Jair Rodas

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

$V_x = V \cos \alpha$

$5 \cos 100$

$V_y = V \operatorname{SEN} \alpha$

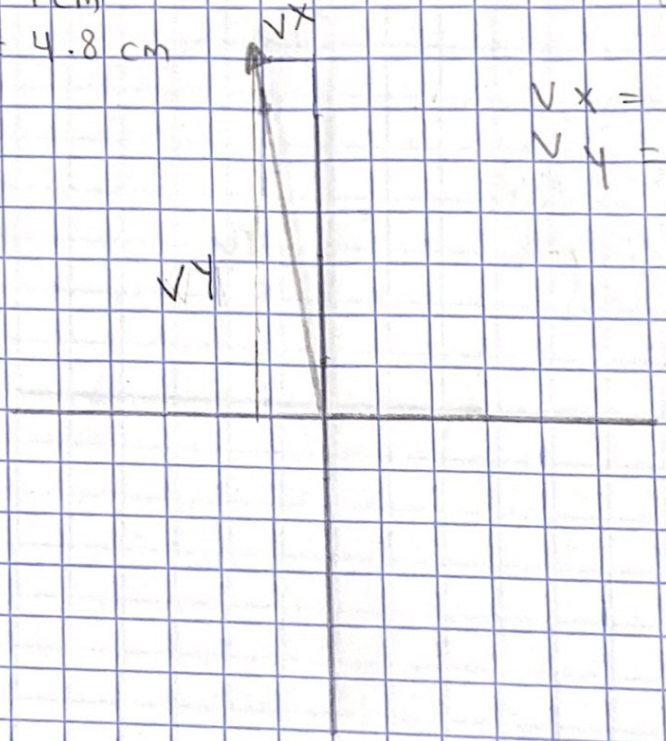
$5 \operatorname{SEN} 100°$

$V_x = -0.8$ cm

$V_y = 4.92$ cm

$V_x = -1$ cm

$V_y = 4.8$ cm

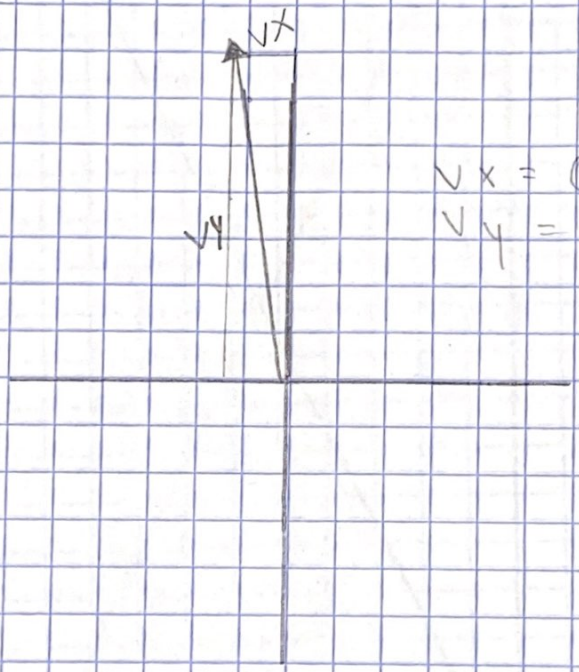


Jair Rodas

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

$V_x = -1$ cm
$V_y = 4.8$ cm

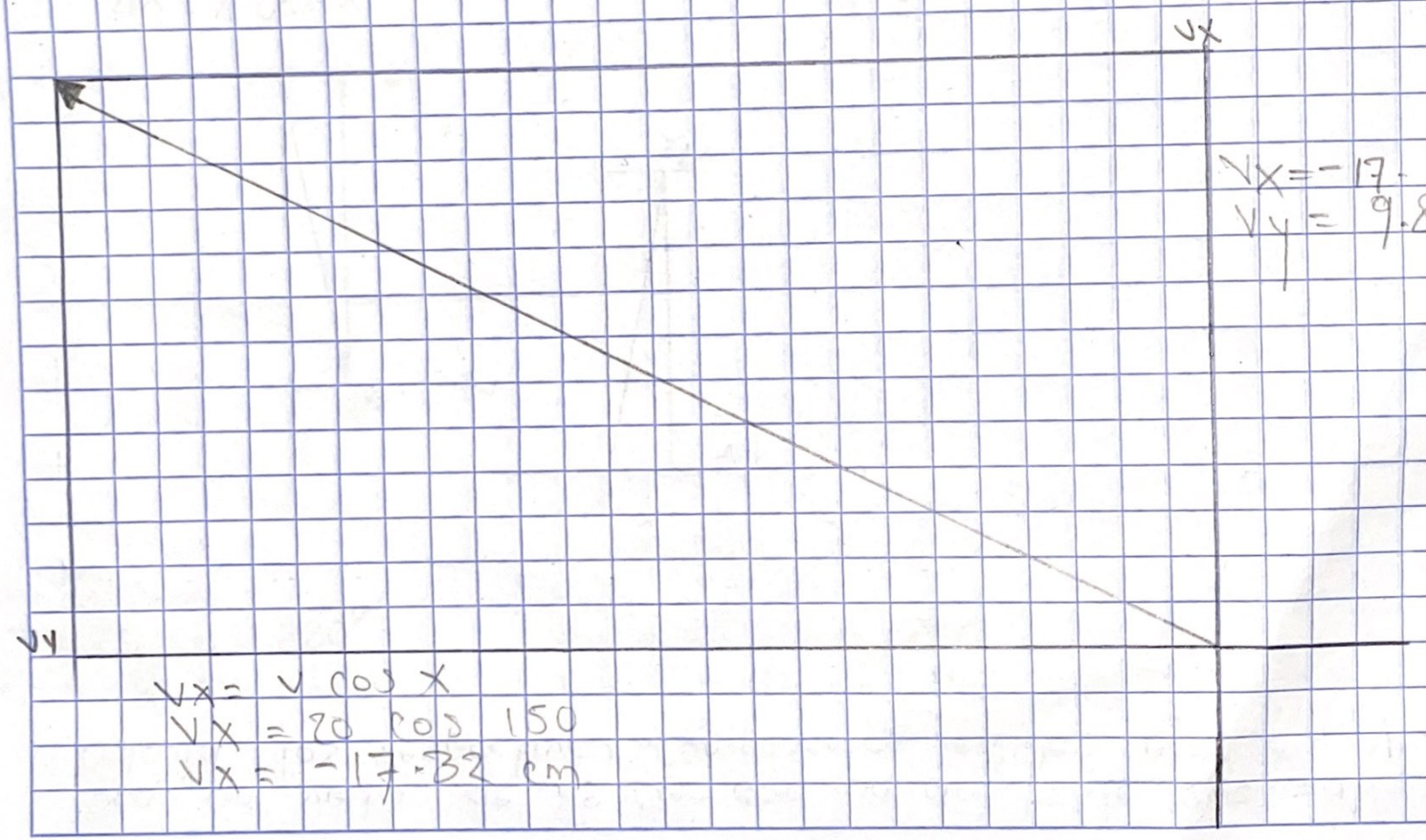
$V_x = V \cos \alpha$
$5 \cos 100°$
$V_y = V \operatorname{SEN} x$
$5 \operatorname{Sen} 100°$



$V_x = 0.8$ cm
$V_y = 4.92$ cm

Jair Rodas

Sea un vector de 20 cm con un ángulo de 150, calcula las respectivas componentes en los ejes X y Y.



$V_x = V \cos X$

$V_X = 20 \cos 150$

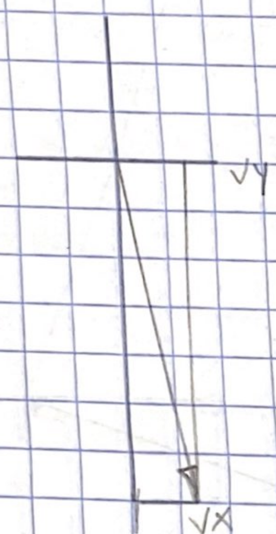
$V_X = -17.32$ cm

$V_X = -17.5$ cm

$V_y = 9.8$ cm

Jair Rodas

Sea un vector de 25 cm con un angulo de 280°
calcula las respectivas componentes en los ejes x y y



$V_x = V \cos \alpha$
$V_x = 25 \cos 280°$
$V_x = 4.34$ cm

$V_y = V \operatorname{sen} \alpha$
$V_y = 25 \operatorname{sen} 280$
$V_y = -24.62$ cm

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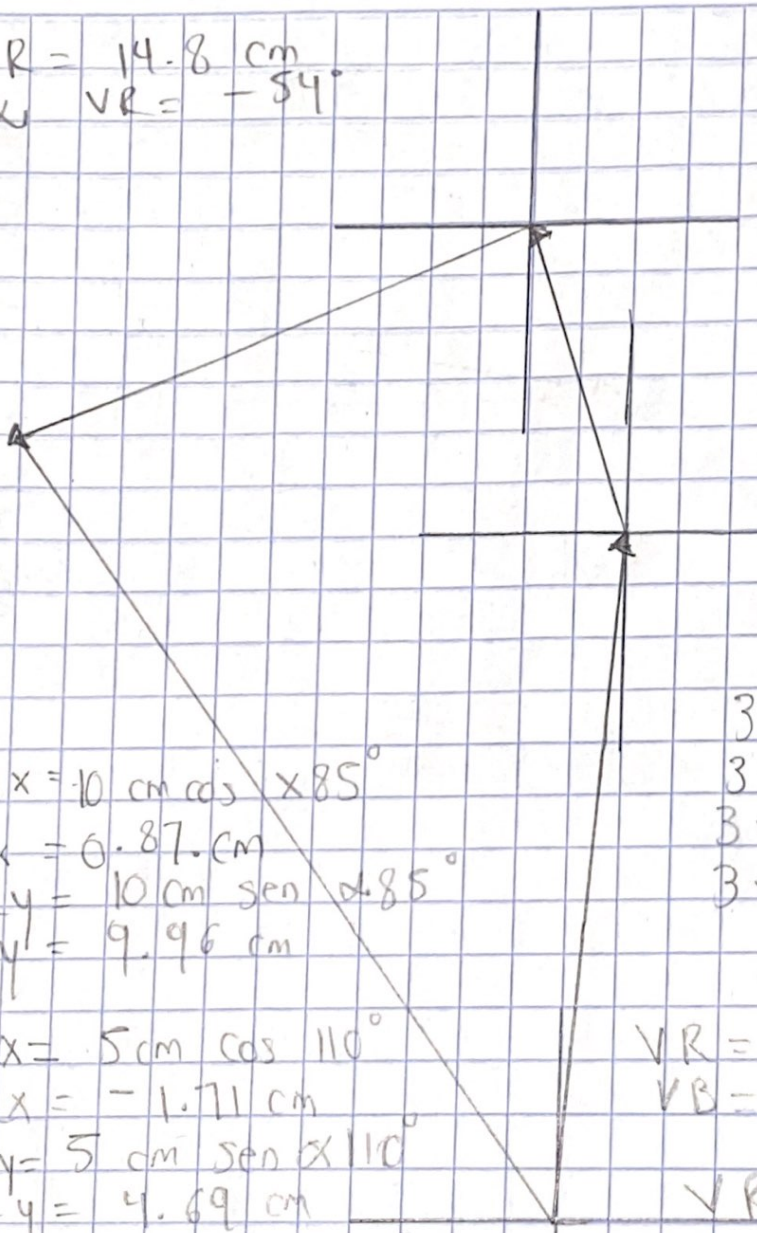
$V_1 = 10\ cm\ 85^\circ \quad V_2 = 5\ cm\ 110^\circ \quad V_3 = 8\ cm\ 200^\circ$



$V_R = 14.8\ cm$

$\alpha\ V_R = -54^\circ$

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

$V_{1x} = 0.87\ cm$

$V_{2y} = 10\ cm \sin \alpha 85^\circ$

$V_{1y} = 9.96\ cm$

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

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

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

$V_{2y} = 4.69\ cm$

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

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

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

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

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

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

$\Sigma V_x = -8.35\ cm$

$\Sigma V_y = 11.92\ cm$

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

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

$V_R = \sqrt{68.72 + 142.08}$

$V_R = \sqrt{211.8}$

$V_R = 14.55\ cm$

$\alpha V_R = \tan^{-1} \frac{\Sigma V_y}{\Sigma V_x} = \frac{11.92}{8.35}$

$\alpha V_R = -54.98$

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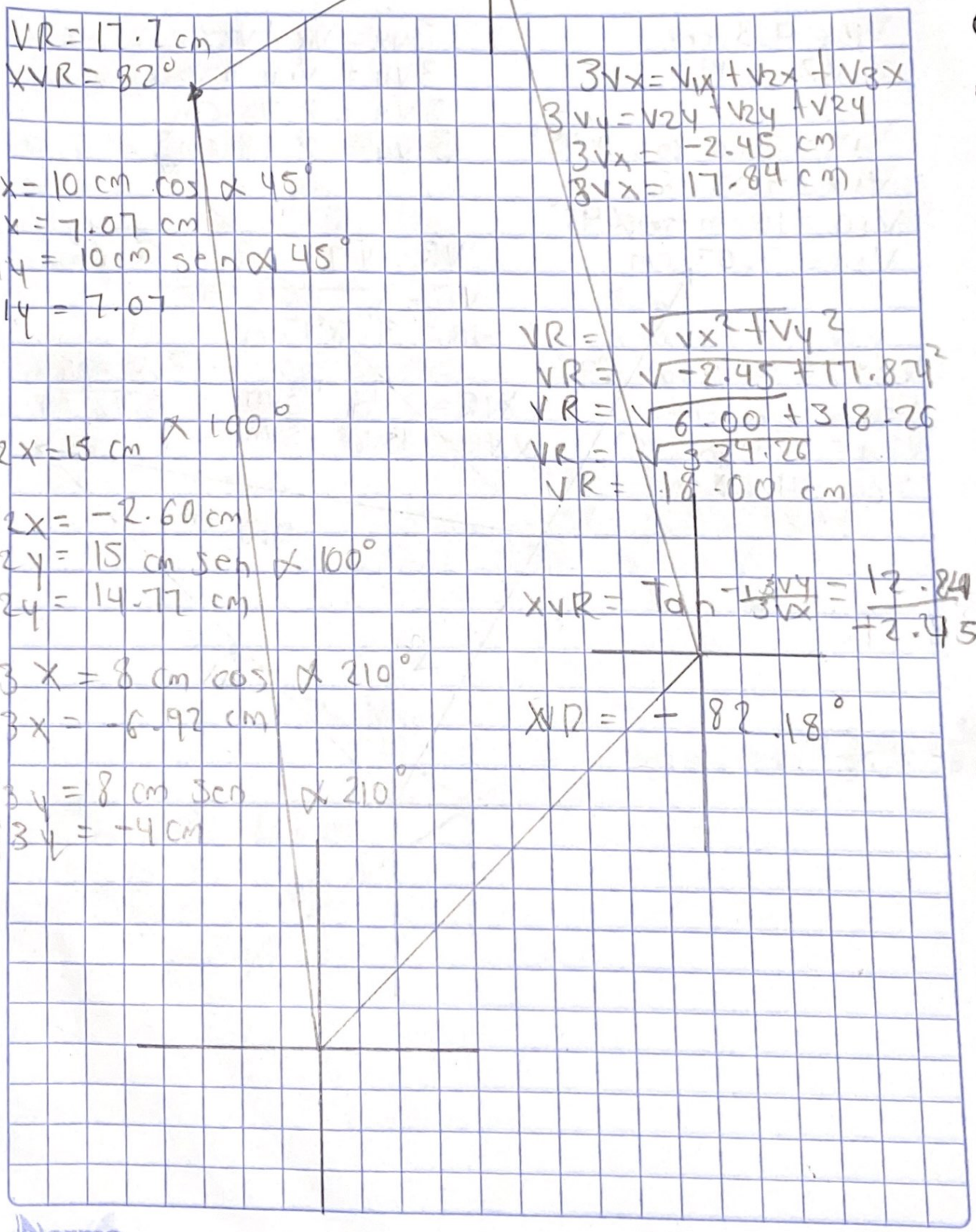
$V_1 = 10\ cm\ 45°$ $V_2 = 15\ cm\ 100°$ $V_3 = 8\ cm\ 210°$



$V_R = 17.7\ cm$

$\angle V_R = 82°$

$V_{1x} = 10\ cm \cos \alpha\ 45°$

$V_{1x} = 7.07\ cm$

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

$V_{1y} = 7.07$

$V_{2x} = 15\ cm\ \alpha\ 100°$

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

$V_{2y} = 15\ cm \operatorname{Sen} \alpha\ 100°$

$V_{2y} = 14.77\ cm$

$V_{3x} = 8\ cm \cos \alpha\ 210°$

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

$V_{3y} = 8\ cm\ \operatorname{Sen}\ \alpha\ 210°$

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

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

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

$\Sigma V_x = -2.45\ cm$

$\Sigma V_x = 17.84\ cm$

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

$V_R = \sqrt{-2.45 + 17.84^2}$

$V_R = \sqrt{6.00 + 318.26}$

$V_R = \sqrt{324.26}$

$V_R = 18.00\ cm$

$\angle V_R = \tan^{-1} \frac{\Sigma V_y}{\Sigma V_x} = \frac{12.84}{-2.45}$

$\angle V_R = -82.18°$

Norma

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$V1 = 10\ cm \ \angle 45^\circ \quad V2 = 5\ cm \ \angle 110^\circ \quad VR = V1 - V2$

$VR = 9.3\ cm$

$\angle VR = 14^\circ$

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

$V_{1x} = 7.07\ cm$

$V_{1y} = 10\ cm \operatorname{sen} \angle 45^\circ$

$V_{1y} = 7.07\ cm$

$V_{2x} = 5\ cm \cos \angle 290^\circ$

$V_{2x} = 1.71\ cm$

$V_{2y} = 5\ cm \ \angle 290^\circ$

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

$3vx = v_{1x} + v_{2x}$

$3vy = v_{1y} + v_{2y}$

$3vx = 8.78\ cm$

$3vy = 2.38\ cm$

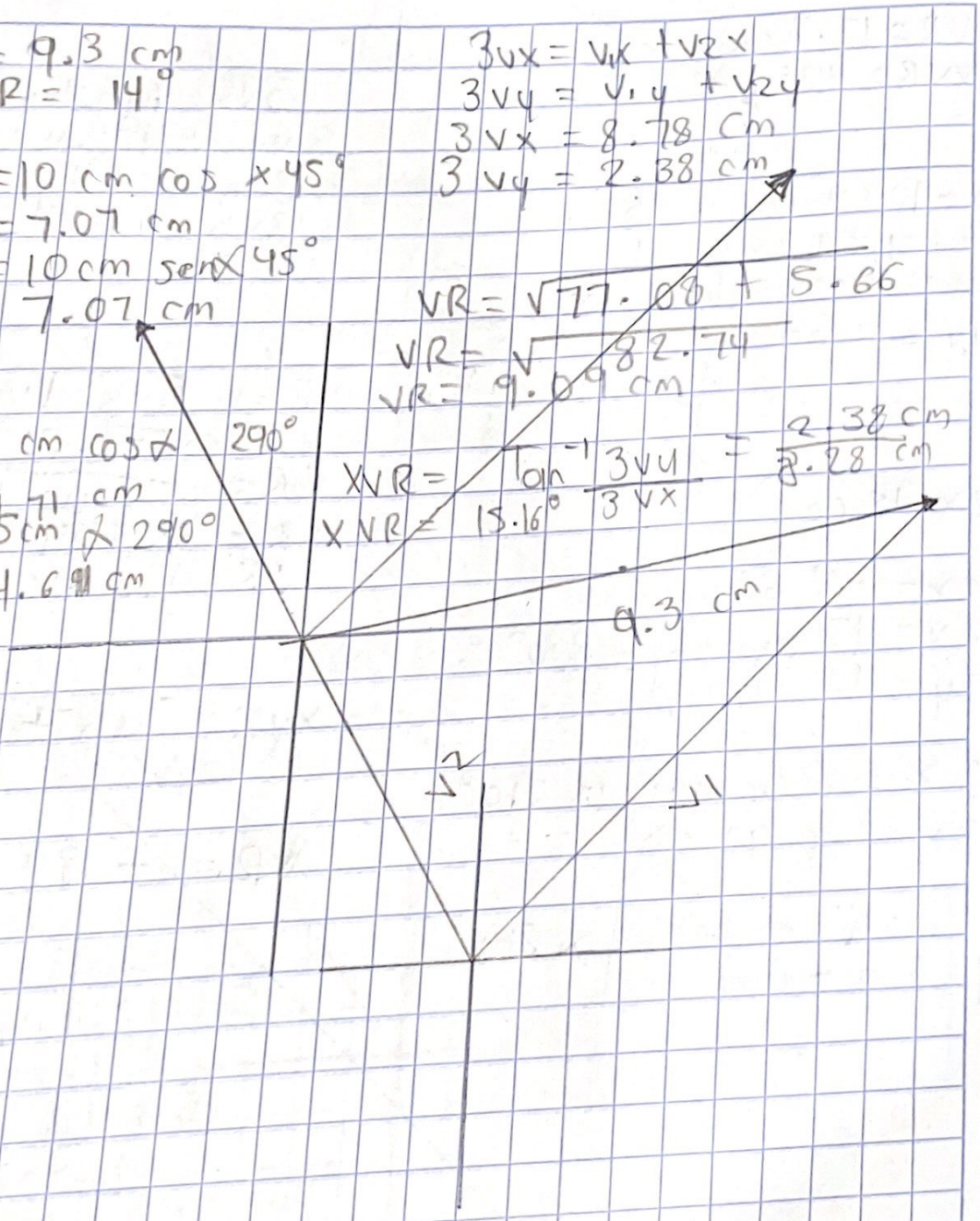
$VR = \sqrt{77.08 + 5.66}$

$VR = \sqrt{82.74}$

$VR = 9.09\ cm$

$\angle VR = \tan^{-1} \frac{3vy}{3vx} = \frac{2.38\ cm}{8.28\ cm}$

$\angle VR = 15.16^\circ$



Norma

Jair Rodas

$V_1 = 5\ cm \ \alpha\ 30^\circ \quad V_2 = 5\ cm \ \alpha\ 150^\circ \quad VR = V_2 - V_1$

$VR = 8.2\ cm$

$\alpha\ VR = 0^\circ$

$V_{1x} = 5\ cm \cos \alpha\ 210$

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

$V_{1y} = 5\ cm \sin \alpha\ 210$

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

$V_{2x} = 5\ cm \cos \alpha\ 150$

$V_{2x} = -4.33$

$V_{2x} = 5\ cm \ Sen\ \alpha\ 150$

$V_{2y} = 2.5$

$3Vx = V_{1x} + V_{2x}$

$3Vx = V_{1y} + V_{2y}$

$3V_y = -8.66$

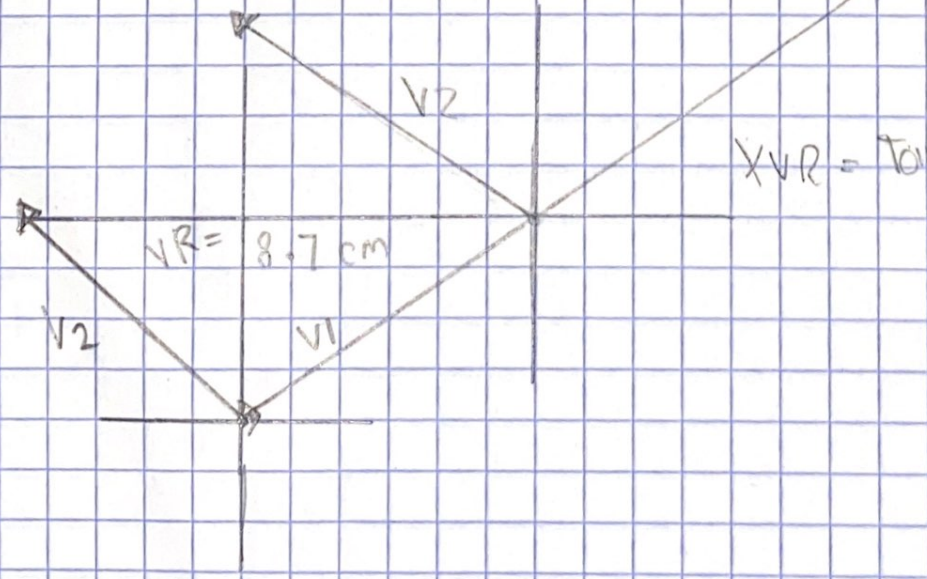
$3V_y = 0$

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

$VR = \sqrt{74.99} + 0$

$VR = \sqrt{74.99}$

$VR = 8.65\ cm$



$\angle VR = \tan^{-1} \frac{3V_y}{3V_x} = \frac{0}{8.66}$

Norma