

Comitán de dominguez

Tarea: Plataforma,

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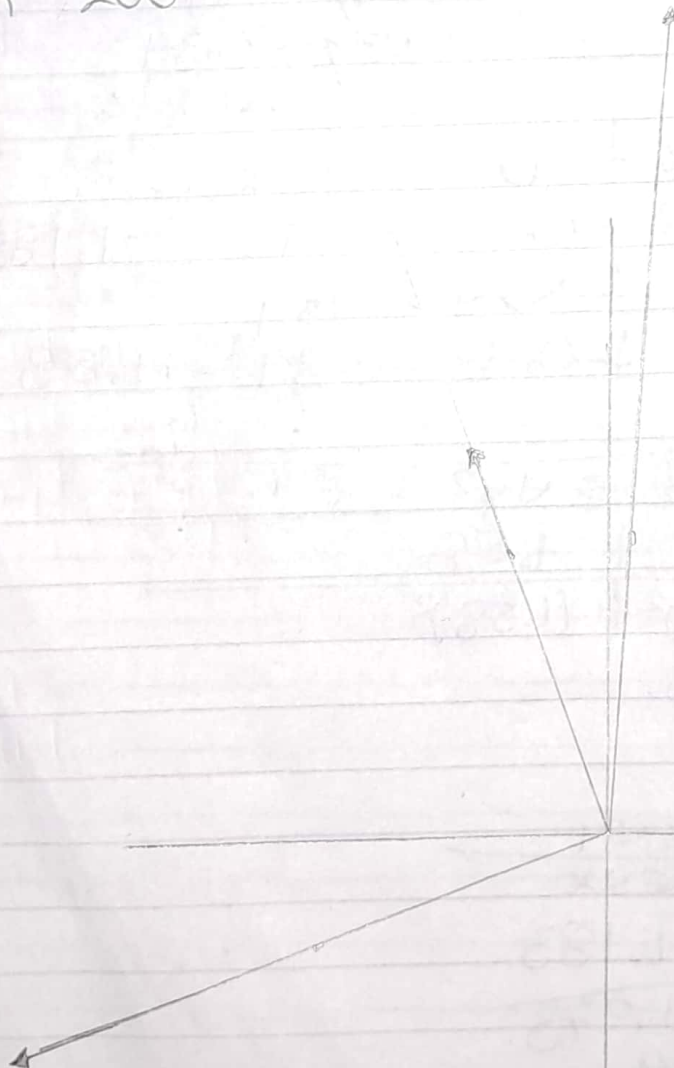
### Problema. física.

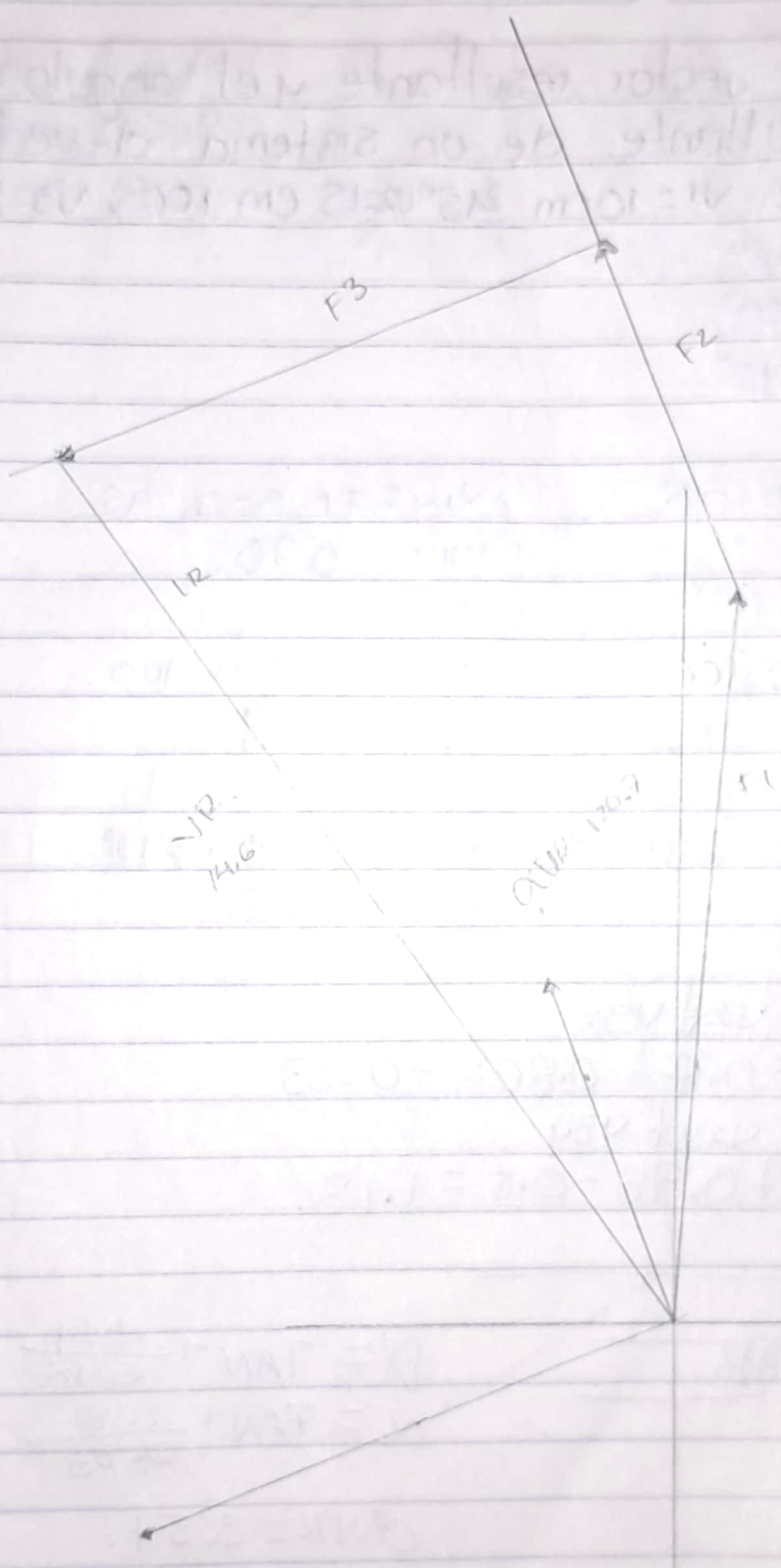
1: Calcular el vector resultante y el ángulo del vector resultante de un sistema de vectores en los  $V_1 = 10 \text{ cm } 85^\circ$ ;  
 $V_2 = 5 \text{ cm } 110^\circ$ ;  $V_3 = 8 \text{ cm } 200^\circ$ .

$$V_1 = 10 \text{ cm } 85^\circ$$

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

$$V_3 = 8 \text{ cm } 200^\circ$$





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

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

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

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

$$V_{1x} = F_1 \cos 45$$

$$V_{1x} = 0.70$$

$$V_{1y} = F_1 \text{ sen } 45$$

$$V_{1y} = 0.70$$

$$V_{2x} = F_2 \cos 100$$

$$V_{2x} = -0.17$$

$$V_{2y} = F_2 \text{ sen } 100$$

$$V_{2y} = 0.98$$

$$V_{3x} = F_3 \cos 210^\circ$$

$$V_{3x} = -0.86$$

$$V_{3y} = F_3 \text{ sen } 210^\circ$$

$$V_{3y} = -0.5$$

$$\sum V_x = V_{1x} + V_{2x} + V_{3x}$$

$$\sum V_x = 0.70 - 0.17 - 0.86 = -0.33$$

$$\sum V_y = V_{1y} + V_{2y} + V_{3y}$$

$$\sum V_y = 0.70 + 0.98 - 0.5 = 1.18$$

$$VR = \sqrt{-0.33 + 1.18}$$

$$VR = \sqrt{(-0.33)^2 + (1.18)^2}$$

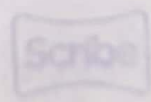
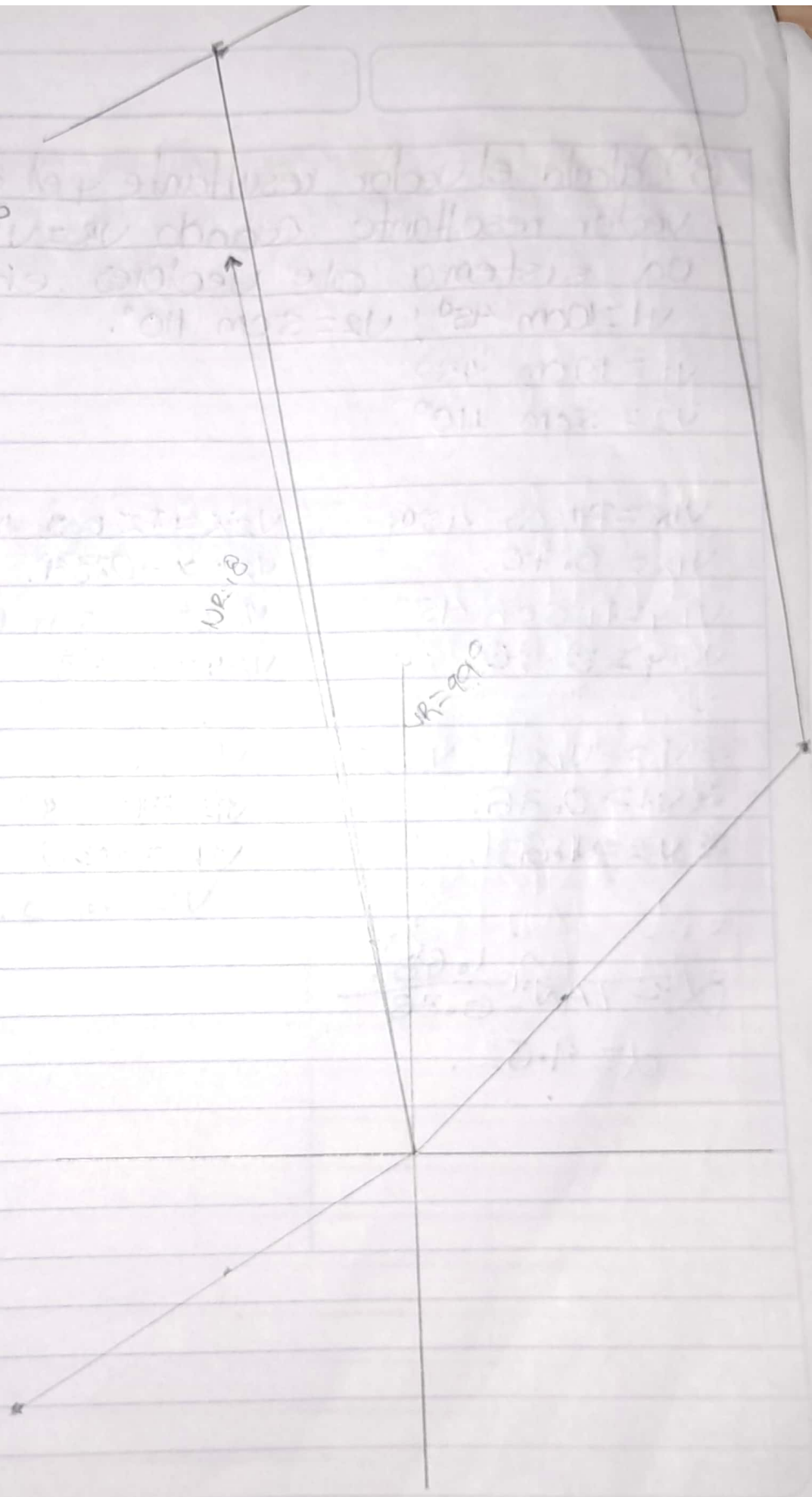
$$VR = \sqrt{1.225}$$

$$\alpha = \text{TAN}^{-1} \frac{\sum V_y}{\sum V_x}$$

$$\alpha = \text{TAN}^{-1} \frac{1.18}{-0.33}$$

$$\alpha_{VR} = 3.57$$

$V_1 = 10\text{cm } 45^\circ$   
 $V_2 = 15\text{cm } 100^\circ$   
 $V_3 = 8\text{cm } 210^\circ$



3º 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  $V_1 = 10 \text{ cm } 45^\circ$ ;  $V_2 = 5 \text{ cm } 110^\circ$ .

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

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

$$V_{1x} = F_1 \cos 45^\circ.$$

$$V_{1x} = 0.70.$$

$$V_{1y} = F_1 \sin 45^\circ$$

$$V_{1y} = 0.70.$$

$$V_{2x} = F_2 \cos 110^\circ.$$

$$V_{2x} = -0.34.$$

$$V_{2y} = F_2 \sin 110^\circ.$$

$$V_{2y} = 0.93.$$

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

$$\Sigma V_x = 0.36.$$

$$\Sigma V_y = 1.63.$$

$$V_R = \sqrt{0.36 + 1.63}.$$

$$V_R = \sqrt{(0.36)^2 + (1.63)^2}.$$

$$V_R = \sqrt{1.66}$$

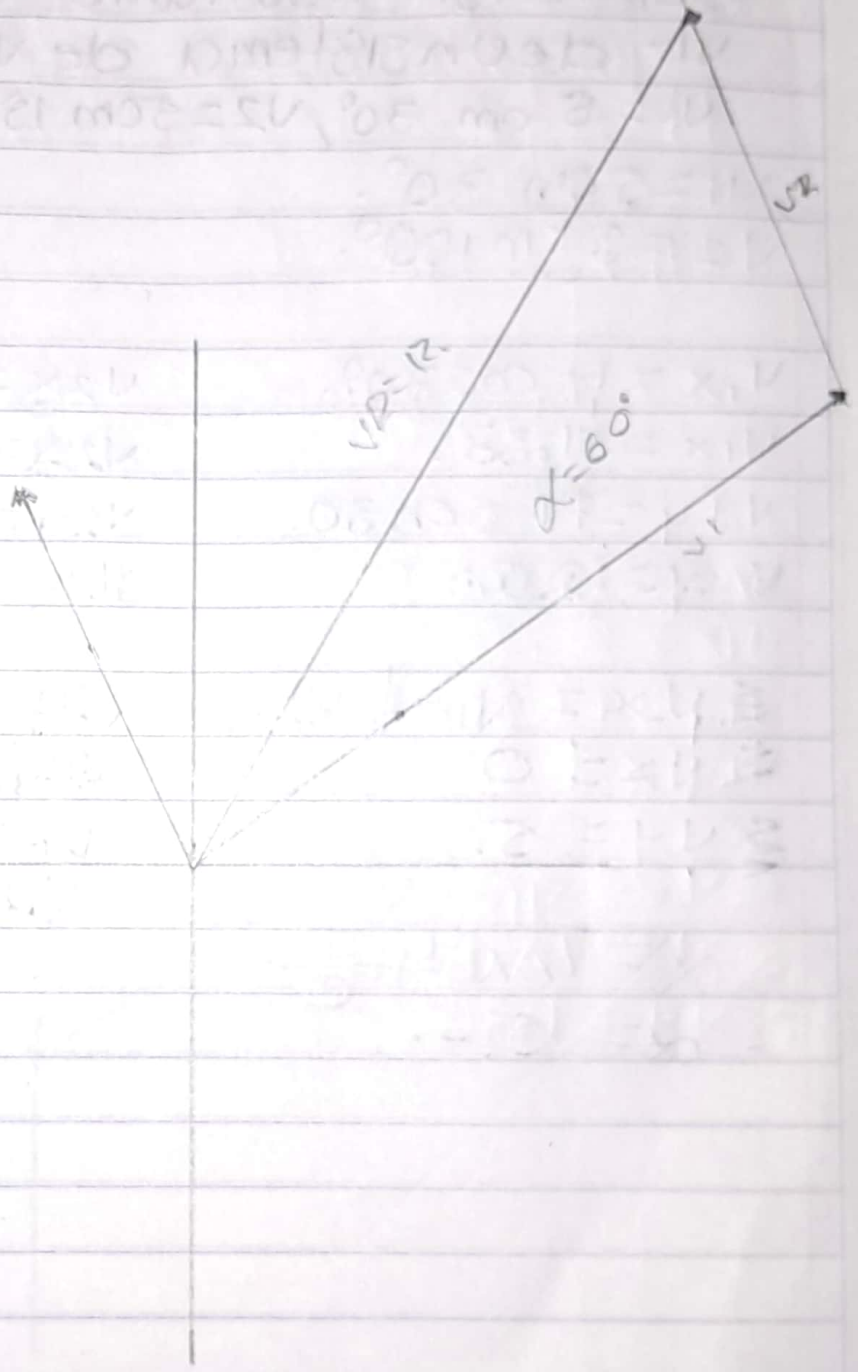
$$V_R = 1.28.$$

$$\alpha = \tan^{-1} \frac{1.63}{0.36}$$

$$\alpha = 4.52.$$

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

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



4º Calcular el vector resultante y el ángulo del vector resultante cuando  $V_R = V_2 - V_1$  de un sistema de vectores en los que  $V_1 = 5 \text{ cm } 30^\circ$ ,  $V_2 = 5 \text{ cm } 150^\circ$ .

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

$$V_2 = 5 \text{ cm } 150^\circ$$

$$V_{1x} = F_1 \cos 30^\circ$$

$$V_{1x} = 4.33$$

$$V_{1y} = F_1 \text{ sen } 30^\circ$$

$$V_{1y} = 2.5$$

$$V_{2x} = F_2 \cos 150^\circ$$

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

$$V_{2y} = F_2 \text{ sen } 150^\circ$$

$$V_{2y} = 2.5$$

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

$$\sum V_x = 0$$

$$\sum V_y = 5$$

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

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

$$V_R = \sqrt{25}$$

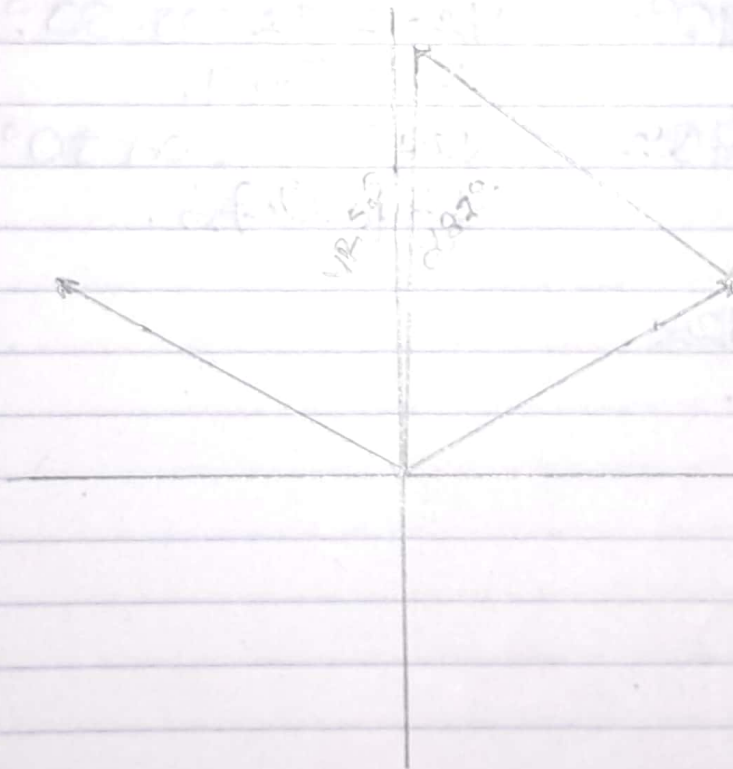
$$V_R = 5$$

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

$$\alpha = 5$$

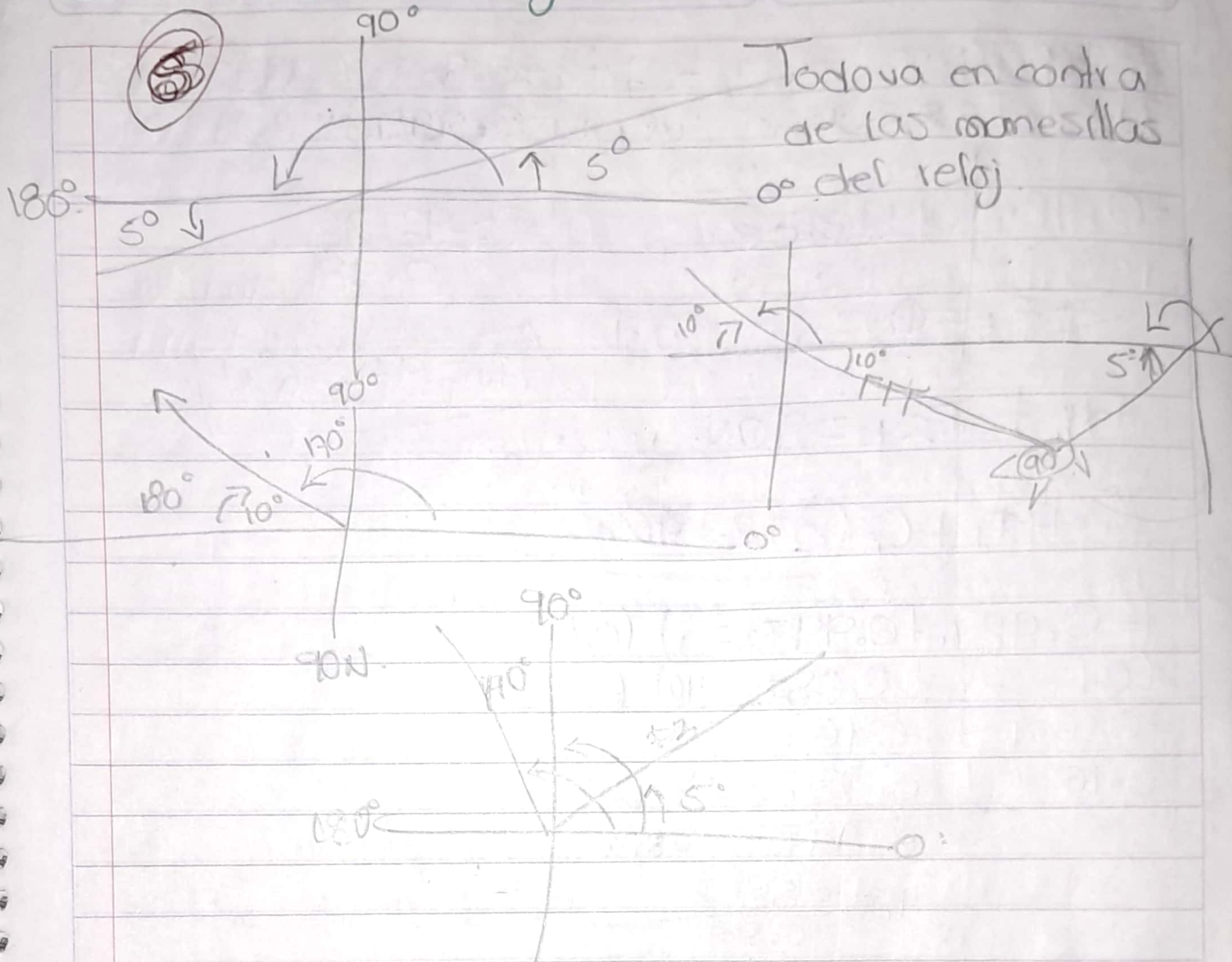
$V_1 = 5 \text{ cm } 30^\circ$

$V_2 = 5 \text{ cm } 150^\circ$





# Comitan de Dominguez



Todo va en contra de las manecillas de las manecillas 0° del reloj.

$$F_{1x} = F_1 \cos 170$$

$$F_{1x} = -0.98$$

$$F_{1y} = F_1 \sin 170$$

$$F_{1y} = 0.17$$

$$F_{2x} = F_2 \cos 5$$

$$F_{2x} = 0.99$$

$$F_{2y} = F_2 \sin 5$$

$$F_{2y} = 0.08$$

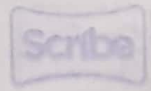
$$\Sigma F_x = 0.01$$

$$\Sigma F_y = 0.25$$

$$F_R = \sqrt{0.01 + 0.25}$$

$$F_R = \sqrt{(0.01)^2 + (0.25)^2}$$

NR =>



### Sustituciones. FNO

①

$$\sum F_x = 0$$

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

$$-0.98F_1 + 0.99F_2 = 0$$

$$\sum F_y = 0$$

$$F_{1y} + F_{2y} = 90 \text{ N}$$

$$0.17F_1 + 0.08F_2 = 90 \text{ N}$$

③

$$-0.98F_1 + 0.99(93.82 \text{ N}) = 0$$

$$-0.98F_1 + 92.88 = 0$$

$$F_1 = \frac{92.88}{0.98}$$

$$F_1 = 94.76 \text{ N}$$

②

$$(-0.98F_1 + 0.99F_2 = 0) \quad (0.17)$$

$$(0.17F_1 + 0.08F_2 = 90) \quad (0.98)$$

$$-0.16F_1 + 0.16F_2 = 0$$

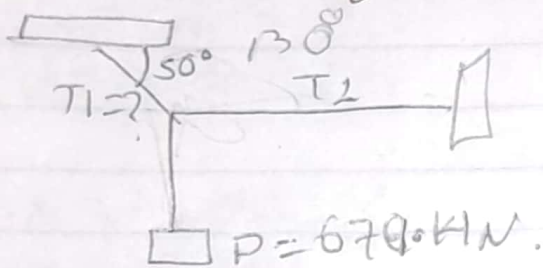
$$0.16F_1 + 0.78F_2 = 88.2$$

$$0.94F_2 = 88.2$$

$$F_2 = \frac{88.2}{0.94}$$

$$F_2 = 93.82 \text{ N}$$

60 Un objeto de acero de  $679.14\text{ N}$  de peso está suspendido como se indica en la figura, ¿cuáles serían las tensiones  $T_1$  y  $T_2$  que sostiene el cuerpo?



$$V_{1x} = T_1 \cos 90^\circ$$

$$V_{1x} = 0$$

$$V_{1y} = T_1 \sin 90^\circ$$

$$V_{1y} = T_1$$

$$V_{2x} = T_2 \cos 50^\circ$$

$$V_{2x} = 0.64$$

$$V_{2y} = T_2 \sin 50^\circ$$

$$V_{2y} = 0.76$$

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

$$\sum V_x = 0.64$$

$$\sum V_y = 1.76$$