

Forças no espaço

Exemplo 1:

$$IF1 := 500 \cdot \text{N} \quad \theta_{1x} := 60 \text{deg} \quad \theta_{1y} := 45 \text{deg} \quad \theta_{1z} := 120 \text{deg}$$

$$F1_x := IF1 \cdot \cos(\theta_{1x}) = 250 \text{N}$$

$$F1_y := IF1 \cdot \cos(\theta_{1y}) = 354 \text{N}$$

$$F1_z := IF1 \cdot \cos(\theta_{1z}) = -250 \text{N}$$

$$F1 := \begin{pmatrix} F1_x \\ F1_y \\ F1_z \end{pmatrix}$$

$$F1 = \begin{pmatrix} 250 \\ 354 \\ -250 \end{pmatrix} \text{N}$$

Exemplo 2:

$$F2 := \begin{pmatrix} 90 \\ -135 \\ 270 \end{pmatrix} \cdot \text{N}$$

$$IF2 := \sqrt{(F2_0)^2 + (F2_1)^2 + (F2_2)^2} = 315 \text{N}$$

$$\theta_{2x} := \arccos\left(\frac{F2_0}{IF2}\right) = 73.4 \cdot \text{deg}$$

$$\theta_{2y} := \arccos\left(\frac{F2_1}{IF2}\right) = 115.38 \cdot \text{deg}$$

$$\theta_{2z} := \arccos\left(\frac{F2_2}{IF2}\right) = 31 \cdot \text{deg}$$