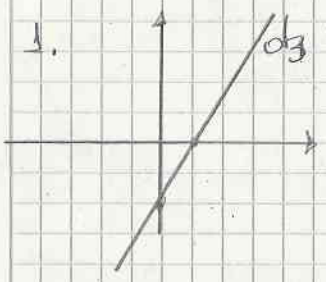
LDDR Niveau 1 : TF 13 Géométrie Plane

Exercice 1

$d_1 : \begin{cases} x = -5 + \lambda \\ y = -2\lambda \end{cases}$ $\quad d_2 : 4x + 2y + 20 = 0 \quad 2x + y + 10 = 0$ $\quad d_3 : y = 2x - 1 \quad 2x - y - 1 = 0$

1.



2. $\vec{d_1} = \begin{pmatrix} 1 \\ -2 \end{pmatrix} // \begin{pmatrix} 2 \\ -4 \end{pmatrix} \quad \vec{n_3} = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$

3. $\vec{d_1} = \begin{pmatrix} 1 \\ -2 \end{pmatrix} \quad \vec{d_2} = \begin{pmatrix} 1 \\ -2 \end{pmatrix} \Rightarrow$ $\begin{cases} d_1 // d_2 \\ \text{confondues} \end{cases}$

$A(-5;0) \in d_1 \Rightarrow$ Si $A \in d_2 \Rightarrow$ confondues

Si $A \notin d_2 \Rightarrow d_1 // d_2$

$\cdot \quad -10 + 10 + 10 = 0 \Rightarrow 0 = 0 \Rightarrow A \in d_2 \Rightarrow$ confondues

Exercice 2

$C : x^2 + y^2 + 10x + 14y + 25 = 0 \quad d : x + y + 1 = 0$

1. $(x+5)^2 - 25 + (y+7)^2 - 49 + 25 = 0 \Leftrightarrow (x+5)^2 + (y+7)^2 = 49$

$K(-5;-7) \quad r = 7$

2. $dist(K, d) = \dfrac{|-5-7+1|}{\sqrt{1+1}} = \dfrac{11}{\sqrt{2}} = \dfrac{11\sqrt{2}}{2} \approx 7.78 > r = 7$

$\Rightarrow$ la droite ne coupe pas le cercle

3. $A(-5;0) \quad (-5+5)^2 + (0+7)^2 = 49$ ✓ $\Rightarrow A \in C$

4.

$\vec{n_t} = \vec{KA} = \begin{pmatrix} 0 \\ 7 \end{pmatrix} // \begin{pmatrix} 0 \\ 1 \end{pmatrix} \Rightarrow y + c = 0$

$A : 0 + c = 0 \Rightarrow c = 0$

$t : y = 0$ (axe Ox)