

Calcular el vector resultante y el ángulo de vector resultante de un sistema de vectores en los que

$$V_1 = 10 \text{ cm } 85^\circ \quad V_2 = 5 \text{ cm } 110^\circ \quad V_3 = 8 \text{ cm } 200^\circ$$

$$\begin{aligned} V_1 &= 10 \text{ cm } 85^\circ \\ V_2 &= 5 \text{ cm } 110^\circ \\ V_3 &= 8 \text{ cm } 200^\circ \end{aligned}$$

$$V_R = 14.55 \text{ cm } \alpha 127$$

$$\sum V_x = 0.87 - 1.71 - 7.51$$

$$\begin{aligned} V_{1x} &= 10 \text{ cm } \cos 85 \\ V_{1x} &= 0.87 \end{aligned}$$

$$\sum V_x = -8.35$$

$$\begin{aligned} V_{1y} &= 10 \text{ cm } \sin 85 \\ V_{1y} &= 9.96 \end{aligned}$$

$$\sum V_y = 11.92$$

$$\begin{aligned} V_{2x} &= 5 \cos 110^\circ \\ V_{2x} &= -1.71 \end{aligned}$$

$$\sqrt{(8.35)^2 + (11.92)^2}$$

$$\begin{aligned} V_{2y} &= 5 \sin 110^\circ \\ V_{2y} &= 4.69 \end{aligned}$$

$$\sqrt{69.72 + 142.68}$$

$$\begin{aligned} V_{3x} &= 8 \cos 200^\circ \\ V_{3x} &= -7.51 \end{aligned}$$

$$14.55$$

$$V_{3y} = 8 \sin 200^\circ$$

$$V_{3y} = -2.73$$

$$\boxed{6.30}$$

FISICA

6: un objeto de acero de 679.14 N de peso está suspendido como se muestra en la figura

¿cuales serán las tensiones T_1 y T_2 que sostienen el cuerpo?

$$F_{1x} = F_1 \cos 130^\circ$$

$$F_{1x} = -0.64$$

$$F_{1y} = F_1 \sin 130$$

$$F_{2x} = \cos 0$$

$$F_{2x} = 1$$

$$F_{2y} = F_2 \sin 0$$

$$F_{2y} = 0$$

$$(-0.64 F_1 + F_2 = 0) \quad 0$$

$$(0.76 F_1 = 679.14) \quad 1$$

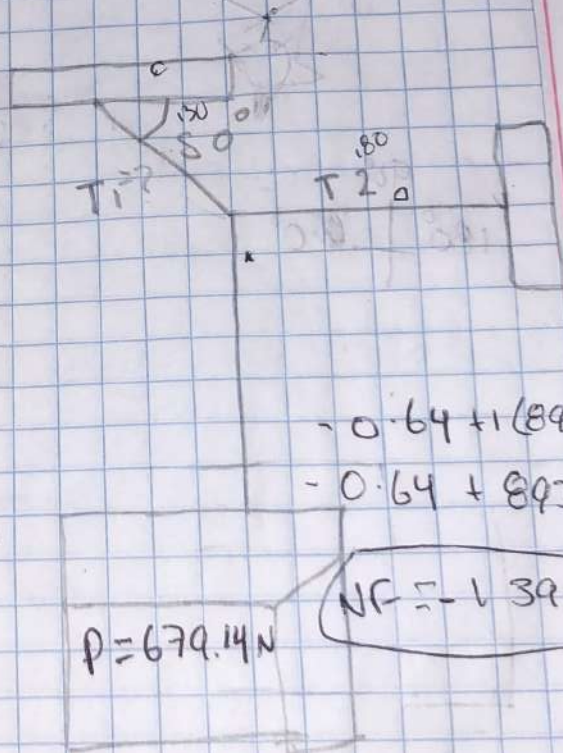
$$0 F_1 + 0 F_2 = 0$$

$$0.76 F_1 = 679.14$$

$$0.76 = 679.14$$

$$= 679.14 / 0.76$$

$$F = 893.60$$



$$-0.64 + 1(893.6)$$

$$-0.64 + 893.60$$

$$NF = -1396.25$$

FISICA

2: Calcular el vector resultante y el angulo del vector resultante de un sistema de vectores en los que $V_1 = 10 \text{ cm } 45^\circ$; $V_2 = 15 \text{ cm } 100^\circ$; $V_3 = 8 \text{ cm } 210^\circ$

$$V_R = 17.60 \text{ cm } 7.25$$

$$\Sigma V_x = 7.07 - 2.60 - 6.92$$

$$\Sigma V_x = -2.45$$

$$V_1 = 10 \text{ cm } 45^\circ$$

$$V_2 = 15 \text{ cm } 100^\circ$$

$$V_3 = 8 \text{ cm } 210^\circ$$

$$\Sigma V_y = 7.07 + 14.7 - 4$$

$$\Sigma V_y = 17.77$$

$$V_{1x} = 10 \text{ cm } \cos 45^\circ$$

$$V_{1x} = 7.07$$

$$V_{1y} = 10 \text{ cm } \sin 45^\circ$$

$$V_{1y} = 7.07$$

$$V_{2x} = 15 \text{ cm } \cos 100^\circ$$

$$V_{2x} = -2.60$$

$$V_{2y} = 15 \text{ cm } \sin 100^\circ$$

$$V_{2y} = 14.77$$

$$V_{3x} = 8 \text{ cm } \cos 210^\circ$$

$$V_{3x} = -6.92$$

$$V_{3y} = 8 \text{ cm } \sin 210^\circ$$

$$V_{3y} = -4$$

$$\sqrt{(-2.45)^2 + (17.77)^2}$$

$$\sqrt{-6.00 + 315.77}$$

$$\sqrt{309.77}$$

$$V_R = 17.60$$

$$\alpha \tan^{-1} = \frac{V_y}{V_x}$$

$$\alpha \tan^{-1} = \frac{17.77}{-2.45}$$

$$\alpha = -7.25$$

FISICA

3- Calcular el vector resultante y el ángulo del vector resultante cuando $V_R = V_1 - V_2$ de un sistema de vectores en los que $V_1 = 10 \text{ cm } 45^\circ$
 $V_2 = 5 \text{ cm } 110^\circ$

$$V_1 = 10 \text{ cm } 45^\circ$$

$$V_2 = 5 \text{ cm } 110^\circ$$

$$V_{1x} = V_1 \cos \alpha$$

$$V_{1x} = 10 \text{ cm } \cos 45^\circ$$

$$V_{1x} = \boxed{7.07}$$

$$V_{1y} = V_1 \sin \alpha$$

$$V_{1y} = 5 \text{ cm } \sin 110^\circ$$

$$V_{1y} = \boxed{4.69}$$

$$V_{2x} = 5 \text{ cm } \cos 110^\circ$$

$$V_{2x} = \boxed{-1.71}$$

$$V_{2y} = 10 \text{ cm } \sin 45^\circ$$

$$V_{2y} = \boxed{7.07}$$

$$\sum V_x = V_{1x} + V_{2x}$$

$$\sum V_x = 7.07 + (-1.71)$$

$$\sum V_x = \boxed{5.36}$$

$$\sum V_y = V_{1y} + V_{2y}$$

$$\sum V_y = 4.69 + 7.07$$

$$\sum V_y = \boxed{11.76}$$

$$V_R = \sqrt{(\sum V_x)^2 + (\sum V_y)^2}$$

$$V_R = \sqrt{(28.72) + (138.29)}$$

$$V_R = \boxed{12.9}$$

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

$$\alpha = \tan^{-1} \frac{V_y}{V_x}$$

$$\alpha = \tan^{-1} \frac{11.76}{5.36} = \alpha = \boxed{65.4}$$

ADJUDICA Duda

FISICA

- 4) calcular el vector resultante y el Angulo del vector resultante cuando $V_R = V_2 - V_1$ de un sistema de vectores en los que!

$$V_1 = 5 \text{ cm } 30^\circ \quad V_2 = 5 \text{ cm } 130^\circ$$

$$V_{1x} = V_1 \cos \alpha$$
$$V_{1x} = 5 \text{ cm } \cos 30^\circ$$

$$V_{1x} = 4.33$$

$$V_{1y} = V_1 \sin \alpha$$

$$V_{1y} = 5 \text{ cm } \sin 30^\circ$$

$$V_{1y} = 2.5$$

$$V_{2x} = 5 \text{ cm } \cos 130^\circ$$

$$V_{2x} = -4.33$$

$$V_{2y} = 5 \text{ cm } \sin 30^\circ$$

$$V_{2y} = 2.5$$

$$\sum V_x = 4.33 + (-4.33)$$

$$\sum V_x = 0$$

$$\sum V_y = 2.5 + 2.5$$

$$\sum V_y = 5$$

$$V_R = \sqrt{(\sum V_x)^2 + (\sum V_y)^2}$$

$$V_R = \sqrt{(0)^2 + (5)^2}$$

$$V_R = 5$$

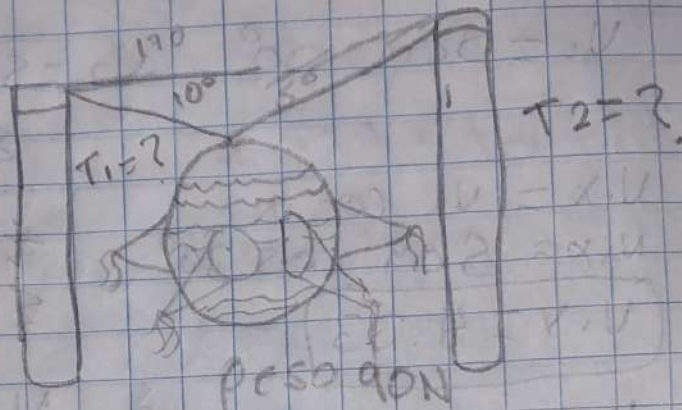
$$\alpha = \tan^{-1} \frac{C_o}{C_a}$$

$$\alpha = \tan^{-1} \frac{5}{0}$$

$$\alpha = \tan^{-1} = 90^\circ$$

FISICA

- Una pñala que pesa 90N se suspende de dos postes con cuerdas, como se muestra en la figura



$$F_x = F_1 \cos 5^\circ$$

$$F_x = 0.99$$

$$F_y = F_1 \sin 5^\circ$$

$$F_y = 0.08$$

$$F_{2x} = F_2 \cos 170^\circ$$

$$F_{2x} = -0.98$$

$$F_{2y} = F_2 \sin 170^\circ$$

$$F_{2y} = 0.17$$

$$F_{1x} + F_{2x} = 0$$

~~90 + (-0.98)~~

$$0.99 + (-0.98) = 0.01$$

$$0.08 + 0.17$$

$$0.26 F_1 = 90N$$

$$0.99 (346.15) - 0.98 F_2 = 0 \quad F_1 = 90 / 0.26$$

$$342.68 - 0.98 F_2$$

$$F_1 = 346.15 N$$

$$F_2 = 349.67 N$$