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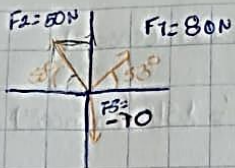
MATERIA: RESISTENCIA DE MATERIALES DE CONSTRUCCION

ACTIVIDAD: EJERCICIOS

CUATRIMESTRE: 4

GRUPO: LAR04EMC0121-A

LUGAR Y FECHA: COMITAN DE DOMINGUEZ CHIAPAS, A; 25 DE SEPTIEMBRE DE 2022



$$\cos 53^\circ = \frac{F_{1x}}{80\text{N}} \quad F_{1x} = 80\text{N} (\cos 53^\circ)$$

$$\sin 53^\circ = \frac{F_{1y}}{80\text{N}} \quad F_{1y} = 80\text{N} (\sin 53^\circ)$$

$$F_{1x} = 48.14\text{N}$$

$$F_{1y} = 63.89\text{N}$$

$$\sin 53^\circ \frac{F_{2x}}{50\text{N}} \quad F_{2x} = 50\text{N} (\sin 53^\circ) = -39.93\text{N}$$

$$\cos 53^\circ \frac{F_{2y}}{50\text{N}} \quad F_{2y} = 50\text{N} (\cos 53^\circ) = 30.09\text{N}$$

$$\Sigma F_x = 48.14\text{N} + (-39.93) = 8.21\text{N}$$

$$\Sigma F_y = 63.89\text{N} + 30.09 + (-70) = 23.89\text{N}$$

$$23.89$$

$$8.21$$

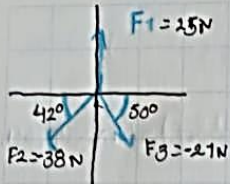
$$R = \sqrt{8.21^2 + 23.89^2}$$

$$R = \sqrt{67.40^2 + 570.73^2}$$

$$R = \sqrt{638.132}$$

$$R = 25.26\text{N}$$

$$\theta \tan^{-1} \frac{23.89}{8.21} = 71.034\text{N}$$



$$\cos 42^\circ = \frac{F_{2x}}{-38} \quad F_{2x} = -38 (\cos 42^\circ) = -28.234 \text{ N}$$

$$\sin 42^\circ = \frac{F_{2y}}{-38} \quad F_{2y} = -38 (\sin 42^\circ) = -25.442 \text{ N}$$

$$\cos 50^\circ = \frac{F_{3x}}{21} \quad F_{3x} = 21 (\cos 50^\circ) = 13.482 \text{ N}$$

$$\sin 50^\circ = \frac{F_{3y}}{-21} \quad F_{3y} = -21 (\sin 50^\circ) = -16.086 \text{ N}$$

$$\Sigma F_x = -28.234 + 13.482 = -14.752 \text{ N}$$

$$\Sigma F_y = 25 - 25.442 - 16.086 = -16.508 \text{ N}$$

-14.752

-16.508

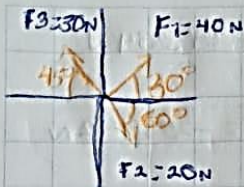
$$R = \sqrt{-14.752^2 + (-16.508 \text{ N})^2}$$

$$R = \sqrt{217.621 + 272.514}$$

$$R = \sqrt{49.135}$$

$$R = 22.138 \text{ N}$$

$$\theta \tan^{-1} = \frac{-16.508}{-14.752} \quad \theta = 48.275 \text{ N}$$



$$\cos 30^\circ \frac{F_1}{40N} \quad F_{1x} = 40N (\cos 30^\circ) = F_{1x} = 34.64N$$

$$\sin 30^\circ \frac{F_1}{40N} \quad F_{1y} = 40N (\sin 30^\circ) = F_{1y} = 20N$$

$$\cos 60^\circ = \frac{F_{2x}}{20N} \quad F_{2x} = 20N (\cos 60^\circ) = 10N$$

$$\sin 60^\circ = \frac{F_{2y}}{20N} \quad F_{2y} = -20N (\sin 60^\circ) = -17.32N$$

$$\cos 45^\circ = \frac{F_{3x}}{30N} \quad F_{3x} = -30N (\cos 45^\circ) = -21.21N$$

$$\sin 45^\circ = \frac{F_{3y}}{30N} \quad F_{3y} = -30N (\sin 45^\circ) = -21.21N$$

$$\sum F_x = 34.64N + 10N - 21.21N = 23.43N$$

$$\sum F_y = 20 - 17.32 - 21.21 = -18.53N$$

$$R = \sqrt{23.43^2 + 18.53^2}$$

23.89

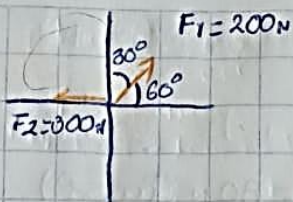
$$R = \sqrt{548.964^2 + 570.732} \quad \theta \tan \theta = \frac{18.53}{23.43}$$

23.43

$$R = \sqrt{1119.696}$$

$$\theta = 45.556^\circ$$

$$R = 33.467N$$



$$\cos 60^\circ = \frac{F_{1x}}{200\text{N}} \quad F_{1x} = 200\text{N}(\cos 60^\circ)$$

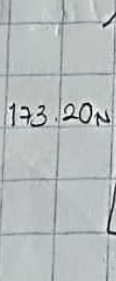
$$\sin 60^\circ = \frac{F_{1y}}{200\text{N}} \quad F_{1y} = 200\text{N}(\sin 60^\circ)$$

$$F_{1x} = 100\text{N}$$

$$F_{1y} = 173.20\text{N}$$

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

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

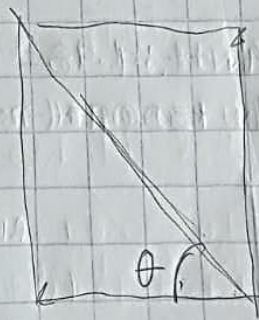


$$R = \sqrt{(+200)^2 + (173.20)^2}$$

$$R = \sqrt{40000 + 29,998.24}$$

$$R = \sqrt{69,998.24}$$

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



$$\theta = \tan^{-1} \frac{173.20}{-200}$$

$$\theta = -40.893 \text{ N}$$

$$-40^\circ 53' 36.77''$$

$$\tan^{-1} = \frac{O}{A}$$