



Mi Universidad

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Nombre del tema: Trabajo virtual

Nombre de la Materia: Estática para la Arquitectura

Nombre del profesor: ARQ. García López Pedro Alberto

Nombre de la Licenciatura: Arquitectura

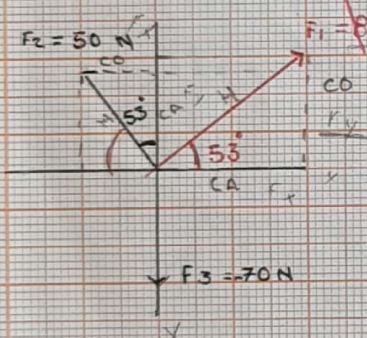
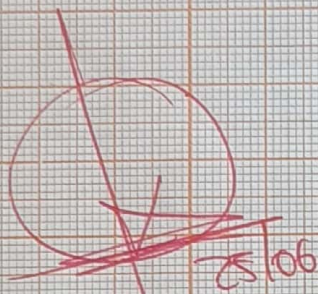
Cuatrimestre: tercer cuatrimestre

Comitán de Domínguez Chiapas

Fecha: 05 de julio de 2024

Sen

COS



$$\text{Sen } 53^\circ = \frac{F_y}{80\text{N}}$$

$$F_y = 80\text{N} \cdot \text{Sen } 53^\circ = \underline{63.890\text{ N}}$$

$$\text{COS } 53^\circ = \frac{F_x}{80\text{N}}$$

$$F_x = 80\text{N} \cdot \text{COS } 53^\circ = \underline{48.145\text{ N}}$$

$$\text{Sen } 53^\circ = \frac{F_{x2}}{50\text{N}}$$

$$F_{x2} = 50\text{N} \cdot \text{Sen } 53^\circ = \underline{-39.931\text{ N}}$$

$$\text{COS } 53^\circ = \frac{F_{y2}}{50\text{N}}$$

$$F_{y2} = 50\text{N} \cdot \text{COS } 53^\circ = \underline{30.090\text{ N}}$$

$$\text{Sen } 53^\circ = \frac{F_{zY}}{50\text{N}}$$

$$F_{zY} = 50\text{N} (\text{Sen } 53^\circ)$$

$$\text{COS } 53^\circ = \frac{F_{zX}}{50\text{N}}$$

$$F_{zX} = 50\text{N} (\text{COS } 53^\circ)$$

$$\sum F_y = 63.890\text{ N} + 30.090\text{ N} - 70\text{N} = \underline{23.98\text{ N}}$$

$$\sum F_x = 48.145\text{ N} + 39.931\text{ N} = \underline{88.076\text{ N}}$$

$\text{Sen } 60^\circ = \frac{F_y}{200\text{N}}$ $F_y = 200\text{N} \cdot \text{sen } 60^\circ = 173.20\text{N}$

$\text{Cos } 60^\circ = \frac{F_x}{200\text{N}}$ $F_x = 200\text{N} \cdot \text{cos } 60^\circ = 100\text{N}$

$\Sigma F_x = 100\text{N} - 300\text{N} = -200\text{N}$

$\Sigma F_y = 173.20\text{N}$

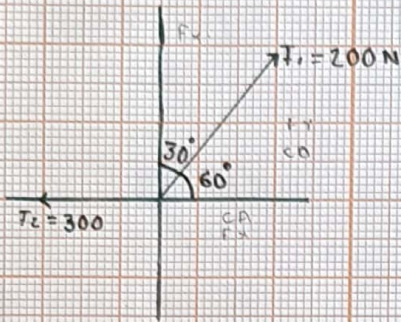
$\text{sen } \theta = \frac{CO}{H}$

$\text{cos } \theta = \frac{H}{CA}$

$\text{tan } \theta = \frac{CO}{CA}$

$C = \sqrt{a^2 + b^2}$

-0.865



$C = \sqrt{a^2 + b^2}$

$C = \sqrt{(-200\text{N})^2 + (173.20\text{N})^2}$

$C = \sqrt{40,000\text{N}^2 + 29,998.24\text{N}^2}$

$C = \sqrt{69,998.24\text{N}^2}$

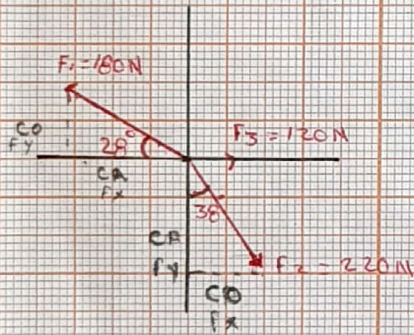
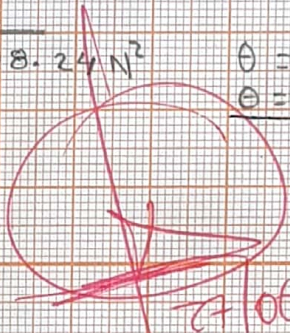
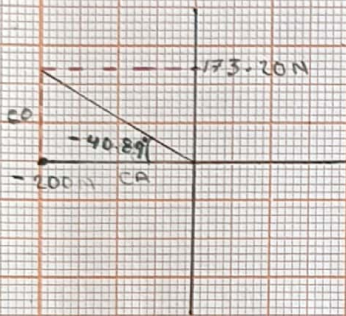
$C = 264.57\text{N} = R$

$\text{tan } \theta = \frac{CO}{CA}$

$\text{tan } \theta = \frac{173.20}{200}$

$\theta = \text{tan}^{-1} 0.866$

$\theta = 40.89^\circ$



$\text{Sen } 28^\circ = \frac{F_y}{180\text{N}}$ $F_y = 180\text{N} \cdot \text{sen } 28^\circ = 84.50\text{N}$

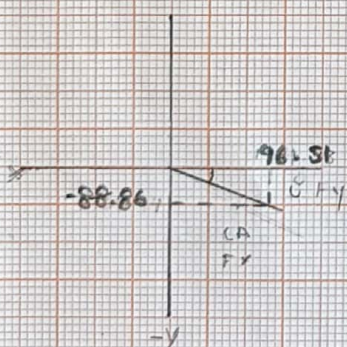
$\text{Cos } 28^\circ = \frac{F_x}{180\text{N}}$ $F_x = 180\text{N} \cdot \text{cos } 28^\circ = 158.93\text{N}$

$\text{Sen } 38^\circ = \frac{F_y}{220\text{N}}$ $F_y = 220\text{N} \cdot \text{sen } 38^\circ = 135.44\text{N}$

$\text{Cos } 38^\circ = \frac{F_x}{220\text{N}}$ $F_x = 220\text{N} \cdot \text{cos } 38^\circ = 173.36\text{N}$

$\Sigma F_x = -158.93\text{N} + 135.44\text{N} + 120\text{N} = 96.51\text{N}$

$\Sigma F_y = 84.50\text{N} - 173.36\text{N} = -88.86\text{N}$



$C = \sqrt{a^2 + b^2}$

$C = \sqrt{(96.51\text{N})^2 + (-88.86\text{N})^2}$

$C = \sqrt{9514.19 + 7896.09\text{N}}$

$C = \sqrt{17210.28\text{N}}$

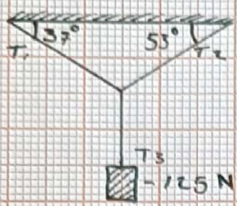
$C = 131.18\text{N}$

$\text{tan } \theta = \frac{CO}{CA}$

$\theta = \text{tan}^{-1} \frac{88.86\text{N}}{96.51\text{N}}$

$\theta = 42.61^\circ$

$C = 131.18\text{N}$

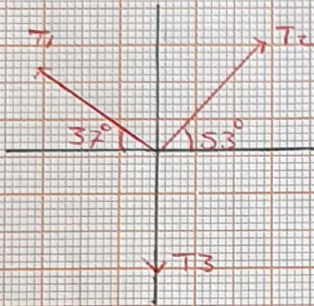


$$\text{Sen } 37^\circ = \frac{T_{1y}}{T_1} \rightarrow T_{1y} = T_1 (\text{sen } 37^\circ)$$

$$\text{Cos } 37^\circ = \frac{T_{1x}}{T_1} \rightarrow T_{1x} = T_1 (\text{cos } 37^\circ)$$

$$\text{Sen } 53^\circ = \frac{T_{2y}}{T_2} \rightarrow T_{2y} = T_2 (\text{sen } 53^\circ)$$

$$\text{Cos } 53^\circ = \frac{T_{2x}}{T_2} \rightarrow T_{2x} = T_2 (\text{cos } 53^\circ)$$



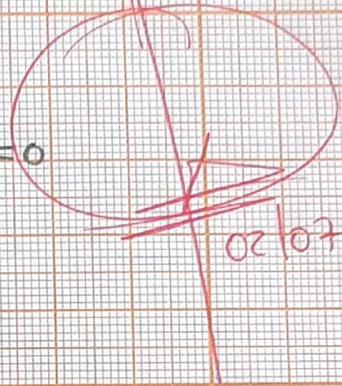
$$\sum F_x = 0$$

$$T_2 \cdot \text{Cos } 53^\circ - T_1 \cdot \text{Cos } 37^\circ = 0$$

$$T_2 \cdot \text{Cos } 53^\circ = T_1 \cdot \text{Cos } 37^\circ$$

$$T_2 = \frac{T_1 \cdot \text{Cos } 37^\circ}{\text{Cos } 53^\circ}$$

$$T_2 = 1.32 \cdot T_1$$



$$\sum F_y = 0$$

$$T_1 \cdot \text{Sen } 37^\circ + T_2 \cdot \text{Sen } 53^\circ - 125 \text{ N} = 0$$

$$T_1 \cdot \text{Sen } 37^\circ + (1.32 \cdot T_1) \text{ Sen } 53^\circ - 125 \text{ N} = 0$$

$$T_1 \cdot 0.60 + (1.32 \cdot T_1) \cdot 0.79 - 125 \text{ N} = 0$$

$$T_1 \cdot 0.60 + 1.04 \cdot T_1 - 125 \text{ N} = 0$$

$$T_1 \cdot 1.64 - 125 \text{ N} = 0$$

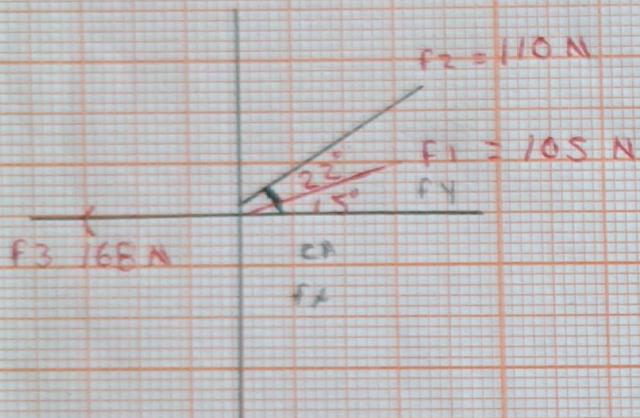
$$T_1 = \frac{125 \text{ N}}{1.64}$$

$$T_1 = 76.21 \text{ N}$$

$$T_2 = 1.32 \cdot T_1$$

$$T_2 = 1.32 \cdot 76.21 \text{ N}$$

$$T_2 = 100.89 \text{ N}$$



$$\sin 15^\circ = \frac{F_{1y}}{105 \text{ N}}$$

$$F_{1y} = 105 \text{ N} \cdot \sin 15^\circ = 27.175 \text{ N}$$

$$\cos 15^\circ = \frac{F_{1x}}{105}$$

$$F_{1x} = 105 \text{ N} \cdot \cos 15^\circ = 101.422 \text{ N}$$

$$\sin 37^\circ = \frac{F_{2y}}{110 \text{ N}}$$

$$F_{2y} = 110 \text{ N} \cdot \sin 37^\circ = 66.199 \text{ N}$$

$$\cos 37^\circ = \frac{F_{2x}}{110 \text{ N}}$$

$$F_{2x} = 110 \text{ N} \cdot \cos 37^\circ = 87.849 \text{ N}$$

$$\Sigma F_x = 101.422 \text{ N} + 87.849 \text{ N} - 168 \text{ N} = 21.271 \text{ N}$$

$$\Sigma F_y = 27.175 \text{ N} + 66.199 \text{ N} = 93.374 \text{ N}$$

$$\tan \theta = \frac{93.374 \text{ N}}{21.271 \text{ N}} = \theta \quad \tan^{-1} = \frac{93.374 \text{ N}}{21.271 \text{ N}}$$

$$\theta = 77.16^\circ$$

$$c = \sqrt{a^2 + b^2}$$

$$c = \sqrt{(21.271 \text{ N})^2 + (93.374 \text{ N})^2}$$

$$c = \sqrt{452.455 \text{ N} + 8718.703 \text{ N}}$$

$$c = \sqrt{9171.158 \text{ N}}$$

$$c = 95.766 \text{ N}$$

Rayler