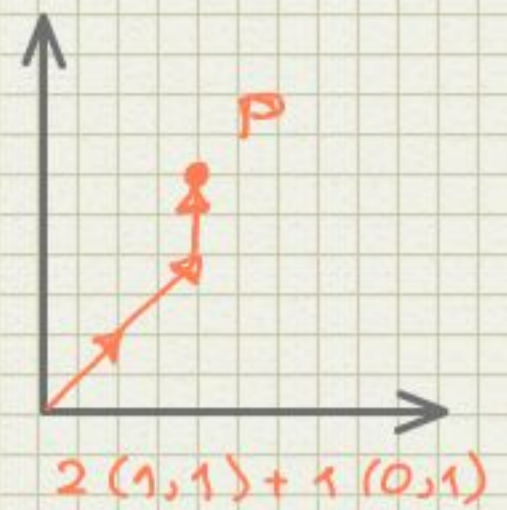
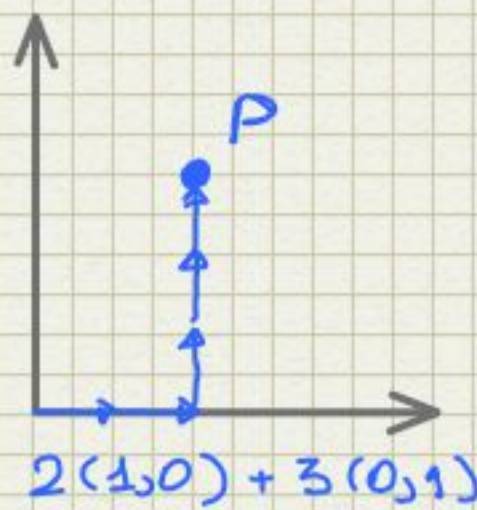


Mudança de base



BASE A ? BASE B
COMPONENTES

$$a \vec{v}_1 + b \vec{v}_2 = \alpha \vec{w}_1 + \beta \vec{w}_2$$

$$a \begin{bmatrix} v_{1,x} \\ v_{1,y} \end{bmatrix} + b \begin{bmatrix} v_{2,x} \\ v_{2,y} \end{bmatrix} = \alpha \begin{bmatrix} w_{1,x} \\ w_{1,y} \end{bmatrix} + \beta \begin{bmatrix} w_{2,x} \\ w_{2,y} \end{bmatrix}$$

$$\begin{bmatrix} v_{1,x} & v_{2,x} \\ v_{1,y} & v_{2,y} \end{bmatrix} \begin{pmatrix} a \\ b \end{pmatrix} = \begin{bmatrix} w_{1,x} & w_{2,x} \\ w_{1,y} & w_{2,y} \end{bmatrix} \begin{pmatrix} \alpha \\ \beta \end{pmatrix}$$

$$\begin{bmatrix} w_{1,x} & w_{2,x} \\ w_{1,y} & w_{2,y} \end{bmatrix}^{-1} \begin{bmatrix} v_{1,x} & v_{2,x} \\ v_{1,y} & v_{2,y} \end{bmatrix} \begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} \alpha \\ \beta \end{pmatrix}$$

$$A: \{ (1,1), (0,1) \}$$

$$B: \{ (1,2), (1,-1) \}$$

$$(2,1)_A$$

$$(? , ?)_B$$

$$\begin{pmatrix} 1 & 1 \\ 2 & -1 \end{pmatrix}^{-1} \begin{pmatrix} 1 & 0 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} 2 \\ 1 \end{pmatrix} = \begin{pmatrix} ? \\ ? \end{pmatrix}$$

$$-\frac{1}{3} \begin{pmatrix} -1 & -1 \\ -2 & 1 \end{pmatrix} \begin{pmatrix} 2 \\ 1 \end{pmatrix} = \frac{1}{3} \begin{pmatrix} 5 \\ 1 \end{pmatrix} \quad \left(\frac{5}{3}, \frac{1}{3} \right)_B$$

controle $2(1,1) + 1(0,1) = \frac{5}{3}(1,2) + \frac{1}{3}(1,-1)$
 $(2,3) = \left(\frac{6}{3}, \frac{10-1}{3} \right) \checkmark$

3-DIM

$$\begin{bmatrix} \alpha \\ \beta \\ \gamma \end{bmatrix} = \begin{bmatrix} w_{1,x} & w_{2,x} & w_{3,x} \\ w_{1,y} & w_{2,y} & w_{3,y} \\ w_{1,z} & w_{2,z} & w_{3,z} \end{bmatrix}^{-1} \begin{bmatrix} v_{1,x} & v_{2,x} & v_{3,x} \\ v_{1,y} & v_{2,y} & v_{3,y} \\ v_{1,z} & v_{2,z} & v_{3,z} \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix}$$