NOMBRE DEL ALUMNO: JOSE LISANDRO LOPEZ ALFARO

NOMBRE DEL TEMA: EJERSICIOS

PARCIAL: I

NOMBRE DE LA MATERIA: RESISTENCIA DE MATERIALES

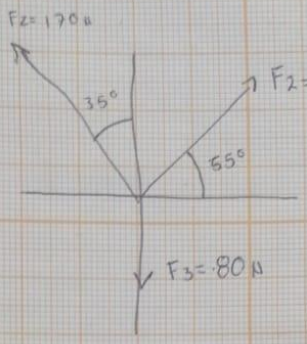
NOMBRE DEL PROFESOR: PEDRO ALBERTO GARCIA LOPEZ

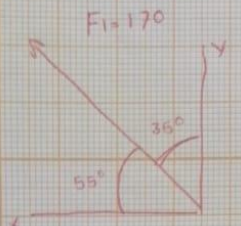
NOMBRE DE LA LICENCIATURA: ARQUITECTURA

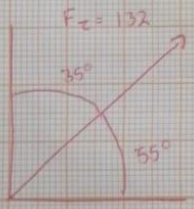
CUATRIMESTRE: IV

COMITAN DE DOMINGUEZ, 22/09/22

Resistencia Materiales







Sen ∅ = Cos/H

Sen 55° (170 N) = 139.25N

Cos 55° (170 N) = -97.50N

Cos 55° (132 N) = 75.71N

Sen 55 (132 N) = 108.12N

$\Sigma F_x = -97.507_6 + 75.71 = -21.795N$

$\Sigma F_y = 139.25 + 108.12 - 80 = 169.385N$

$FR = \sqrt{(-474.80) + (180812.71)}$

FR= 168.7960

Tan ∅ = -21.79 / 167.37N

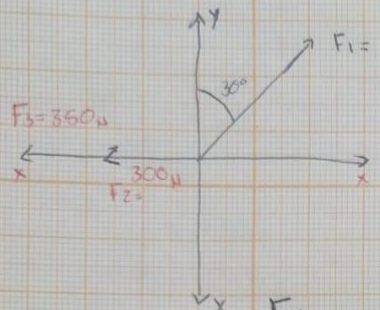
Tan ∅ = -0.130919

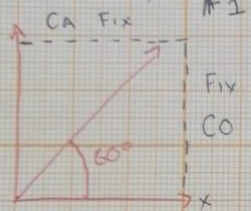
∅ $\tan^{-1}$ (-0.13019) = -7.67.98

∅ tan (-7.67981) = -82.5811

180 - 82.5811 = 97.418°

Resistencia Materiales

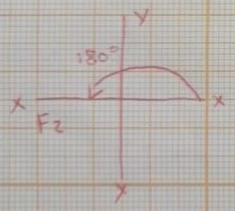




$\text{Sen } \theta = F_{1Y} / 200_N$

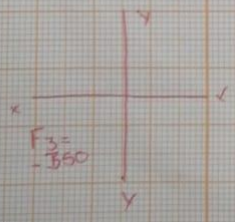
$\text{Sen } 60° (200) = 173.205_N$ ✓

$\text{Cos } 60° (200) = 100_N$ ✓



$\text{Cos } 180° (300_N) = -300_N$ ✓

$\text{Sen } 180° (300_N) = 0_N$ ✓



$\Sigma F_X = 0 \longrightarrow 173.025_N$ ✓

$\Sigma F_Y = -300 - 350 = -550_N$ ✓

$FR = \sqrt{(-550)^2 + (173.205)^2}$

$FR = 576.678_N$

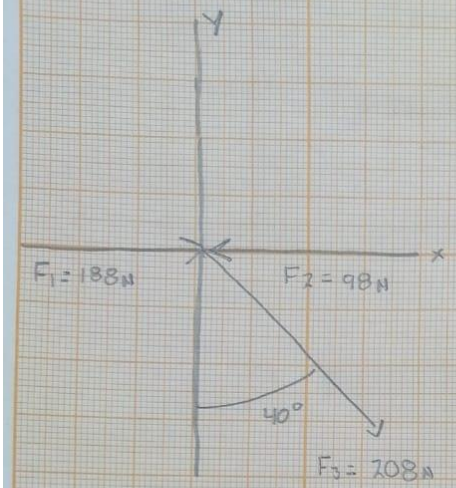
$\text{Tan } \theta = co/ca$

$\text{Tan } \theta = \frac{173.205}{-550}$

$\tan\theta = 0.3149 \rightarrow \theta = \tan^{-1}(-0.3149) = 17.4792$

$180 - 17.4792 = 162.5208$

ORGANIFORMAS 7 PM-50 dipao



$\text{Sen } \theta = \frac{F_{3y}}{208}$

$\text{Sen } 50°(208_N) = -159.337_N$

$\cos \theta = \frac{F_{3x}}{208_N}$

$\cos 50°(208_N) = -133.699_N$

$\sum F_x = -188 + 98 + 159.337_N = 69.337_N$

$\sum F_y = -133.699_N$

$F_R = \sqrt{(159.337)^2 + (223.699)^2}$

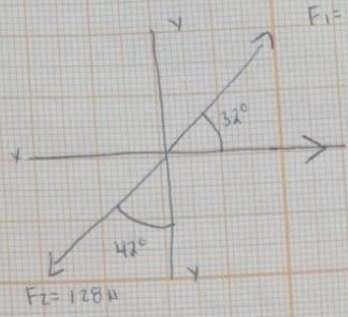
$F_R = 274.644_N$

$\text{Tan } \theta = \frac{-159.337}{223.699}$

$\theta = \text{Tan}^{-1}(0.712)$

$\theta = -35.461 + 360$

$\theta = 324.539°$



$F_1 = 200\,N$

$F_{1y} = \text{Sen } 32°\,(200) = 105.983_N$ ↑

$F_{1x} = \text{Cos } 32°\,(200) = 169.609_N$ →

$F_2 = 128_N$

$F_{2x} = \text{Cos } 48°\,(128) = -85.648_N$ ←

$F_{2y} = \text{Sen } 48°\,(128_N) = -95.122_N$ ↓

$F_3 = 97.8$

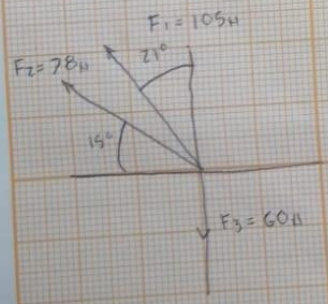
$\sum F_x = 169.609 - 85.648 + 97.8 = 181.761_N$ →

$\sum F_y = 105.983 - 95.122_N = 10.861_N$ ↑

$\text{Tan}^{-1} = \frac{10.861}{181.761} = 3.419°$ ↑

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

$FR = 182.085_N$ ↗



$F_1 = 105_N$

$\text{Sen } 69°\,(105_N) = 98.07_N$ ↑

$\text{Cos } 69\,(105_N) = -37.62_N$ ←

$F_2 = 78_N$

$\text{Sen } 15°\,(78) = 20.18_N$ ↑

$\text{Cos } 15°\,(78) = -75.34_N$ ←

$\sum F_x = -37.62 - 75.34 = -112.96_N$ ←

$\sum F_y = 98.07 + 20.18 - 60 = 58.2_N$ ↑

$FR = \sqrt{(-112.96)^2 + (58.2)^2}$

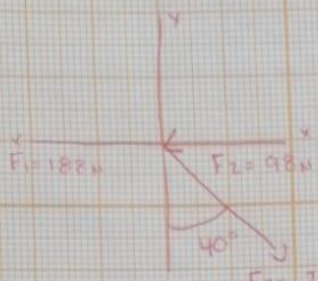
$FR = 127.07_N$ ↖

$\theta = \text{Tan}\,\theta = 58.2 / -112.96$

$\theta = -27.25$

$\theta = 152.74$

Resistencia de Materiales



Sen 50° (208) = 159.337 N

Cos 50° (208) = -133.699 N

$\sum F_x = -188 + 98 + 159.337 = 69.337$

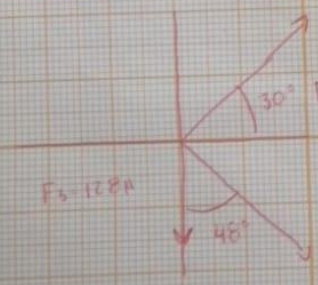
$\sum F_y = -133.699 N$

$FR = \sqrt{(159.337)^2 + (223.699)^2}$

FR = 274.644N

Tan Ø = -159.337 / 223.699

Ø = tan⁻¹ (-0.712) → Ø = -35.461 + 360 = 324.538°



F1= 28N

Sen 30° (28N) = 14 N

Cos 30° (28N) = 24.2487 N

F2= 71N

Sen 42° (71N) = -47.508N

Cos 42° (71N) = 52.763 N

F3= 28N

$\sum F_x = 24.2487 + 52.763 = 77.01N$

$\sum F_y = 14 - 47.508 - 28 = -61.508N$

$FR = \sqrt{(77.01)^2 + (-61.508)^2}$

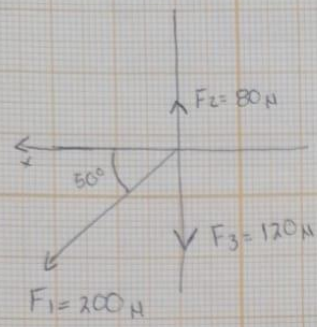
FR = 98.558 N

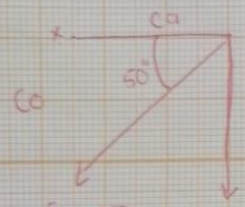
$\tan^{-1} = -61 / 77.01 = -38.614$

90 - 38.614 = 51.386

360 - 38.614 = 321.38

Resistencia de Materiales





$F_{1y} = \text{Sen } 30° (200) = -100_N$

$F_{1x} = \text{Cos } 30° (200_N) = 173.205_N$

$\Sigma F_x = 173.205$

$\Sigma F_y = -140_N$

$FR = \sqrt{(173.205)^2 + (-140_N)}$

$FR = 222.706_N$

$\tan \theta = -173.205 / -140$

$\tan^{-1} = \frac{-140_N}{-173.205_N}$

$\theta = 38.94090 \longrightarrow 180 + 38.94090 = 218.9490$