

$$\vec{a} = \begin{pmatrix} a_1 \\ a_2 \\ a_3 \end{pmatrix}$$

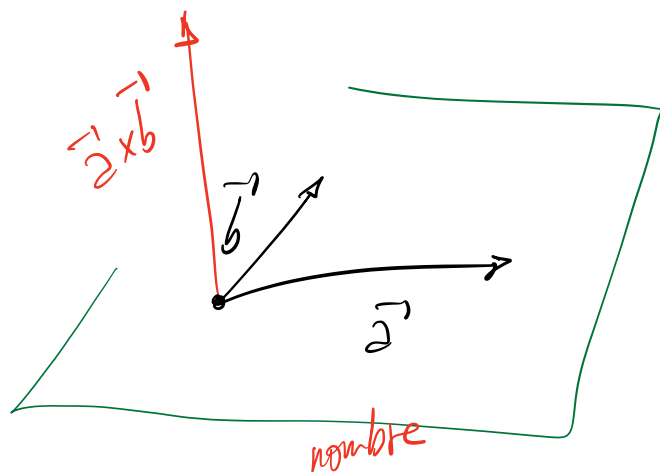
$$\vec{b} = \begin{pmatrix} b_1 \\ b_2 \\ b_3 \end{pmatrix}$$

$$\vec{a}, \vec{b} \in \mathbb{R}^3$$

$$\begin{vmatrix} i & a_1 & b_1 \\ j & a_2 & b_2 \\ k & a_3 & b_3 \end{vmatrix}$$

cross

$$\vec{a} \times \vec{b} = \begin{pmatrix} a_2 b_3 - a_3 b_2 \\ a_3 b_1 - a_1 b_3 \\ a_1 b_2 - a_2 b_1 \end{pmatrix}$$



★

$$\boxed{\vec{a} \times \vec{b} \perp \vec{a}, \vec{b}}$$

$$(\vec{a} \times \vec{b}) \cdot \vec{a} = 0$$

$$\begin{pmatrix} a_2 b_3 - a_3 b_2 \\ a_3 b_1 - a_1 b_3 \\ a_1 b_2 - a_2 b_1 \end{pmatrix} \cdot \begin{pmatrix} a_1 \\ a_2 \\ a_3 \end{pmatrix}$$

produit scalaire

$$\cancel{a_1 a_2 b_3} - \cancel{a_1 a_3 b_2} + \cancel{a_2 a_3 b_1} - \cancel{a_2 a_1 b_3} + \cancel{a_3 a_1 b_2} - \cancel{a_3 a_2 b_1} = 0$$

Produit mixte

← mardi 6 janvier

2.4.2 h)

$$\frac{6x^2 - 5x - 6}{x^2 - 4} \div \frac{2x^2 - 3x}{x + 2} =$$

$$\frac{6x^2 - 5x - 6}{(\cancel{x+2})(x-2)} \cdot \frac{(\cancel{x+2})}{x(2x-3)}$$

$$\frac{(\cancel{2x-3})(3x+2)}{(x-2)x(\cancel{2x-3})} = \frac{3x+2}{x(x-2)}$$

$$\Delta = 25 + 4 \cdot 36 = 169$$

$$x = \frac{5 \pm 13}{12} \begin{cases} 3/2 \\ -2/3 \end{cases}$$

$$6(x - 3/2)(x + 2/3)$$

$$6x^2 + 4x - 9x - 6$$

$$6x^2 - 5x - 6$$

$$2(x - 3/2) \cdot 3(x + 2/3) =$$

$$(2x-3)(3x+2)$$

2.5.11 c)

$$\frac{1}{x+1} + \frac{1}{x+3} + \frac{3}{4} = 0$$

$$(x+3) \cdot 4 + (x+1) \cdot 4 + 3(x+3)(x+1) = 0$$

$$(x+1)(x+3) \cdot 4$$

$$= 0$$

$$x \neq -1$$

$$x \neq -3$$

$$\frac{A}{B} = 0 \Rightarrow A = 0$$

$$4x + 12 + 4x + 4 + 3(x^2 + 4x + 3) = 0$$

$$8x + 16 + 3x^2 + 12x + 9 = 0$$

$$3x^2 + 20x + 25 = 0$$

$$x = \frac{-20 \pm 10}{6} \begin{cases} -5/3 \\ -5 \end{cases}$$

$$\Delta = 400 - 300 = 100$$

$$S' = \{-5; -5/3\}$$

$$x = -5/3 \text{ ou } x = -5 \quad (x \neq -1, -3)$$

$$\begin{cases} x - 3y + 2z = 8 \\ x + 2y - z = 4 \end{cases}$$

$$\begin{cases} x = 3y - 2z + 8 \\ 5y - 3z = -4 \end{cases}$$

$$\begin{cases} x = 3y - 2z + 8 \\ y = \frac{3}{5}z - \frac{4}{5} \\ z = z \end{cases}$$

$$\begin{cases} x = 3\left(\frac{3}{5}z - \frac{4}{5}\right) - 2z + 8 \\ y = \frac{3}{5}z - \frac{4}{5} \\ z = z \end{cases}$$

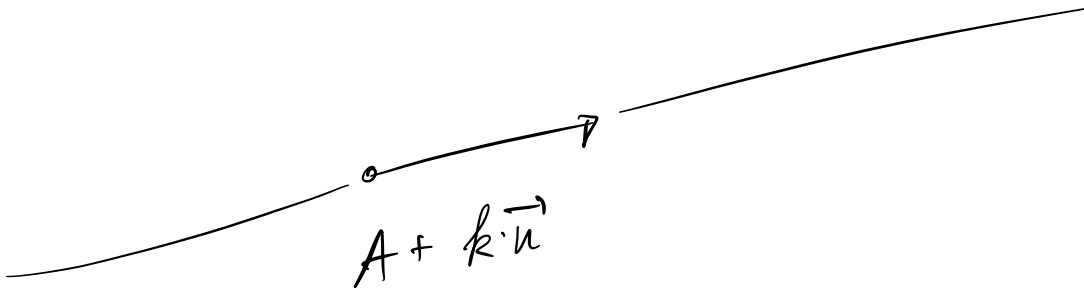
$$\begin{cases} x = -1/5 z + 28/5 \\ y = 3/5 z - 4/5 \\ z = z \end{cases}$$

$$z \in \mathbb{R}$$

$$(x, y, z) \in \{(-1/5 t + 28/5, 3/5 t - 4/5, t) \mid t \in \mathbb{R}\}$$

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 28/5 \\ -4/5 \\ 0 \end{pmatrix} + z \begin{pmatrix} -1/5 \\ 3/5 \\ 1 \end{pmatrix}$$

$A \qquad \vec{u}$



$$\frac{6x^2 + 2x}{27x^3 + 1} = \frac{2x(3x+1)}{(3x+1)(9x^2 - 3x + 1)}$$

$$A^3 + B^3 = (A+B)(A^2 - AB + B^2)$$

$$\frac{A+B}{C} + \frac{E}{D} = \frac{(A+B) \cdot D + C \cdot E}{C \cdot D}$$