

EXERCICE 1

$$A(1; 2; -2) \quad B(3; 3; 0) \quad \vec{AB} = \begin{pmatrix} 2 \\ 1 \\ 2 \end{pmatrix} \quad a: \begin{cases} x = 1 + 2\lambda \\ y = 2 + \mu \\ z = -2 + 2\mu \end{cases}$$

$$b: \begin{cases} x = 8 + 3\lambda \\ y = 6 + 2\lambda \\ z = 3 + \lambda \end{cases}$$

$\vec{a} \parallel \vec{b} \Rightarrow$
 $\swarrow$ sécantes
 $\searrow$ gauches

$$\begin{cases} 8 + 3\lambda = 1 + 2\mu & (1) \\ 6 + 2\lambda = 2 + \mu & (2) \\ 3 + \lambda = -2 + 2\mu & (3) \end{cases} \quad \begin{cases} 3\lambda - 2\mu = -7 \\ 2\lambda - \mu = -4 \end{cases} \quad \begin{array}{l} 3\lambda - 2\mu = -7 \\ \times (-2) \quad -4\lambda + 2\mu = 8 \\ \hline -\lambda = 1 \Leftrightarrow \lambda = -1 \end{array}$$

$$(2) : -2 - \mu = -4 \Leftrightarrow \mu = 2$$

! On remplace en (3): $3 - 1 = -2 + 4 \Leftrightarrow 2 = 2 \quad \checkmark$
 $\Rightarrow$ les droites sont sécantes

$$I(5; 4; 2)$$

EXERCICE 2

$$a: 2x + y + z - 8 = 0 \quad \beta: 5x + y - 2z - 2 = 0$$

$$d: \begin{cases} x = 6 + 2\lambda \\ y = 9 + 4\lambda \\ z = 9 + k\lambda \end{cases}$$

$$a) \text{ Sol: } \begin{cases} 2x + y = 8 \\ 5x + y = 2 \end{cases} \quad \begin{array}{l} (-) \\ \hline 3x = -6 \Leftrightarrow x = -2 \Rightarrow y = 12 \end{array}$$

$$T_s(-2; 12; 0)$$

$$\text{paroi: } \begin{cases} 2x + z = 8 \\ 5x - 2z = 2 \end{cases} \quad \begin{array}{l} \times (2) \\ \hline 4x + 2z = 16 \\ 5x - 2z = 2 \end{array} \quad \begin{array}{l} (+) \\ \hline 9x = 18 \Leftrightarrow x = 2 \end{array}$$

$$\Rightarrow z = 4$$

$$T_p(2; 0; 4)$$

$$\vec{T_s}, \vec{T_p} = \begin{pmatrix} 4 \\ -12 \\ 4 \end{pmatrix} \parallel \begin{pmatrix} 1 \\ -3 \\ 1 \end{pmatrix}$$

$$i: \begin{cases} x = 2 + \mu \\ y = -3\mu \\ z = 4 + \mu \end{cases}$$

$$b) \vec{t} \rightarrow a: 2(6 + 2\lambda) + (9 + 4\lambda) + (9 + k\lambda) - 8 = 0 \Leftrightarrow$$

$$\Leftrightarrow 12 + 4\lambda + 9 + 4\lambda + 9 + k\lambda - 8 = 0 \Leftrightarrow$$

$$\Leftrightarrow \lambda(8 + k) = -22$$

$$\cdot -8 \neq k \quad \lambda = -\frac{22}{8+k} \quad \Rightarrow \underline{k \neq -8}$$

$$\cdot k = -8 \quad \text{impossible}$$

EXERCISE 3.

$$a: \begin{cases} x = -2 + 2\lambda \\ y = 8 - 2\lambda \\ z = 3 - \lambda \end{cases}$$

$$b: \begin{cases} x = -4 + 2\lambda \\ y = -2 + 2\lambda \\ z = 4 - \lambda \end{cases}$$

$$a) \underline{a}: \begin{array}{ll} T_s: z=0 \Leftrightarrow \lambda=3 & T_s(4; 2; 0) \\ T_p: y=0 \Leftrightarrow \lambda=4 & T_p(6; 0; -1) \\ T_m: x=0 \Leftrightarrow \lambda=1 & T_m(0; 6; 2) \end{array}$$

$$\underline{b}: \begin{array}{ll} T_s: z=0 \Leftrightarrow \lambda=4 & T_s(4; 6; 0) \\ T_p: y=0 \Leftrightarrow \lambda=1 & T_p(-2; 0; 3) \\ T_m: x=0 \Leftrightarrow \lambda=2 & T_m(0; 2; 2) \end{array}$$

