Nombre del Alumno José amilcar Trejo hidalgo

Nombre del tema: calculo

Parcial I

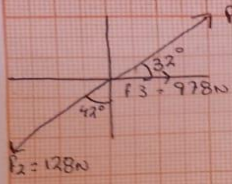
Nombre de la Materia : resistencia de materiales constructivos

Nombre del profesor pedro alberto

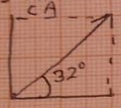
Nombre de la Licenciatura arquitectura

Cuatrimestre 4

Ejercicio 1



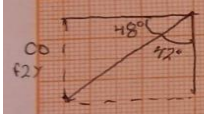
a) f_{2x}



$f_1 = 200\ N \quad \cos\theta = \frac{CA}{H} \rightarrow \cos 32° = \frac{f_{1x}}{200N} \rightarrow f_{1x} = \cos 32°(200N) = 169.609\ N$

$\operatorname{sen}\theta = \frac{CO}{H} \rightarrow \operatorname{sen} 32° = \frac{f_{1y}}{200N} \rightarrow f_{1x} = \operatorname{sen} 32°(200N) = 105.933N$

b) f_2 f_{2x} CA



$f_2 = 128\ N$

$\operatorname{sen}\theta = \frac{CO}{H} \rightarrow \operatorname{sen} 48° = \frac{f_{2y}}{128N} \rightarrow f_{2y} = \operatorname{sen} 48°(128N) = -95.122\ N$

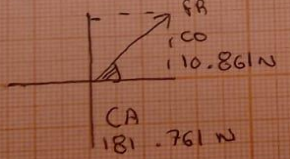
$\cos\theta = \frac{CA}{H} \rightarrow \cos 48° = \frac{F_{2x}}{128N} \rightarrow f_{2x} = \cos 48°(128N) = 85.648\ N$

c) f_3

97.8 N

$\Sigma F_x = 169.609N + (-85.648N) + 97.8N = 181.761\ N$

$\Sigma F_y = 105.983\ N - 95.122\ N = 10.861$



← fuerza resultante

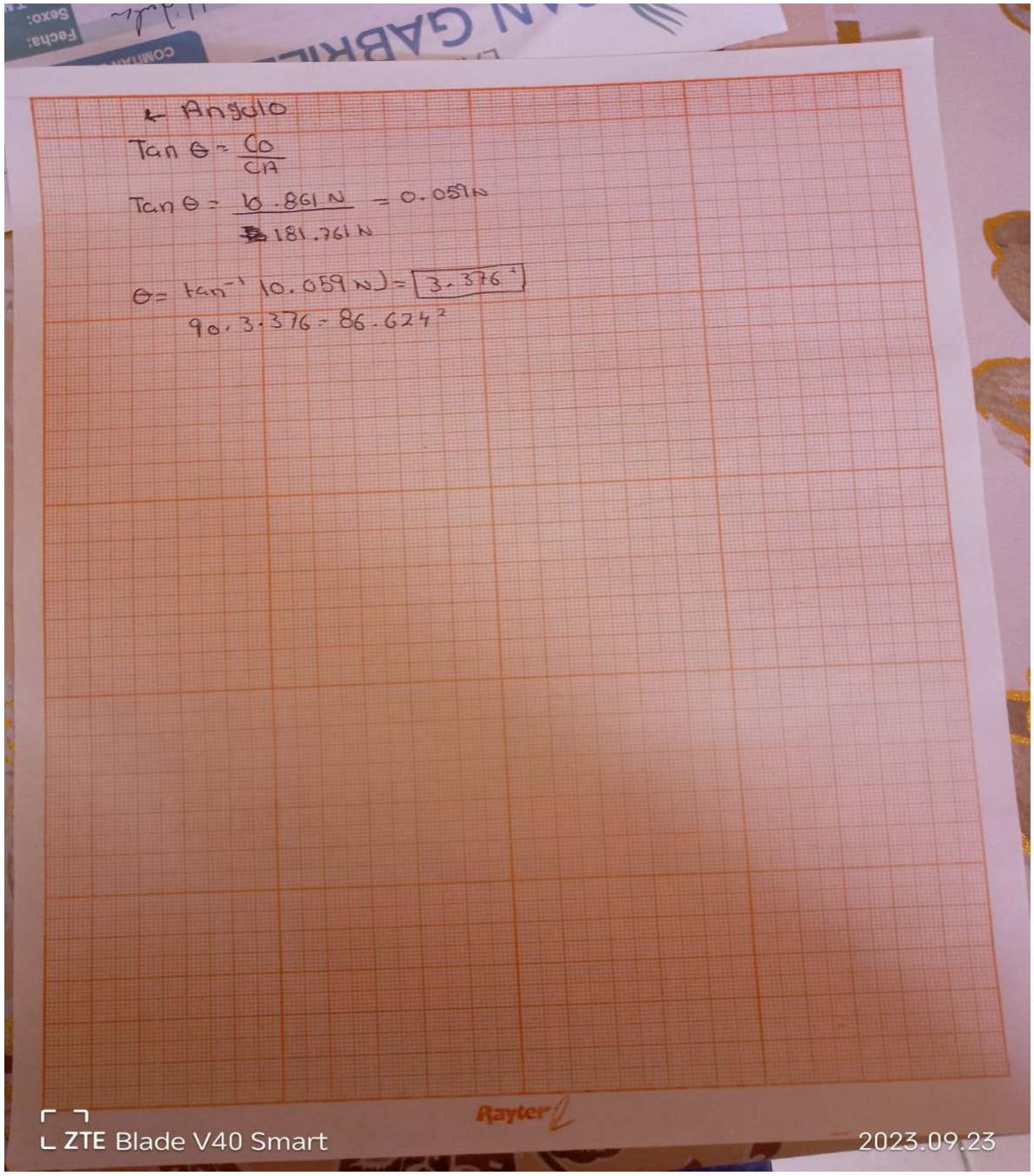
$H = \sqrt{CA^2 + Co^2}$

$H = \sqrt{(181.761N)^2 + (10.861)^2}$

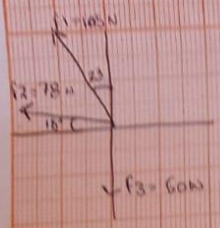
$H = \sqrt{33037.061 + 117.961}$

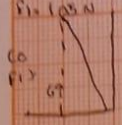
$H = 182.085\ N$

z


← Angulo
Tan θ = CO / CA
Tan θ = 10.861 N / 181.761 N = 0.059 N
θ = tan⁻¹ (0.059 N) = 3.376°
90 - 3.376 = 86.624°
ZTE Blade V40 Smart
2023.09.23

Ejercicio

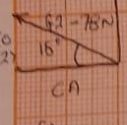




$\text{Sen } \theta = \frac{CO}{H} \rightarrow \text{Sen } 69° = \frac{F_1 Y}{105} \rightarrow F_1 Y = \text{Sen } 69° (105\,N) = \underline{98.025\,N}$

$\cos\theta \frac{CO}{H} \rightarrow \cos 69° = \frac{F_1 X}{105\,N} \rightarrow F_1 X = \cos 69° (105\,N) = \underline{37.628\,N}$

b) f2



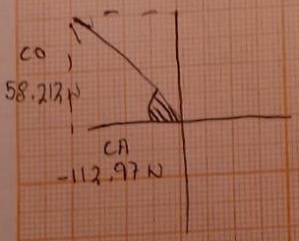
$\text{Sen } \theta = \frac{CO}{H} \rightarrow \text{Sen } 15° = \frac{F_2 Y}{78\,N} \rightarrow F_2 Y = \text{Sen } 15° (78\,N) = \underline{20.187\,N}$

$\cos\theta = \frac{CA}{H} \rightarrow \cos 15° = \frac{F_2 X}{78\,N} \rightarrow F_2 X = \cos 15° (78\,N) = \underline{75.342\,N}$

c) f3
- 60 N

$\Sigma F X = -37.68N - 75.342\,N = \underline{-112.97\,N}$

$\Sigma F Y = 98.025\,N + 20.187\,N - 60\,N = \underline{58.212\,N}$



Σ fuerza resultante

$H = \sqrt{CA^2 + CO^2}$

$H = \sqrt{(-112.97\,N)^2 + (58.212)^2}$

$H = \sqrt{12762.200 + 3388.636\,N}$

$\boxed{H = 127.086\,N}$

ángulo

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

$\text{Tan}^{-1}(-0.515\,N) = \boxed{-27.248°}$

$90 - 27.248 = 62.752°$

$180 - 27.248° = 152.752$

Rayter