

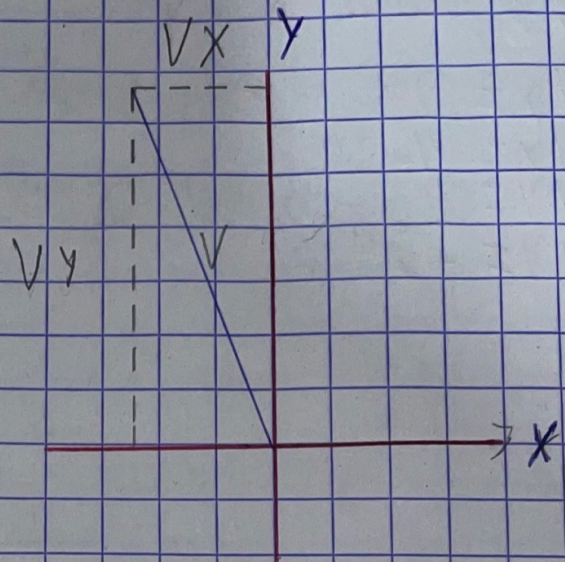
1. Sea un vector de 5 cm con un ángulo de 100 grados, calcula los respectivos componentes en los ejes X y Y.

$$V_x = 5 \text{ cm} \cos 100^\circ$$

$$V_x = -0.86$$

$$V_y = 5 \text{ cm} \sin 100^\circ$$

$$V_y = 4.92$$



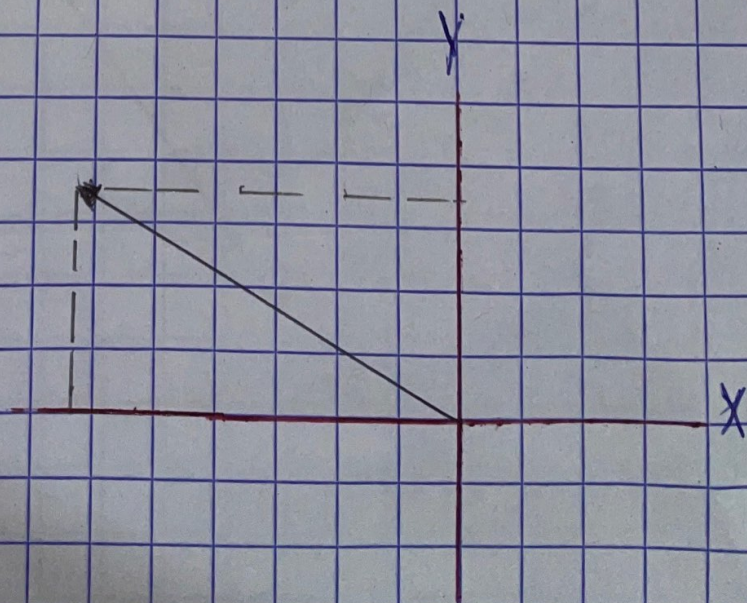
2. Sea un vector de (20 cm) con ángulo de (150°). Calcula los respectivos componentes en los ejes X, Y.

$$V_x = 20 \text{ cm} \cos 150^\circ$$

$$V_x = -17.32$$

$$V_y = 20 \text{ cm} \sin 150^\circ$$

$$V_y = 10$$



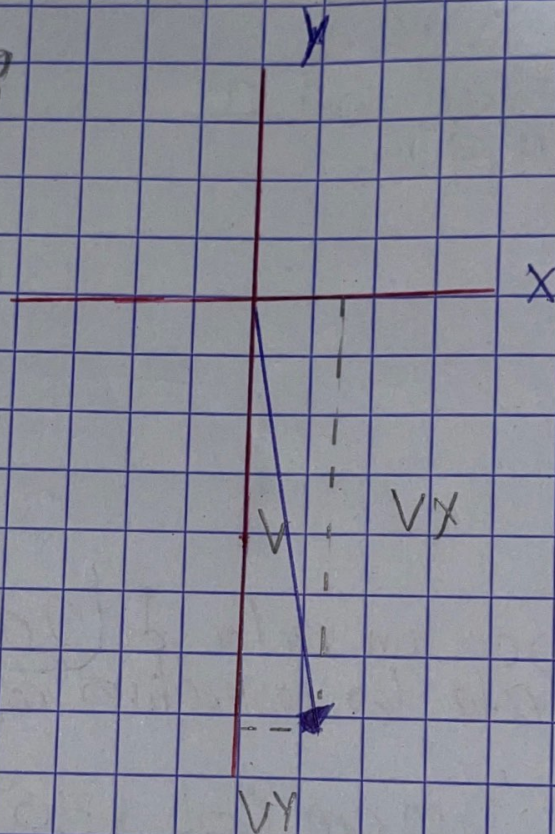
3. Sea un vector de 25cm con un ángulo de 280° . Calcula los respectivos componentes en los ejes X y Y

$$V_x = 25 \text{ cm} \cos 280^\circ$$

$$V_x = 4.34$$

$$V_y = 25 \text{ cm} \sin 280^\circ$$

$$V_y = -24.6$$



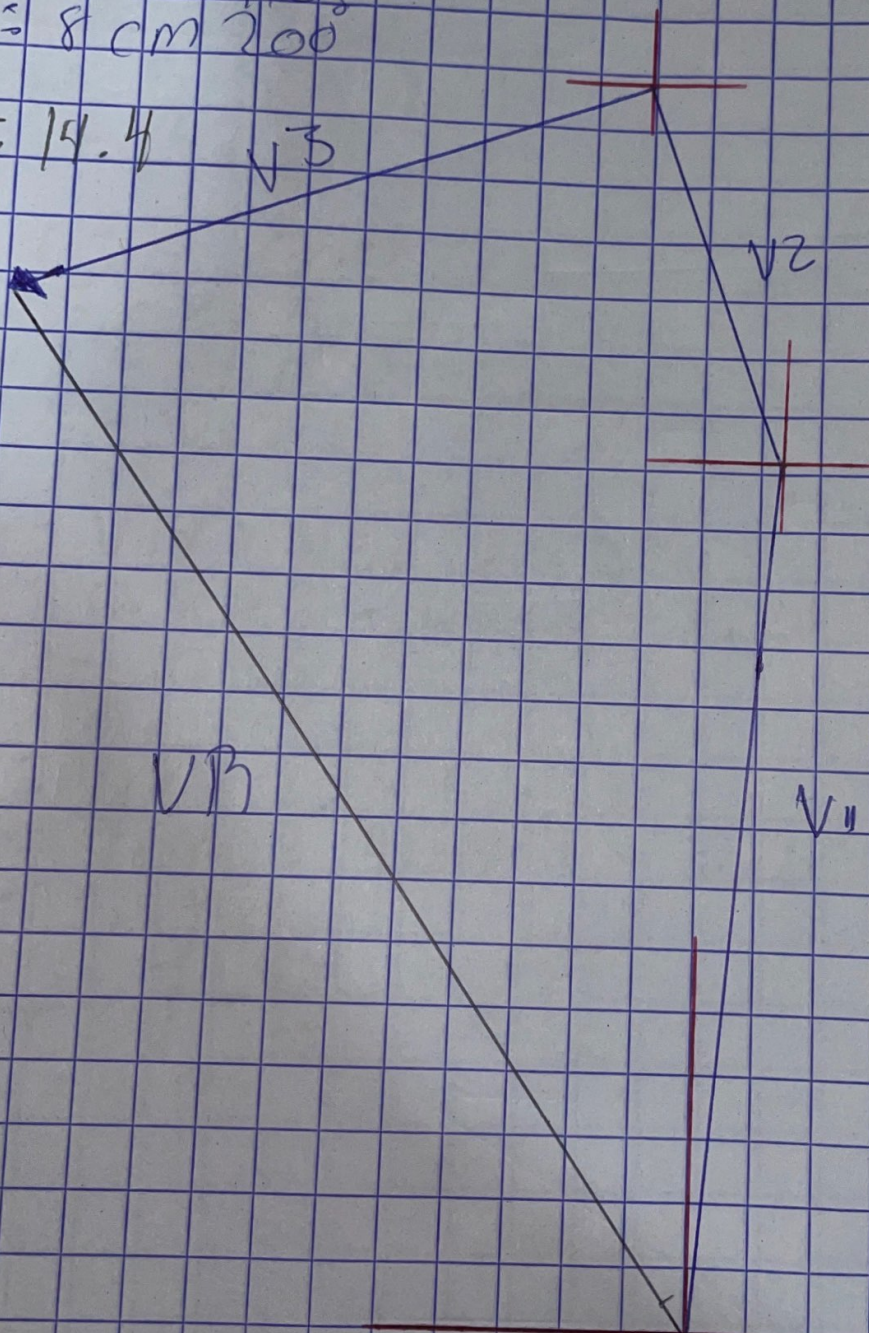
4. Calcular el vector resultante y el ángulo del vector resultante de un sistema de vectores en los que,

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

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

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

$$VR = 14.4 \quad \angle 3$$



$$V_{1x} = 10 \cos 85$$

$$V_{1x} = 0.87$$

$$V_{1y} = 10 \sin 85$$

$$V_{1y} = 9.96$$

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

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

$$V_{2y} = 5 \sin 110^\circ$$

$$V_{2y} = 4.69$$

$$V_{3x} = 8 \cos 200^\circ$$

$$V_{3x} = -7.51$$

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

$$V_{3y} = -2.33$$

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

$$\Sigma V_x = 0.87 + (-1.71) + (-7.51)$$

$$\Sigma V_x = -8.35$$

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

$$\Sigma V_y = 9.96 + 4.69 + (-2.33)$$

$$\Sigma V_y = 12.32$$

$$\theta = \frac{V_y}{V_x} = \frac{12.32}{-8.35}$$

$$\theta = \tan^{-1} \frac{12.32}{-8.35}$$

$$\theta = -54.98^\circ$$

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

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

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

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

Cada 5 cm equivale a 1 cm

$$V_{1x} = 10 \cos 45$$

$$V_{1x} = 7.07$$

$$V_{1y} = 10 \sin 45$$

$$V_{1y} = 7.07$$

$$V_{2x} = 15 \cos 100$$

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

$$V_{2y} = 15 \sin 100$$

$$V_{2y} = 14.77$$

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

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

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

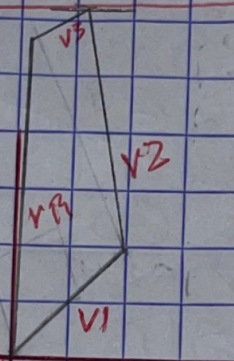
$$V_{3y} = -4$$

$$\sum V_x = 7.07 + (-2.60) + (-6.92)$$

$$\sum V_x = -16.09$$

$$\sum V_y = 7.07 + 14.77 + (-4)$$

$$\sum V_y = 17.84$$



Sea Calcular el vector resultante y el ángulo del vector cuando $V_1 = 10 \text{ cm}$ y $V_2 = 5 \text{ cm}$

$V_1 = 10 \text{ cm } 45^\circ$
 $V_2 = 5 \text{ cm } 110^\circ$

$V_{1x} = 10 \cos 45$
 $V_{1x} = 7.07$
 $V_{1y} = 10 \sin 45$
 $V_{1y} = 7.07$

$V_{2x} = 5 \cos 110^\circ$
 $V_{2x} = -1.71$

$V_{2y} = 5 \sin 110$
 $V_{2y} = 4.69$

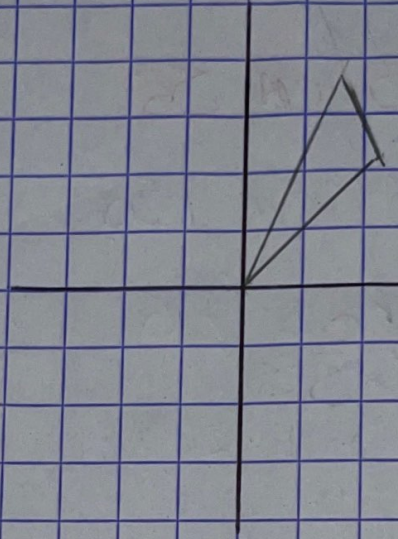
$\Sigma V_x = 7.07 - 1.71$
 $\Sigma V_x = 5.36$

$\Sigma V_y = 7.07 + 4.69$
 $\Sigma V_y = 11.76$

$(5.36)^2 + (11.76)^2$

$V_R = 12.92$

$V_R = \tan^{-1} \frac{11.76}{5.36}$
 $(65 = 19)$



7. Calcular el vector resultante y el ángulo y el ángulo del vector resultante cuando V_1 y V_2 de un sistema de vectores en los ejes

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

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

$$V_{1x} = 5 \cos 30^\circ$$

$$V_{1x} = -4.33$$

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

$$V_{1y} = -2.5$$

$$V_{2x} = 5 \cos 150^\circ$$

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

$$V_{2y} = 5 \sin 150^\circ$$

$$V_{2y} = 2.5$$

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

$$\sum V_x = -8.66$$

$$\sum V_y = -2.5 + 2.5$$

$$\sum V_y = 0$$

$$\tan \theta = \frac{V_y}{V_x} = \frac{0}{-8.66}$$

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

$$V_R = 0$$

$$V_R = 0$$

