

1 Sea un vector de "5 cm" con un ángulo de "100° Grados", Calcula las respectivas componentes en los ejes x, y

$$V_x = -1 \text{ cm}$$

$$V_y = 5 \text{ cm}$$

$U_y$



$$V_x = V \cos \alpha$$

$$U_x = 5 \cos 100$$

$$U_x = -0.86$$

$$V_y = V \sin \alpha$$

$$V_y = 5 \sin 100$$

$$V_y = 4.92 \text{ cm}$$



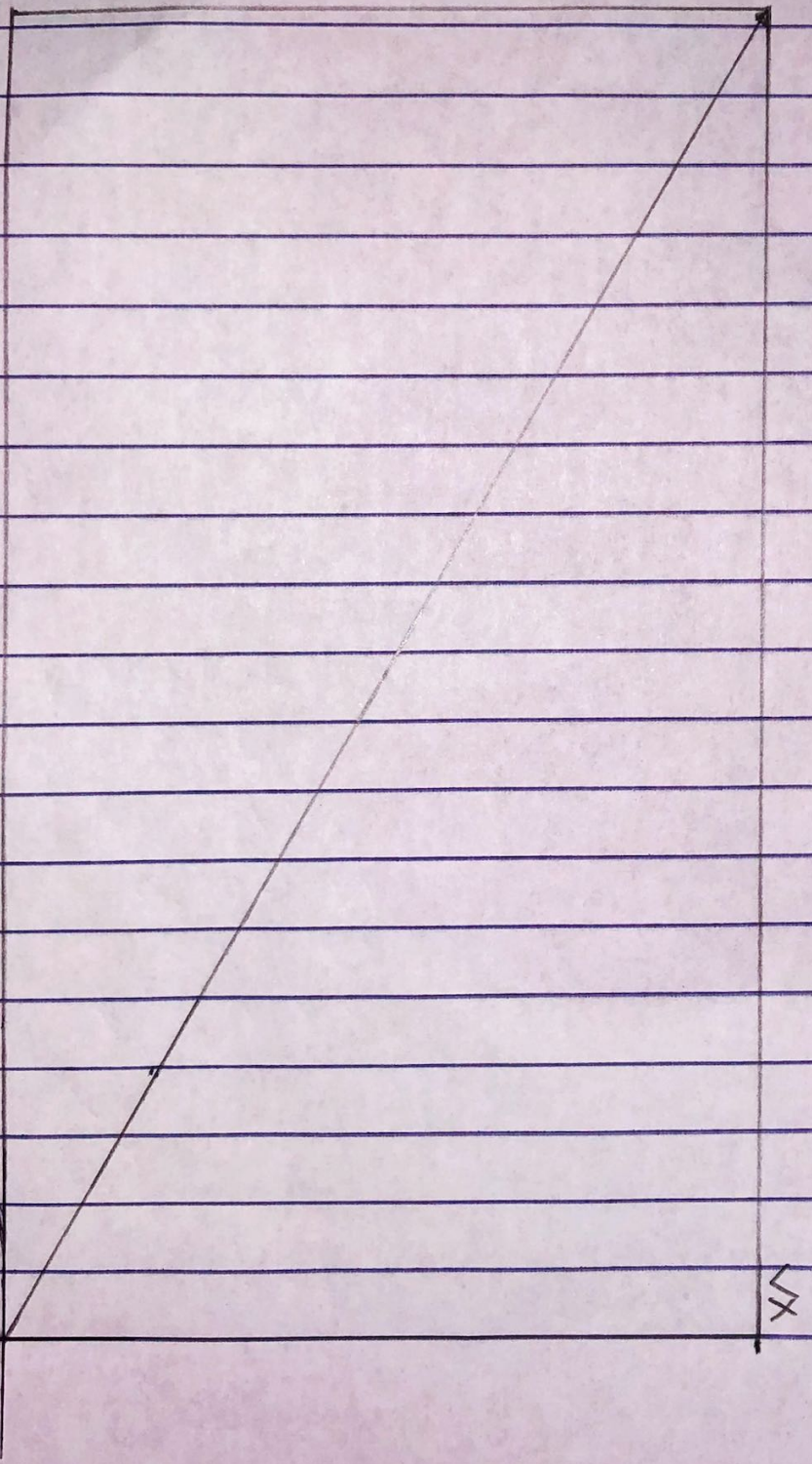
2. Sea un vector de 20 cm con un ángulo de  $150^\circ$ .

Calcule sus respectivas Componentes en los ejes X, Y

$$V_x = 17.5 \text{ cm}$$
$$V_y = 9.8 \text{ cm}$$

$$V_x = V \cos \alpha$$
$$V_x = 20 \cos 150^\circ$$
$$V_x = -17.32 \text{ cm}$$

$$V_y = V \sin \alpha$$
$$V_y = 20 \sin 150^\circ$$
$$V_y = 10 \text{ cm}$$





3. Sea un vector de 25 cm con un ángulo de  $280^\circ$  grados. Calcula las respectivas componentes en los ejes x, y

$$V_x = V \cos \alpha$$

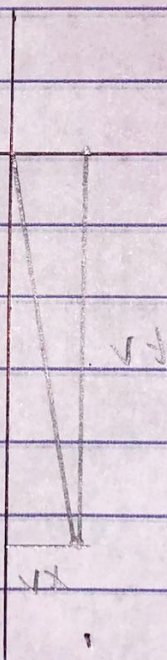
$$V_y = V \sin \alpha$$

$$V_x = 25 \cos 280^\circ$$

$$V_y = 25 \sin 280^\circ$$

$$V_x = 4.34 \text{ cm}$$

$$V_y = -24.62 \text{ cm}$$





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

$V_R = 14.75$

$\alpha_{VR} = -54$

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

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

$\sum V_x = -8.35$

$\sum V_y = 11.92$

$V_{1x} = 10 \text{ cm } \cos 85^\circ$

$V_{1x} = 0.87 \text{ cm}$

$V_{1y} = 10 \text{ cm } \sin 85^\circ$

$V_{1y} = 9.96 \text{ cm}$

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

$V_{2x} = -1.71 \text{ cm}$

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

$V_{2y} = 4.69 \text{ cm}$

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

$V_{3x} = -2.51 \text{ cm}$

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

$V_{3y} = -2.73 \text{ cm}$

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

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

$V_R = \sqrt{69.72 + 142.08}$

$V_R = 211.8$

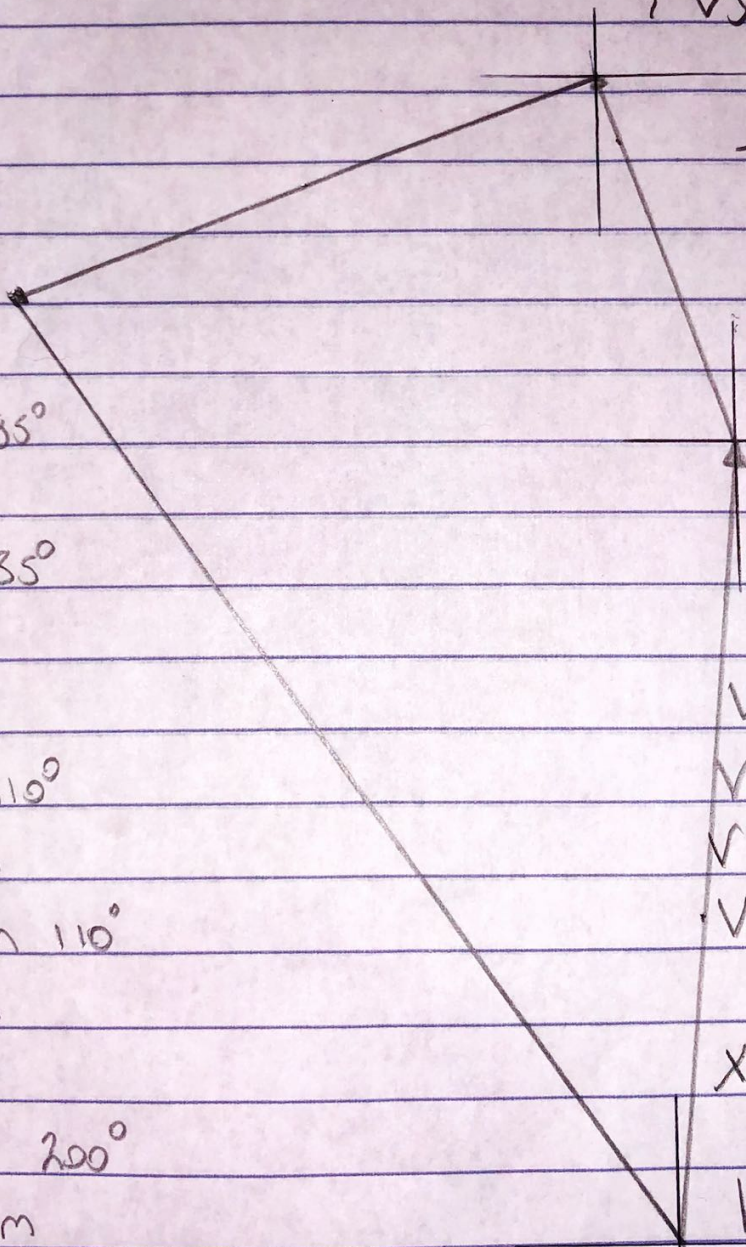
$V_R = 14.55$

$\alpha_{VR} = \tan^{-1} \frac{\sum V_y}{\sum V_x}$

$11.92 / -8.35$

$\alpha_{VR} =$

$54.48$



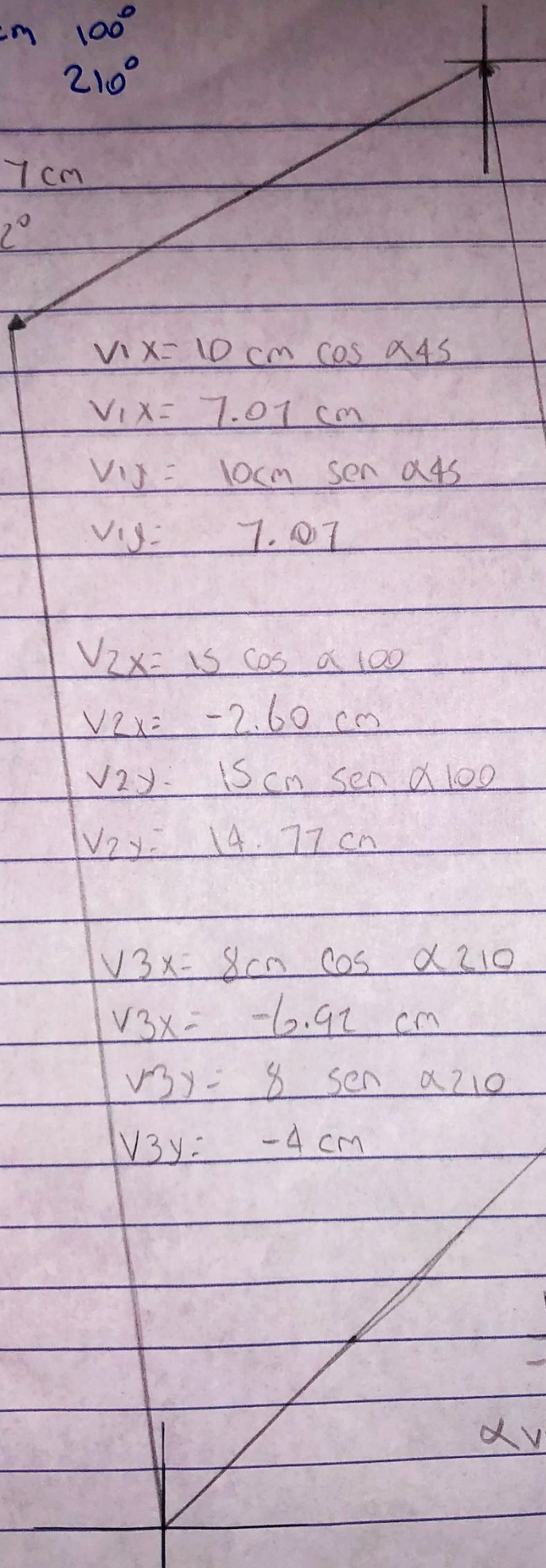


5

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

$V_R = 17.7 \text{ cm}$

$\alpha_{VR} = 82^\circ$



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

$V_{1x} = 7.07 \text{ cm}$

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

$V_{1y} = 7.07$

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

$V_{2x} = -2.60 \text{ cm}$

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

$V_{2y} = 14.77 \text{ cm}$

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

$V_{3x} = -6.92 \text{ cm}$

$V_{3y} = 8 \sin \alpha 210$

$V_{3y} = -4 \text{ cm}$

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

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

$\sum V_x = -2.45 \text{ cm}$

$\sum V_y = 17.84 \text{ cm}$

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

$V_R = \sqrt{-2.45 + 17.84}$

$V_R = \sqrt{324.26}$

$V_R = 18 \text{ cm}$

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

$\frac{17.84}{-2.45}$

$-7.28$

$\alpha_{VR} = -82.18$



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

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

$$V_R = V_1 - V_2$$

$$\begin{cases} V_x = v_{1x} + v_{2x} \\ V_y = v_{1y} + v_{2y} \end{cases}$$

$$\begin{cases} v_{1x} = 7.07 \\ v_{1y} = 7.07 \\ v_{2x} = 1.71 \\ v_{2y} = -4.69 \end{cases}$$

$$\begin{cases} v_x = 8.78 \\ v_y = 2.38 \end{cases}$$

$$\begin{cases} v_x = 8.78 \\ v_y = 2.38 \end{cases}$$

$$v_{1x} = 10 \text{ cm } \cos \alpha 45$$

$$v_{1x} = 7.07 \text{ cm}$$

$$v_{1y} = 10 \text{ cm } \sin \alpha 45$$

$$v_{1y} = 7.07 \text{ cm}$$

$$V_R = \sqrt{77.08 + 5.66}$$

$$V_R = \sqrt{82.74}$$

$$V_R = 9.09 \text{ cm}$$

$$v_{2x} = 5 \text{ cm } \cos \alpha 290^\circ$$

$$v_{2x} = 1.71 \text{ cm}$$

$$v_{2y} = 5 \text{ cm } \sin \alpha 290^\circ$$

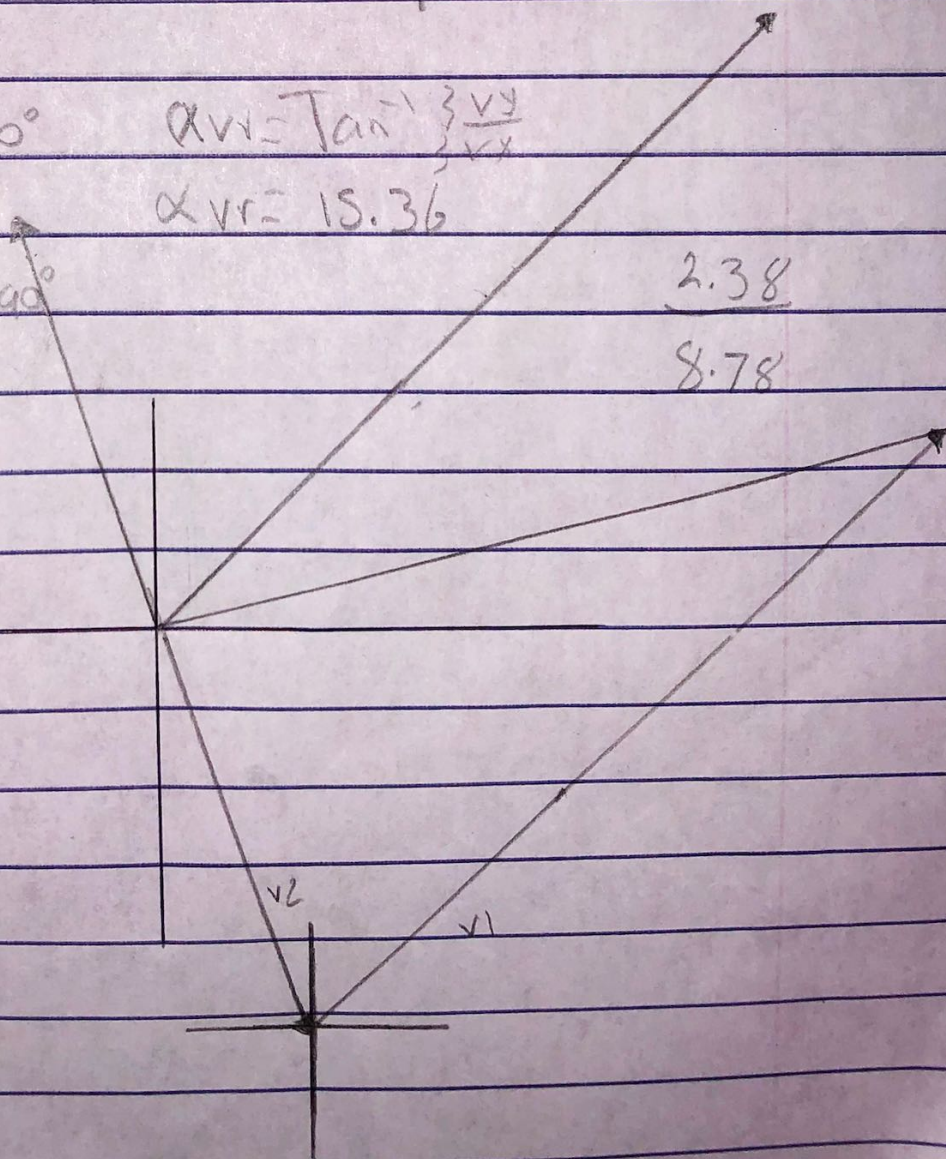
$$v_{2y} = -4.69 \text{ cm}$$

$$\alpha_{V_R} = \tan^{-1} \left\{ \frac{v_y}{v_x} \right\}$$

$$\alpha_{V_R} = 15.36$$

$$2.38$$

$$8.78$$





$$7 \quad V_1 = 5 \text{ cm } \alpha 30^\circ \quad V_2 = 5 \text{ cm } \alpha 150^\circ \quad v_r = v_2 - v_1$$

$$UM = 8.7 \text{ cm}$$

$$\alpha_{Ur} = 0^\circ$$

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

$$U_{1x} = -4.33 \text{ cm}$$

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

$$U_{1y} = -2.5 \text{ cm}$$

$$U_{2x} = 5 \text{ cm } \cos 150^\circ$$

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

$$U_{2y} = 5 \text{ cm } \sin 150^\circ$$

$$U_{2y} = 2.5$$

$$\begin{cases} v_r = v_{1x} + v_{2x} \\ v_y = v_{1y} + v_{2y} \\ v_x = -8.66 \\ v_y = 0 \end{cases}$$

$$VM = \sqrt{-8.66^2 + 0^2}$$

$$VR = \sqrt{74.99 + 0}$$

$$VM = \sqrt{8.65} \text{ cm}$$

$$\alpha_w = \tan^{-1} \frac{v_y}{v_x} = \frac{0}{-8.66}$$

$$\alpha_{vr} = 0^\circ$$

