



Mi Universidad



16/06/2025



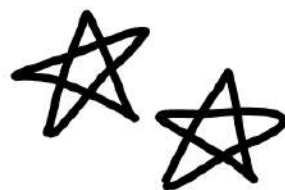
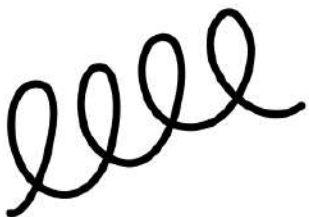
ESTATICA

PARA LA

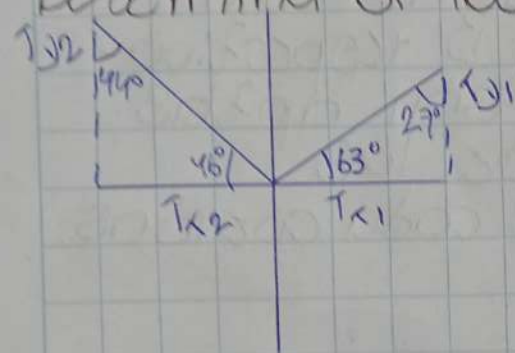
ARQUITECTURA

Nombre del alumno: Jimmy
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ING.: Abel Estrada Dichi

UC. Arquitectura
3° Cuatrimestre
Actividad: Plataforma



Se pretende utilizar 2 cables que tienen una resistencia de 2000 lbf, para sostener en el aire a una armadura de 1,5 Ton. Dichos cables forman angulos de 27° y 44° con los soportes. Determina si los cables son aptos.



Si son aptos

$$\begin{array}{r} 1 \text{ lbf} \quad 4,440 \text{ N} \\ 13349.261 \text{ N} \\ \hline 3,006.590 \end{array}$$

$$\sum F_y = 0$$

$$1000 \text{ kg} \quad 1.012308 \text{ Ton}$$

$$1,5 \text{ Ton}$$

$$1360.781$$

$$F = 1360.781 \cdot 9.81 \text{ m/s}^2$$

$$F = 13349.261$$

$$\sum F_x = 0$$

$$T_1 \cos 63^\circ = T_2 \cos 46^\circ$$

$$T_1 0.453 = T_2 0.694$$

$$T_1 = \frac{T_2 0.694}{0.453}$$

$$T_1 = 1.532$$

$$T_1 \sin 63^\circ + T_2 \sin 46^\circ = 3,006.590$$

$$T_1 0.891 + T_2 0.719 = 3006.590$$

$$(T_1 1.532) 0.891 + T_2 0.719 = 3006.590$$

$$T_1 1.365 + T_2 0.719 = 3006.590$$

$$T_2 2.084 = 3006.590$$

$$T_2 = \frac{3006.590}{2.084}$$

$$T_2 = 1,442.701$$

$$T_1 = 1,442.701 \cdot 1.532$$

$$T_1 = 2,210.217$$

$$T_{x1} = T_1 \cos \theta$$

$$T_{x1} = 2,210.217 \cdot \cos 63^\circ$$

$$T_{x1} = 1003.417$$

$$T_{x2} = 1003.417 \text{ lbf}$$

$$T_{y1} = T_1 \sin \theta$$

$$T_{y1} = 2,210.217 \cdot \sin 63^\circ$$

$$T_{y1} = 1969.317 \text{ lbf}$$

$$T_{y2} = T_2 \sin 46^\circ$$

$$T_{y2} = 1,442.707 \cdot \sin 46^\circ$$

$$T_{y2} = 1,037.792 \text{ lbf}$$

$$T_{x1} = T_1 \cos \theta$$

$$T_{x1} = 1,000.255 \cdot \cos 45^\circ$$