

Matemàtiques II

Lliurament 3

Obtenció de l'equació general del pla

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Equacions paramètriques del pla:

$$\left. \begin{array}{rcll} x & = & 1 & +\lambda -\mu \\ y & = & 2 & -\lambda +2\mu \\ z & = & -1 & +\lambda \end{array} \right\} \rightarrow \begin{array}{l} 2x = 2 + 2\lambda - 2\mu \\ y = 2 - \lambda + 2\mu \\ \hline 2x + y = 4 + \lambda \end{array}$$

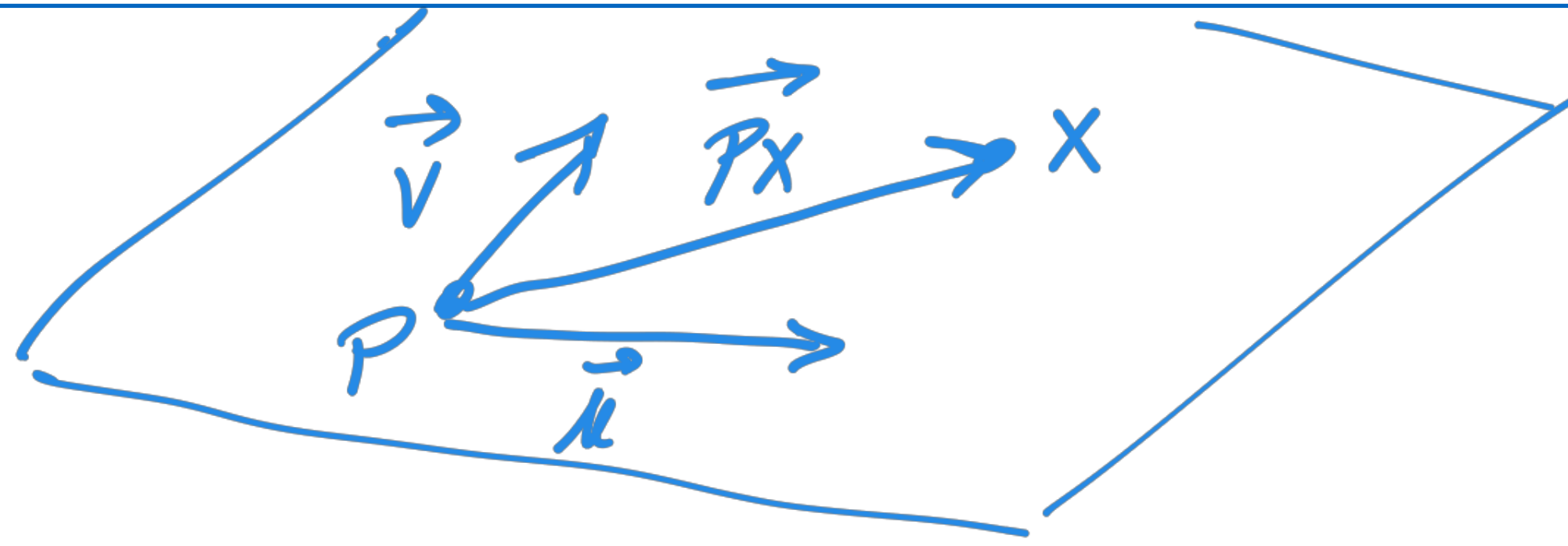
$\hookrightarrow \lambda = z + 1$

$$2x + y = 4 + 1 + z$$

$$\pi: \boxed{2x + y - z - 5 = 0}$$

Equacions paramètriques del pla:

$$\begin{aligned} x &= 1 + \lambda - \mu \\ y &= 2 - \lambda + 2\mu \\ z &= -1 + \lambda \end{aligned}$$



$$P = (1, 2, -1)$$

$$\vec{n} = (1, -1, 1)$$

$$\vec{v} = (-1, 2, 0)$$

$$\begin{vmatrix} x-1 & y-2 & z+1 \\ 1 & -1 & 1 \\ -1 & 2 & 0 \end{vmatrix} = 0$$

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

$$= 2z + 2 - y + 2 - z - 1 - 2x + 2 = 0$$

$$-2x - y + z + 5 = 0 \rightarrow \boxed{2x + y - z - 5 = 0}$$

Equacions paramètriques del pla:

$$\begin{array}{rclcl} x & = & 1 & +\lambda & -\mu \\ y & = & 2 & -\lambda & +2\mu \\ z & = & -1 & +\lambda & \end{array}$$

$$\vec{n} = \vec{u} \times \vec{v}$$

$$P = (1, 2, -1)$$

$$\vec{u} = (1, -1, 1)$$

$$\vec{v} = (-1, 2, 0)$$

$$\vec{n} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 1 & -1 & 1 \\ -1 & 2 & 0 \end{vmatrix} = \vec{i}(-2) - \vec{j}(1) + \vec{k}(1) = (-2, -1, 1)$$

\checkmark
 $(2, 1, -1)$
 $A \quad B \quad C$

$$2x + y - z + D = 0$$

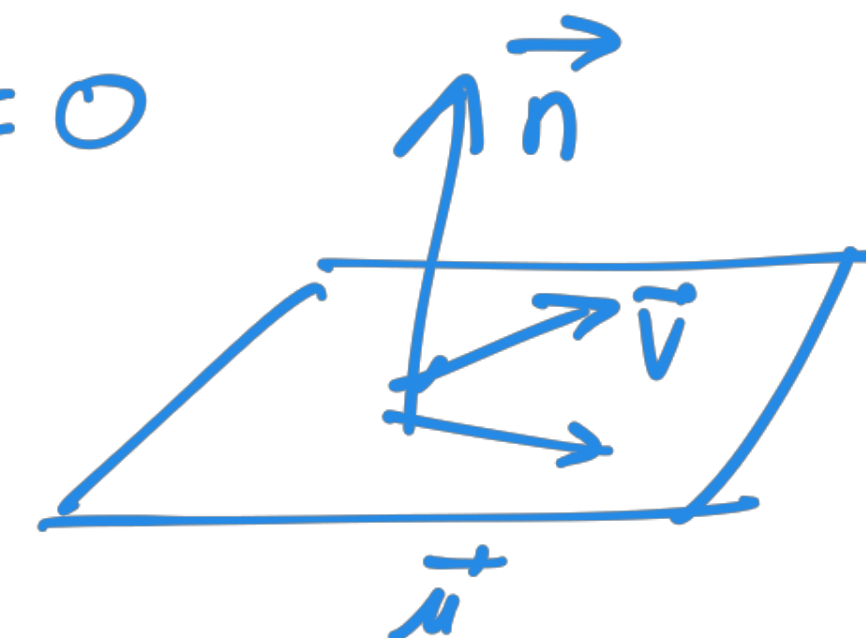
$$2 + 2 - (-1) + D = 0$$

$$\hookrightarrow D = -5$$

$$\boxed{2x + y - z - 5 = 0}$$

$$Ax + By + Cz + D = 0$$

$= \quad = \quad = \quad \vec{n}$
 $\vec{n} (A, B, C)$





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