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Nombre del trabajo: Problemario I

Materia: Física I

Grado: 4to

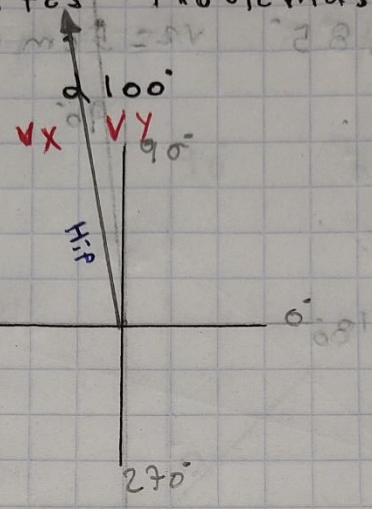
Grupo: A

Comitán de Domínguez Chiapas a 15 de octubre de 2022.

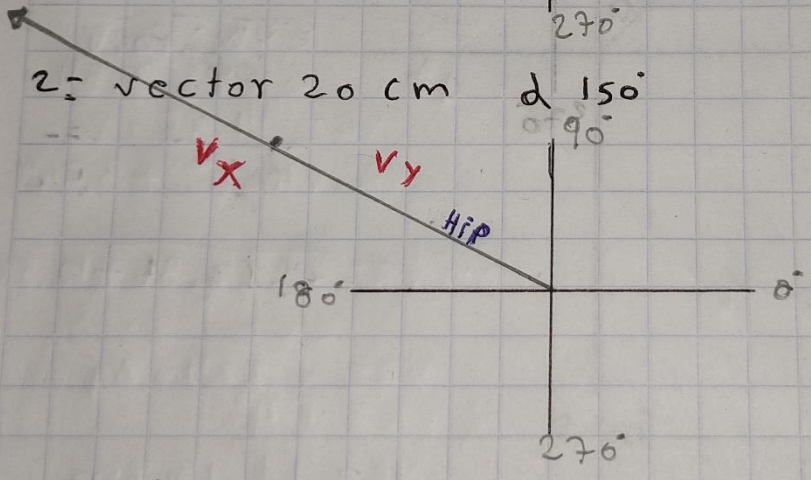
PROBLEMARIO

Resuelve de forma correcta y limpia los siguientes problemas:

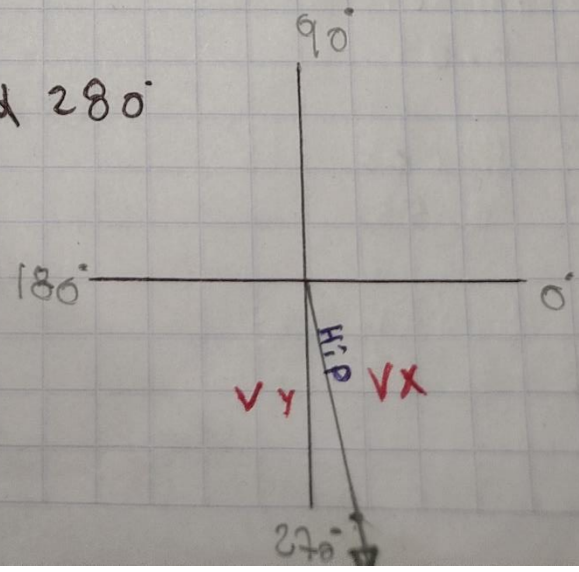
1:vector 5 cm d 100°

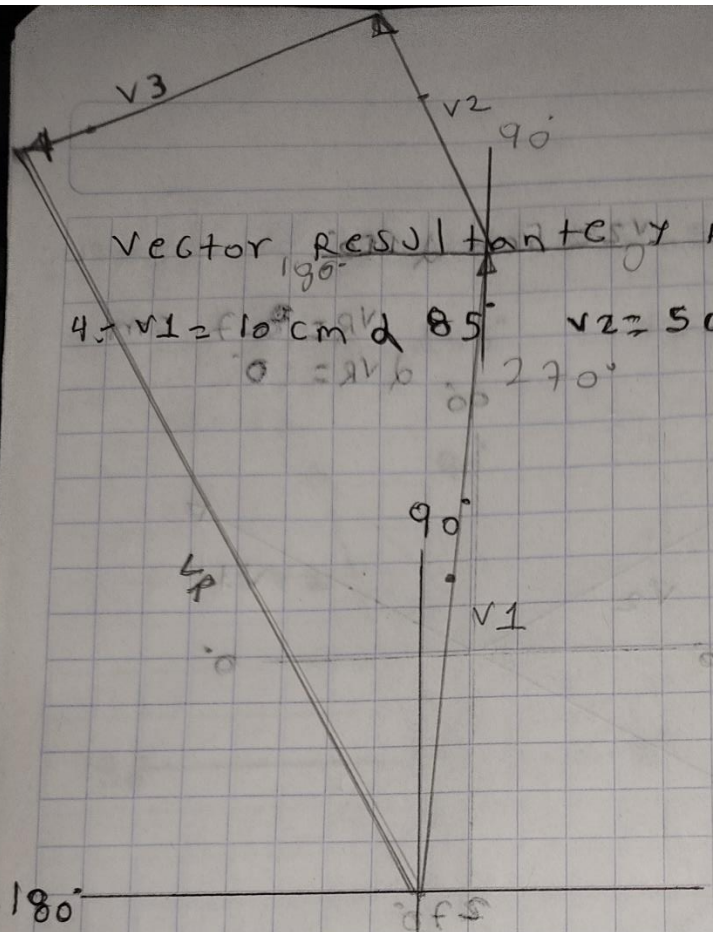


2:- vector 20 cm d 150°



3:- vector 25 cm d 280°





Vector Resultante y Angulo: Suma

4.- V1 = 10 cm ∢ 85° V2 = 5 cm ∢ 110° V3 = 8 cm ∢ 200°

$\Sigma Vx = -8.35$

$\Sigma Vy = 11.92$

$VR = \sqrt{8.35^2 + 11.92^2}$

$VR = \sqrt{69.72 + 142.08}$

$VR = \sqrt{211.8}$

$VR = 14.55$ cm

$\alpha \tan^{-1} = \frac{\Sigma Vy}{\Sigma Vx} = \frac{11.92}{-8.35}$

$\alpha VR = 54°$

$VR = 14.2$ cm

$\alpha VR = 135° = 55°$

$V1 = 10 \cos 85°$

$V1x = 0.87$

$V1y = 10 \operatorname{sen} 85°$

$V1y = 9.96$

$V2x = 5 \cos 110°$

$V2x = -1.71$

$V2y = 5 \operatorname{sen} 110°$

$V2y = 4.69$

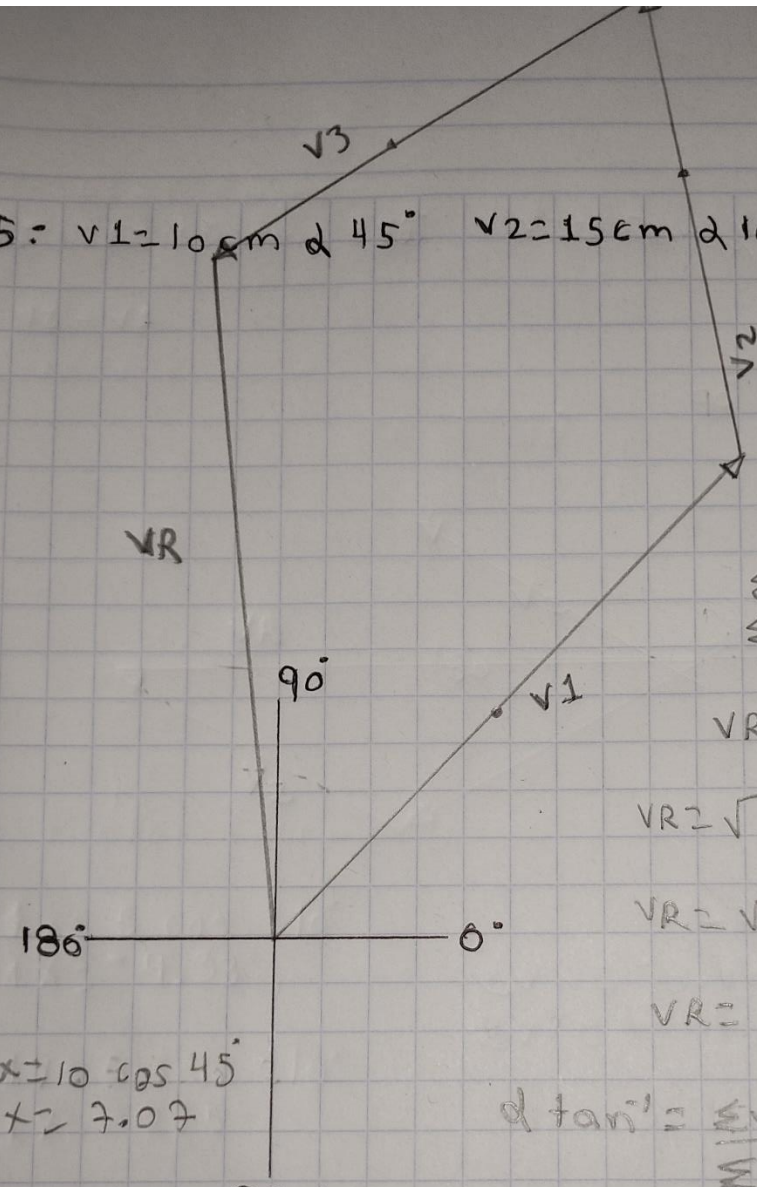
$V3x = 8 \cos 200°$

$V3x = -7.51$

$V3y = 8 \operatorname{sen} 200°$

$V3y = -2.73$

5: $V1 = 10\,cm \angle 45^\circ$ $V2 = 15\,cm \angle 100^\circ$ $V3 = 8\,cm \angle 210^\circ$



$\Sigma Vx = -2.45$

$\Sigma Vy = 17.84$

$VR = \sqrt{2.45^2 + 17.84^2}$

$VR = \sqrt{6.00 + 318.26}$

$VR = \sqrt{324.26}$

$VR = 18.00\,cm$

$\alpha \tan^{-1} = \frac{\Sigma Vy}{\Sigma Vx} = \frac{17.84}{2.45}$

$\alpha VR = 82^\circ$

$V1x = 10 \cos 45^\circ$

$V1x = 7.07$

$V1y = 10 \operatorname{sen} 45^\circ$

$V1y = 7.07$

$V2x = 15 \cos 100^\circ$

$V2x = -2.60$

$V2y = 15 \operatorname{sen} 100^\circ$

$V2y = 14.77$

$V3x = 8 \cos 210^\circ$

$V3x = -6.92$

$V3y = 8 \operatorname{sen} 210^\circ$

$V3y = -4$

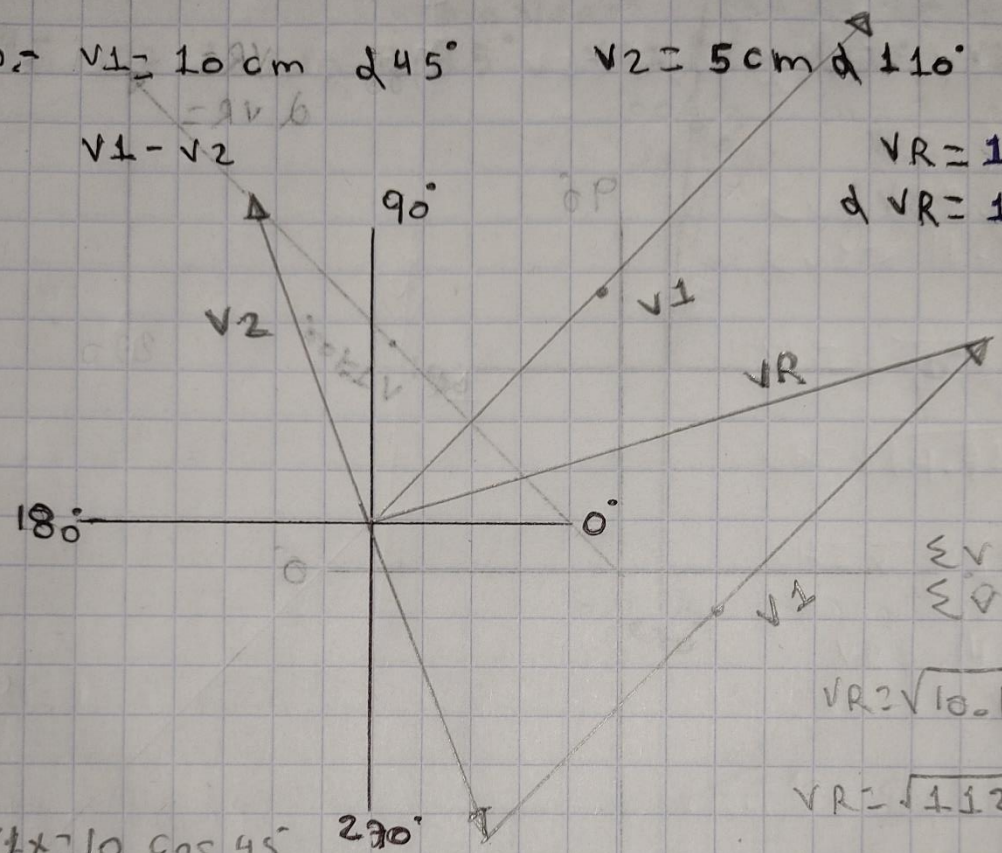
$VR = 18\,cm$

$\alpha VR = 83^\circ$

Vector Resultante y ángulo: Resta

b.- $V_1 = 10\ cm \quad \measuredangle 45°$ $\qquad V_2 = 5\ cm \quad \measuredangle 110°$

$V_1 - V_2$



$V_R = 11\ cm$

$\measuredangle V_R = 18°$

$V_{1x} = 10 \cos 45°$

$V_{1x} = 7.07$

$V_{1y} = 10 \cdot \operatorname{sen} 45°$

$V_{1y} = 7.07$

$V_{2x} = 5 \cos 315°$

$V_{2x} = 3.53$

$V_{2y} = 5 \operatorname{sen} 315°$

$V_{2y} = -3.53$

$\Sigma V_x = 10.6$

$\Sigma V_y = 3.54$

$V_R = \sqrt{10.6^2 + 3.54^2}$

$V_R = \sqrt{112.36 + 12.53}$

$V_R = \sqrt{124.89}$

$V_R = 11.17\ cm$

$\measuredangle \tan^{-1} \frac{\Sigma V_y}{\Sigma V_x} = \frac{3.54}{10.6}$

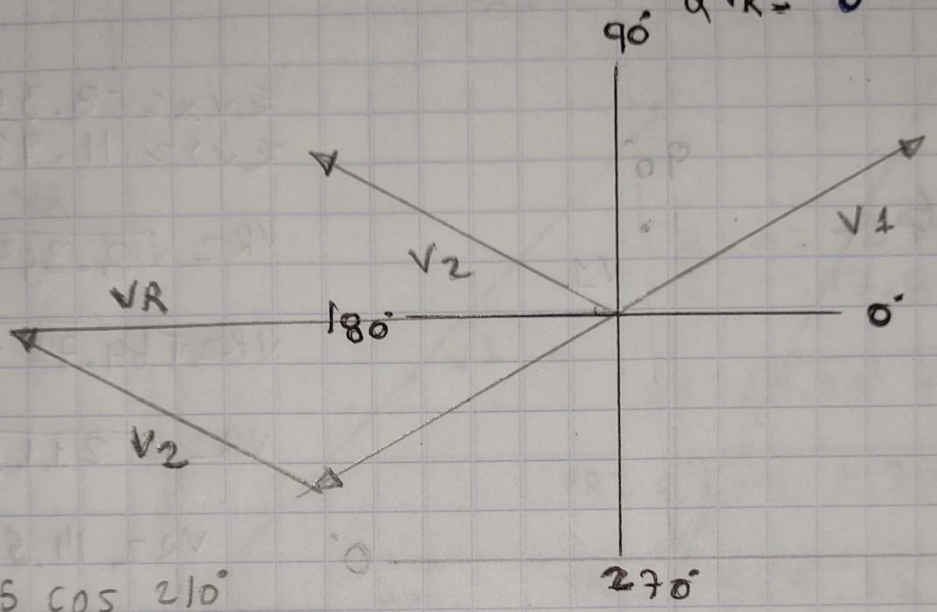
$\measuredangle V_R = 18°$

7.- $V_1 = 5$ cm $\measuredangle 30°$ $V_2 = 5$ cm $\measuredangle 150°$

$V_2 - V_1$

$V_R = 8.7$ cm

$\measuredangle V_R = 0°$



$V_{1x} = 5 \cos 210°$

$V_{1x} = -4.33$

$V_{1y} = 5 \operatorname{sen} 210°$

$V_{1y} = -2.5$

$V_{2x} = 5 \cos 150°$

$V_{2x} = -4.33$

$V_{2y} = 5 \operatorname{sen} 150°$

$V_{2y} = 2.5$

$\Sigma V_x = -8.66$

$\Sigma V_y = 0$

$V_R = \sqrt{8.66^2 + 0^2}$

$V_R = \sqrt{74.99 + 0}$

$V_R = \sqrt{74.99}$

$V_R = 8.65$ cm

$\measuredangle \tan^{-1} \frac{\Sigma V_y}{\Sigma V_x} = \frac{0}{-8.66}$

$\measuredangle V_R = 0°$