Ejercicios

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Nombre del tema: Fuerzas coplanares

Parcial: I

Nombre de la Materia: Resistencia de materiales

Nombre del profesor: Arq. Pedro Garcia

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 4

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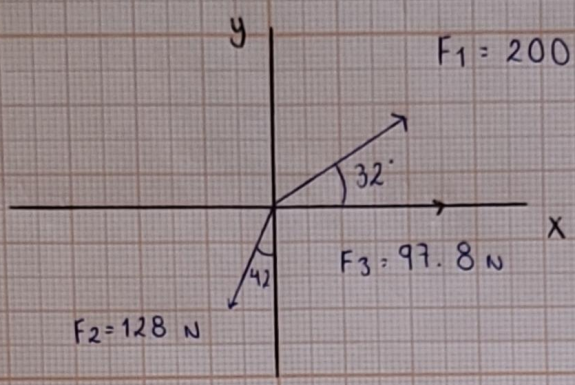
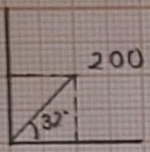
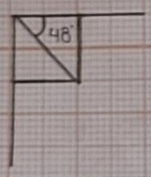
$\text{Sen}\,\theta = \frac{Co}{H}$





$\text{Sen}\ 32^\circ = \frac{F_{1y}}{200\ N} \rightarrow F_{1y} = \text{Sen}\ 32^\circ\ (200\ N) = 105.9838\ N$

$\text{Cos}\ 32^\circ = \frac{F_{1x}}{200\ N} \rightarrow F_{1x} = \text{Cos}\ 32^\circ\ (200\ N) = 169.6096\ N$

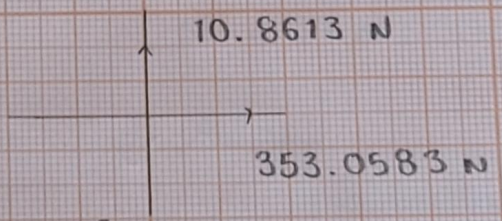


$\text{Sen}\ 48^\circ = \frac{F_{2y}}{128\ N} \rightarrow F_{2y} = \text{Sen}\ 48^\circ\ (128\ N) = 95.1225\ N$

$\text{Cos}\ 48 = \frac{F_{2x}}{128\ N} \rightarrow F_{2y} = \text{Cos}\ 48^\circ\ (128\ N) = 85.6478\ N$

$\Sigma XF = 169.6096 + 85.6487 + 97.8 = 353.0583\ N$

$\Sigma YF = 105.9838 - 95.1225 = 10.8613\ N$



$F_r = 353.2553\ N$

$h = \sqrt{(353.0583)^2 + (10.8613)^2}$

$h = 353.2553\ N$

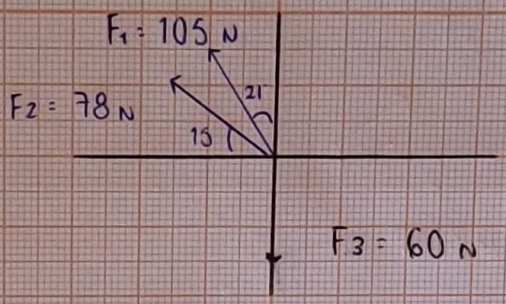
$\text{Tan}\ \theta = \frac{353.2553\ N}{10.8613\ N}$

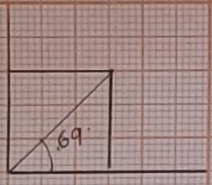
$\theta = \text{Tan}^{-1}\ (32.5060)$

$180 + 88.2379 = 268.2379$

$\theta = 88.2379$

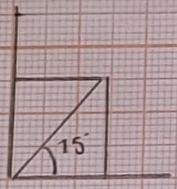
Rayter





$\text{Sen } 69^\circ = \frac{F1y}{105\ N} \rightarrow F1y = \text{Sen } 69\ (105\ N) = 98.0259\ N$

$\text{Cos } 69^\circ = \frac{F1x}{105\ N} \rightarrow F1x = \text{Cos } 69^\circ\ (105\ N) = 37.6286\ N$

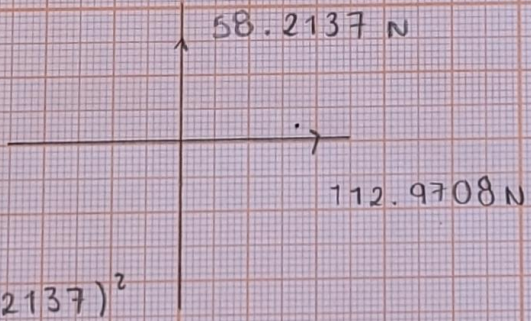


$\text{Sen } 15 = \frac{F2y}{78\ N} \rightarrow F2y = \text{Sen } 15\ (78\ N) = 20.1878\ N$

$\text{Cos } 15 = \frac{F2x}{78\ N} \rightarrow F2x = \text{Cos } 15\ (78\ N) = 75.3422\ N$

$\Sigma Fx = 37.6286 + 75.3422 = 112.9708\ N$

$\Sigma Fy = 98.0259 + 20.1878 - 60 = 58.2137\ N$



$Fr = 127.0875\ N$

$h = \sqrt{(112.9708)^2 + (58.2137)^2}$

$h = 127.0875\ N$

$\text{Tan } \theta = \frac{112.9708\ N}{58.2137\ N}$

$180 + 62.7377 = 242.7377$

$\theta = 62.7377$

Rayter