

UDS Mi

Universidad

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Nombre de la asignatura: Física

Nombre del trabajo: Problemario

Unidad: II

Grupo: Administración de los Recursos humanos

Grado: Cuarto Cuatrimestre

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

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

$$V_y = 4.8 \text{ cm}$$

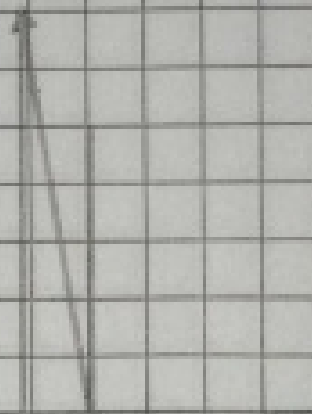
$$V_x = v \cos \alpha$$

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

$$V_x = -0.8 /$$

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

$$V_y = 4.92 /$$

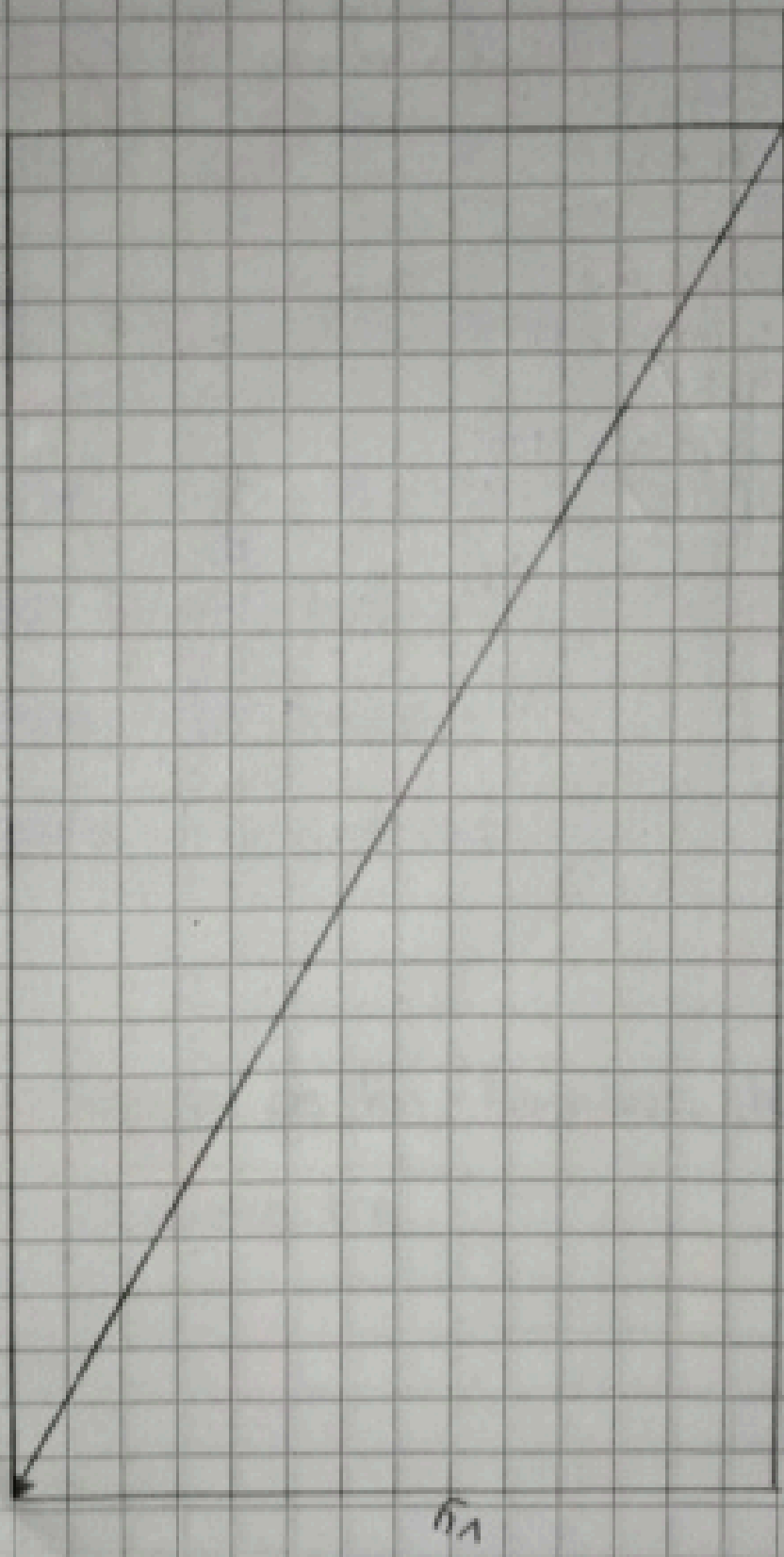


2. Sea un vector de 20 cm con un ángulo de 150° , Calcular las respectivas componentes en los ejes X y Y.

$$v_y = 20 \text{ cm} \cdot \text{sen } 150^\circ$$
$$v_y = 10$$

$$v_x = 17.2$$
$$v_y = 9.9$$

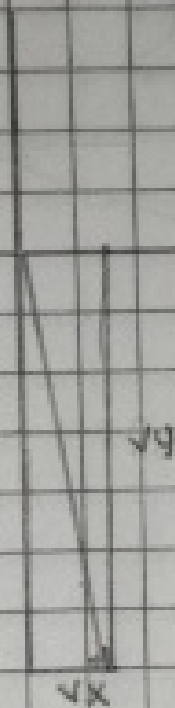
$$v_x = v \cdot \cos \alpha$$
$$v_x = 20 \text{ cm} \cdot \cos 150^\circ$$
$$v_x = -17.32$$



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

$$v_x = 25 \cos 280^\circ$$
$$v_x = 4.35 /$$

$$v_y = 25 \operatorname{sen} 280^\circ$$
$$v_y = -24.62 /$$



4.

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

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

$$V_{1x} = 0.87 \checkmark$$

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

$$V_{1y} = 9.96 \checkmark$$

$$V_R = 14.6 \text{ cm}$$

$$\alpha = 55^\circ$$

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

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

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

$$V_{2y} = 4.69$$

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

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

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

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

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

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

$$\sum V_x = -0.25 \checkmark$$

$$\sum V_y = 11.92 \checkmark$$

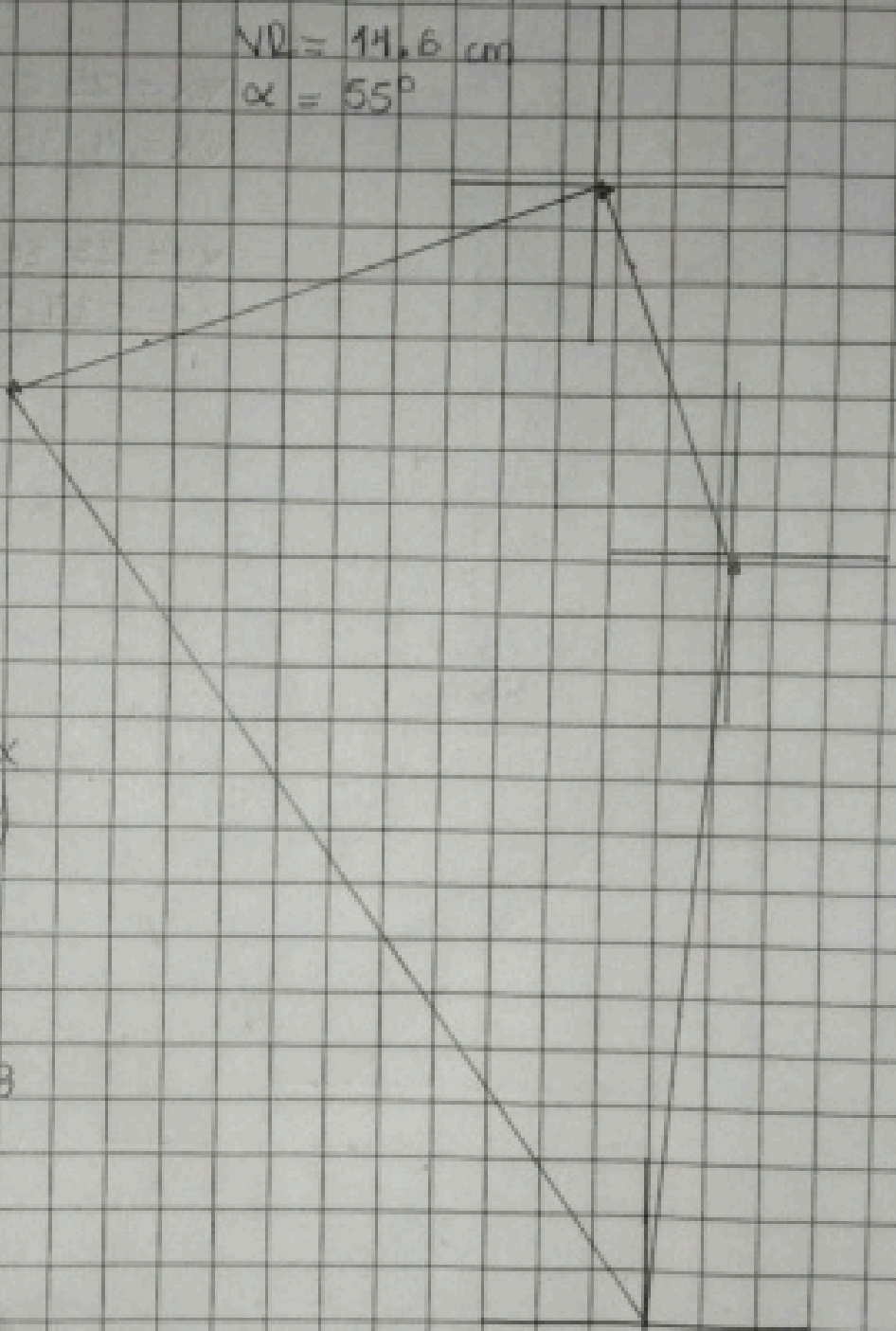
$$V_R = \sqrt{V_x^2 + V_y^2}$$

$$V_R = \sqrt{69.72 + 142.08}$$

$$V_R = \sqrt{211.8}$$

$$V_R = 14.55$$

$$\alpha = -54.98$$



5. - $v_1 = 10 \text{ cm } \alpha 45^\circ$ $v_2 = 15 \text{ cm } \alpha 100^\circ$ $v_3 = 8 \text{ cm } \alpha 210^\circ$

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

$$v_{1x} = 7.071$$

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

$$v_{1y} = 7.071$$

$$v_{2x} = 15 \text{ cm } \cos 100^\circ$$

$$v_{2x} = -2.601$$

$$v_{2y} = 15 \text{ cm } \sin 100^\circ$$

$$v_{2y} = 14.771$$

$$v_{3x} = 8 \text{ cm } \cos 210^\circ$$

$$v_{3x} = -6.928$$

$$v_{3y} = 8 \text{ cm } \sin 210^\circ$$

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

$$\sum v_x = v_{1x} + v_{2x} + v_{3x}$$

$$\sum v_y = v_{1y} + v_{2y} + v_{3y}$$

$$\sum v_x = -2.457$$

$$\sum v_y = 17.841$$

$$v_R = \sqrt{v_x^2 + v_y^2}$$

$$v_R = \sqrt{6.00 + 318.26}$$

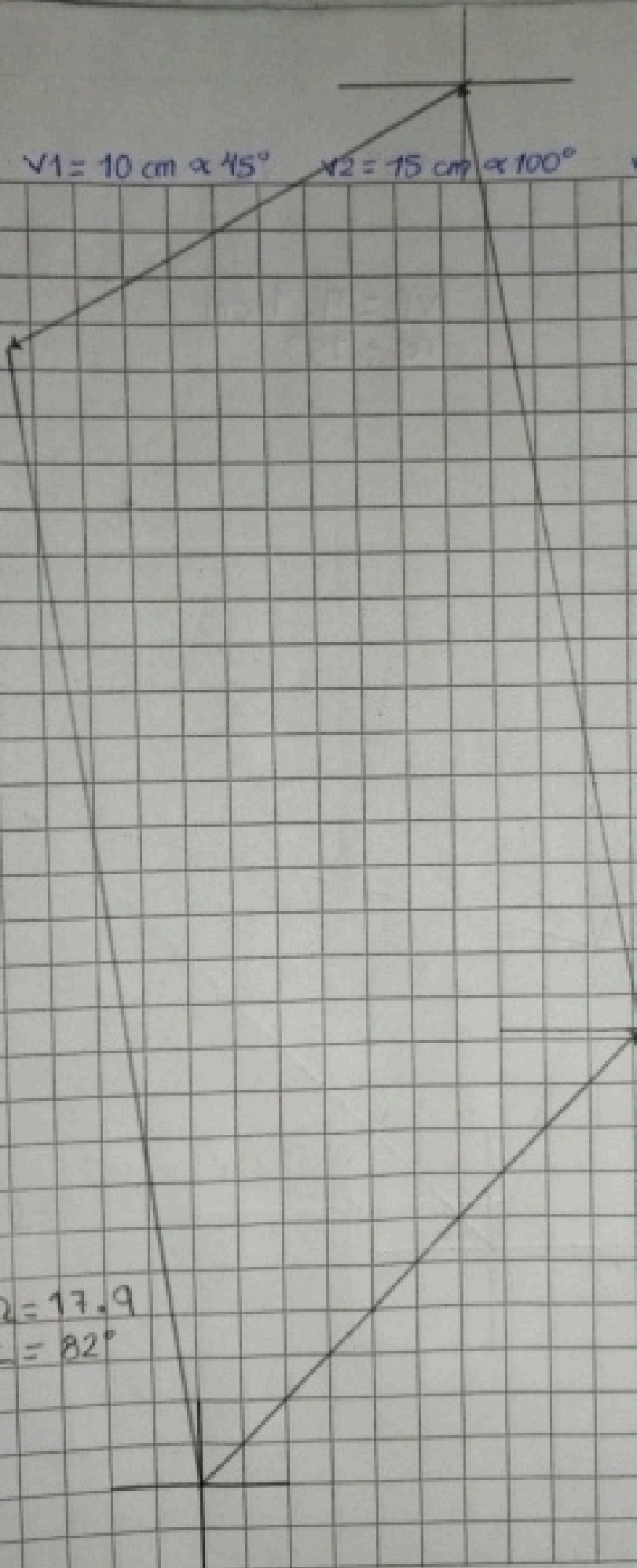
$$v_R = \sqrt{324.26}$$

$$v_R = 18.00$$

$$\alpha = -82.18$$

$$v_R = 17.9$$

$$\alpha = 82^\circ$$



6. $v_1 = 10 \text{ cm } \alpha 45^\circ$ $v_2 = 5 \text{ cm } \alpha 110^\circ$ $v_R = v_1 - v_2$

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

$$v_{1x} = 7.07/$$

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

$$v_{1y} = 7.07/$$

$$v_R = 9.1 \text{ cm}$$

$$\alpha = 15^\circ$$

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

$$v_{2x} = 1.71/$$

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

$$v_{2y} = -4.69/$$

$$\sum v_x = v_{1x} + v_{2x}$$

$$\sum v_y = v_{1y} + v_{2y}$$

$$\sum v_x = 8.78/$$

$$\sum v_y = 2.38/$$

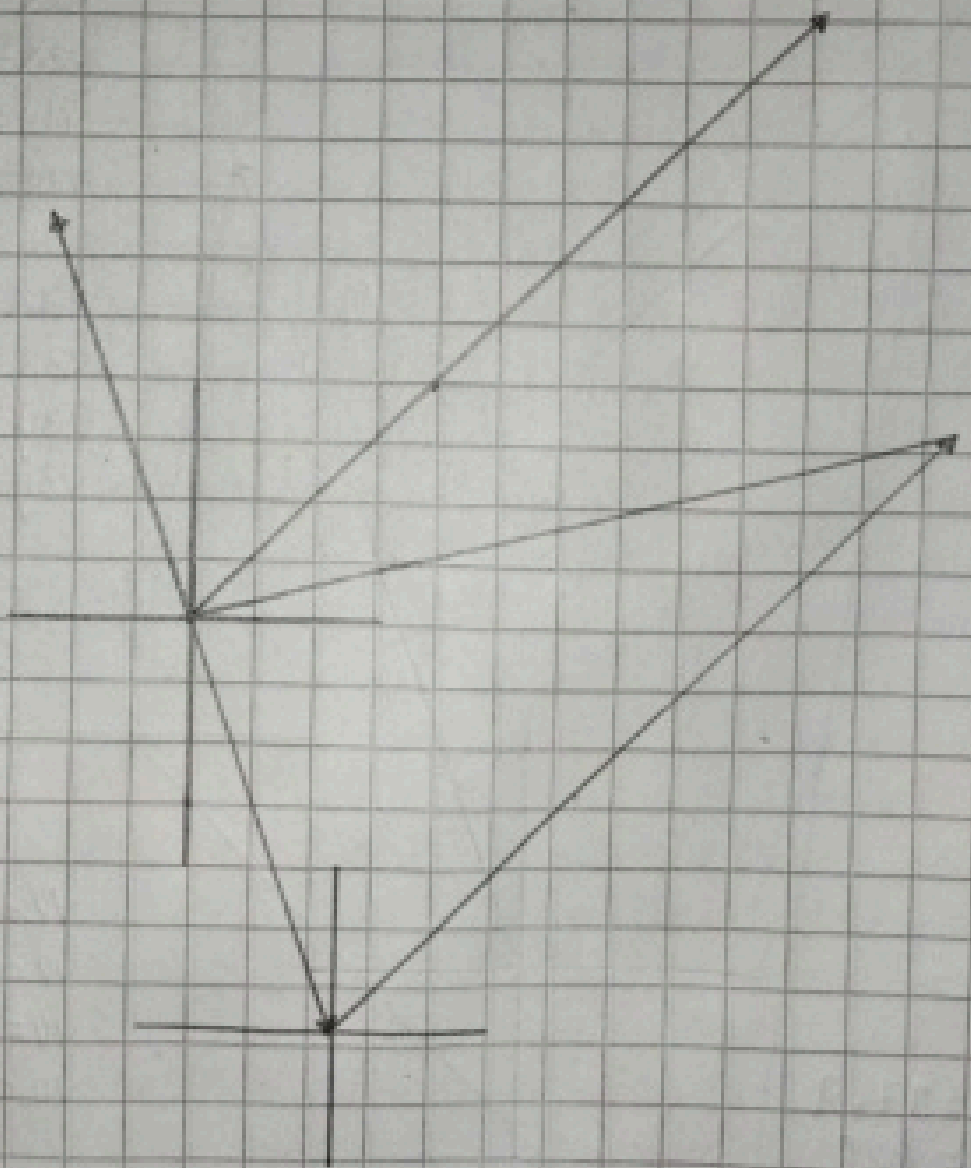
$$v_R = \sqrt{v_x^2 + v_y^2}$$

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

$$v_R = \sqrt{82.74}$$

$$v_R = 9.09/$$

$$\alpha = 15.16$$



$$7.- \quad v_1 = 5 \text{ cm } \alpha 30^\circ \quad v_2 = 5 \text{ cm } \alpha 150^\circ \quad v_R = v_2 - v_1$$

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

$$v_{1x} = 4.33/$$

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

$$v_{1y} = 2.5/$$

$$\sum v_x = v_{1x} + v_{2x}$$

$$\sum v_y = v_{1y} + v_{2y}$$

$$\sum v_x = -8.66$$

$$\sum v_y = 0$$

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

$$v_{2x} = -4.33/$$

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

$$v_{2y} = 2.5/$$

$$v_R = \sqrt{v_x^2 + v_y^2}$$

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

$$v_R = \sqrt{74.99}$$

$$v_R = 8.65$$

$$\alpha = 0$$

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

$$\alpha = 0^\circ$$

