

5^e MATH 6L : Corrigé de l'évaluation formative de géométrie analytique de l'espace.

① $A(2,0,1) \quad B(3,5,2) \quad C(4,1,1)$

a) $ABC \equiv \vec{AP} = \lambda \cdot \vec{AB} + \mu \cdot \vec{AC} \quad (\lambda, \mu \in \mathbb{R})$

$$ABC \equiv \begin{cases} x = \lambda + 2\mu + 2 \\ y = 5\lambda + \mu \\ z = \lambda + 1 \end{cases}$$

$$ABC \equiv \left| \begin{array}{ccc|cc} x-2 & 1 & 2 & x-2 & 1 \\ y & 5 & 1 & y & 5 \\ z-1 & 1 & 0 & z-1 & 1 \end{array} \right| = 0$$

$$z-1 + 2y - 10(z-1) - (x-2) = 0$$

$$ABC \equiv -x + 2y - 9z + 11 = 0$$

b) $AB \equiv \vec{AP} = k \cdot \vec{AB} \quad (k \in \mathbb{R})$

$$AB \equiv \begin{cases} x = k + 2 \\ y = 5k \\ z = k + 1 \end{cases}$$

$$AB \equiv x-2 = \frac{y}{5} = z-1$$

Sous forme "système" (par exemple)

$$AB \equiv \begin{cases} 5x - y - 10 = 0 \\ x - z - 1 = 0 \end{cases}$$

② $d \equiv \begin{cases} x = 5k - 4 \\ y = 2k + 6 \\ z = -3k + 1 \end{cases}$

a) $P(-14, 2, 7) \in d$ car :

$$-14 = 5k - 4 \rightarrow k = -2$$

$$2 = 2k + 6 \rightarrow k = -2$$

$$7 = -3k + 1 \rightarrow k = -2$$

b) $Q(x, y, 49) \in d$

donc $49 = -3k + 1$

$$\rightarrow k = -16$$

$$\rightarrow \begin{cases} x = 5 \cdot (-16) - 4 = -84 \\ y = 2 \cdot (-16) + 6 = -26 \end{cases}$$

$$Q(-84, -26, 49) \in d$$