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DOCENTE: ARQ. PEDRO ALBERTO GARCÍA LÓPEZ

MATERIA: RESISTENCIA DE MATERIALES DE CONSTRUCCION

ACTIVIDAD: RESULTANTE DE FUERZAS

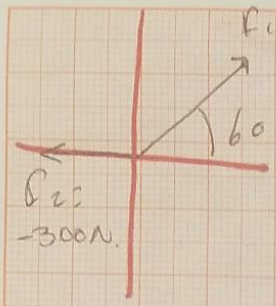
CUATRIMESTRE: 4° CUATRIMESTRE

GRUPO: A

LUGAR Y FECHA: 25/09/2022

Comitán de Domínguez Chiapas 2022

(1)



$F_1 = 200N$

$f_{1x} = 200N (\cos 60°)$

$f_{1x} = 100N$

Sen 60°

$f_{1y} = 200N (\text{sen } 60°)$

$f_{1y} = 173.20s$

$f_2 = -300N = f_{2x}$

Sumatoria

$\Sigma f_x = 100N - 300N$

$= -200N.$

$R = \sqrt{(-200N)^2 + (173.20s)^2}$

$\Sigma f_y = 173.20s$

$R = \sqrt{(40.000)^2 + (29,999.972)^2}$

$R = \sqrt{69,999.972N}$

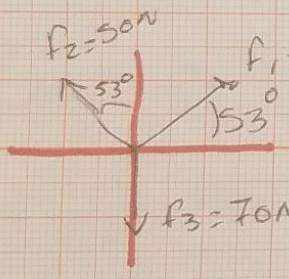
$R = 264.575N$

$\text{tang} = \frac{co}{ca}$

$\text{tang}\,\theta = \frac{173.20s}{-200}$

$= -40.893$

(2)



(1) $F_1 = 8a$

$\cos 53° = \frac{f_{1x}}{80N}$

$f_{1x} = 80N (\cos 53°)$

$= 48.14N$

$\text{Sen } 53° = \frac{f_{1y}}{80N} = f_{1y} = 80N (\text{sen } 53°)$

$= 63.89N$

(2) $F_2 = 50N.$

$\text{Sen } 53° = \frac{f_{2x}}{50N}$

$f_{2x} = 50N (\text{sen } 53°)$

$= 39.931N$

$\cos 53°$

$f_{2y} = 50 (\cos 53°)$

$= 30.090$

$f_2 = -70N$

(3) Σf_x 48.14N - 39.931

$= 8.209$

$\Sigma f_y = 63.89N + 30.090 + (-70N)$

$= 23.980N$

(4) $R = \sqrt{(8.209)^2 + (23.980N)^2}$

$R = \sqrt{(67.387)^2 + (575.0410N)^2}$

$R = \sqrt{642.427N.}$

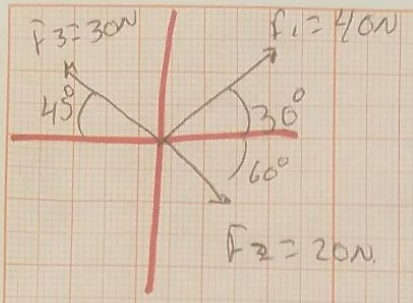
$R = 25.346N.$

$\text{tang}^{-1} = \frac{co}{ca} = \frac{23.980N}{8.209N.}$

$R = 71.102N$

SEGURIDAD... PM1 mayoo

(3)



$F_1 = 40$

$\cos 30° = \frac{f_{1x}}{40}$ $\quad$ $\operatorname{Sen} 30° = \frac{f_{1y}}{40}$

$f_{1y} = 40N(\cos 30°)$ $\quad$ $f_{1y} = 40N(\operatorname{Sen} 30°)$

$= 34.641N$ $\quad$ $= 20N$

$F_2 = 20N$

$\cos 60° = \frac{f_{2x}}{20N} = f_{2x} = 20(\cos 60°) = 10N$

$\operatorname{Sen} 60° = \frac{f_{2y}}{20N} = f_{2y} = 20N(\operatorname{Sen} 60°) = 17.320N$

$F_3 = 30N.$

$\cos 45° = \frac{f_{3x}}{30N} = f_{3x} = 30N(\cos 45°) = -21.213N.$

$\operatorname{Sen} 45° = \frac{f_{3y}}{30N} = f_{3y} = 30N(\operatorname{Sen} 45°) = 21.213N.$

$\Sigma f_x = 34.641 + 10N(-21.213N) = 23.428N.$

$\Sigma f_y = 20N + 17.320N + 21.213N = 58.533N.$

$R = \sqrt{(23.428)^2 + (58.533)^2}$

$R = \sqrt{(548.871N)^2 + (3,426.112N)^2}$

$R = \sqrt{3974.983N}$

$R = 63.047N.$

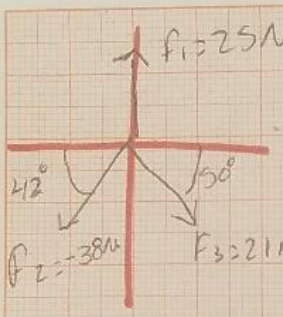
$\tan^{-1} = \frac{CO}{CA}$

$\tan^{-1} = \frac{58.533}{23.428}$

$= 68.186°$

(3)

$f_1 = 25N$



(4)

$f_2 = -38N.$

$\cos 42° = \frac{f_{2x}}{-38N} = f_{2x} = -38N(\cos 42) = -28.239N$

$\text{Sen } 42° = \frac{f_{2y}}{-38N} = f_{2y} = -38N(\text{sen } 42°) = -25.426N$

$f_3 = 21N.$

$\cos 50° = \frac{f_{3x}}{21N} = f_{3x} = 21N(\cos 50°) = 13.498N$

$\text{Sen } 50° = \frac{f_{3y}}{21N} = f_{3y} = 21N(\text{sen } 50°) = 16.086N$

$\Sigma f_x = -28.239 + 13.498N. = -14.741N$

$\Sigma f_y = 25N + (-25.426N) + 16.086N = 15.660N.$

$R = \sqrt{(14.741)^2 + (15.660)^2}$

$R = \sqrt{(217.297) + (245.235)^2}$

$R = \sqrt{462.532N}$

$R = 21.506N$

$\tan^{-1}\theta = \frac{co}{ca}$

$\tan\theta = \frac{-14.745}{15.660N.}$

$\tan\theta = -43.268°$