} \sim \vec{d_2}$

$m_1 = m_2$

$\vec{n_1} \sim \vec{n_2}$

2) Si $D_1 \in d_1$ et $D_1 \in d_2$

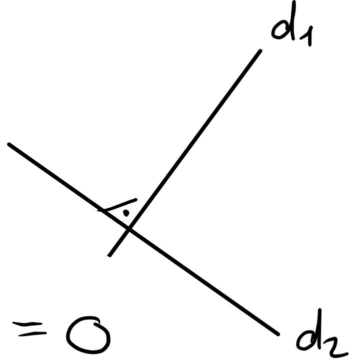
ou $a_1 = a_2$

$b_1 = b_2$

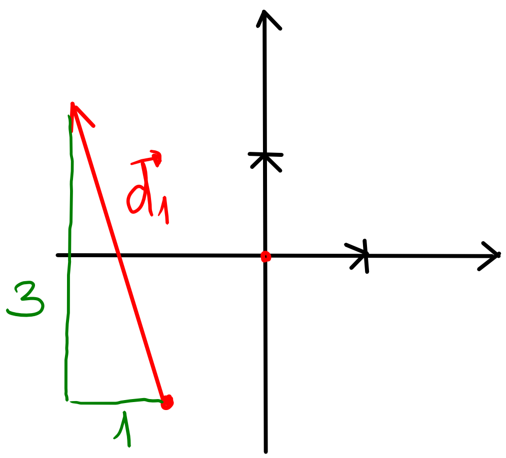
$c_1 = c_2$

droites $\perp$:

$\boxed{\vec{d_1} \sim \vec{n_2}}$ $\boxed{\vec{d_2} \sim \vec{n_1}}$



exple : d_1 : $3x + y + 5 = 0$ et d_2 : $x - 3y + 5 = 0$



$m = \frac{\Delta y}{\Delta x} = \frac{3}{-1} = -3$

$\vec{d_1} = \begin{pmatrix} -1 \\ 3 \end{pmatrix}$ $\vec{d_2} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$ $\boxed{\vec{d_1} \cdot \vec{d_2} = 0}$

$\vec{n_1} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$ $\vec{n_2} = \begin{pmatrix} 1 \\ -3 \end{pmatrix}$ $\boxed{\vec{n_1} \cdot \vec{n_2} = 0}$

$m_1 = -3$ $m_2 = \frac{1}{3}$ $\boxed{m_1 \cdot m_2 = -1}$