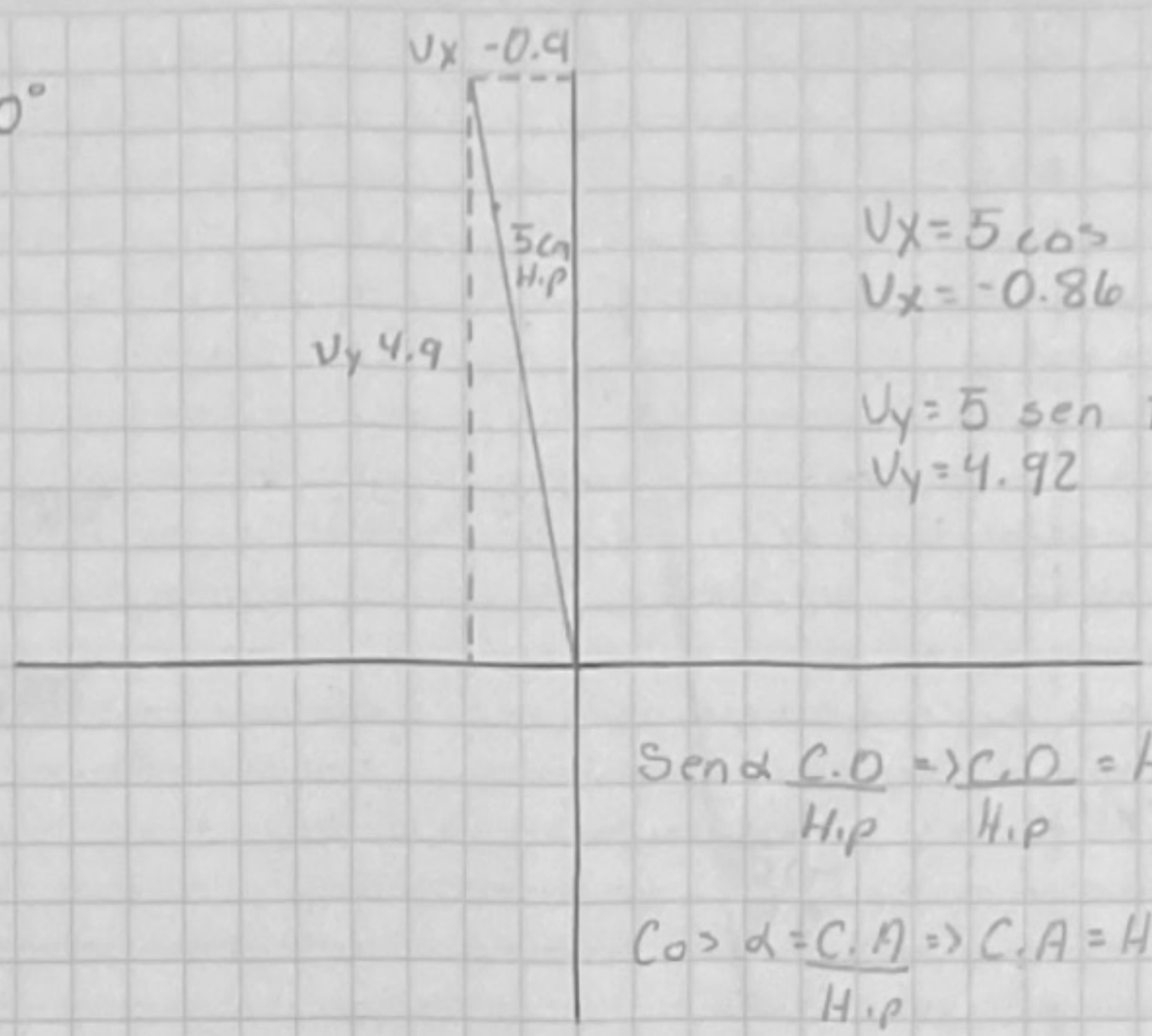
$V_1 = 5cm \ \alpha\ 100°$




$Vx = 5 \cos 100°$
$Vx = -0.86$

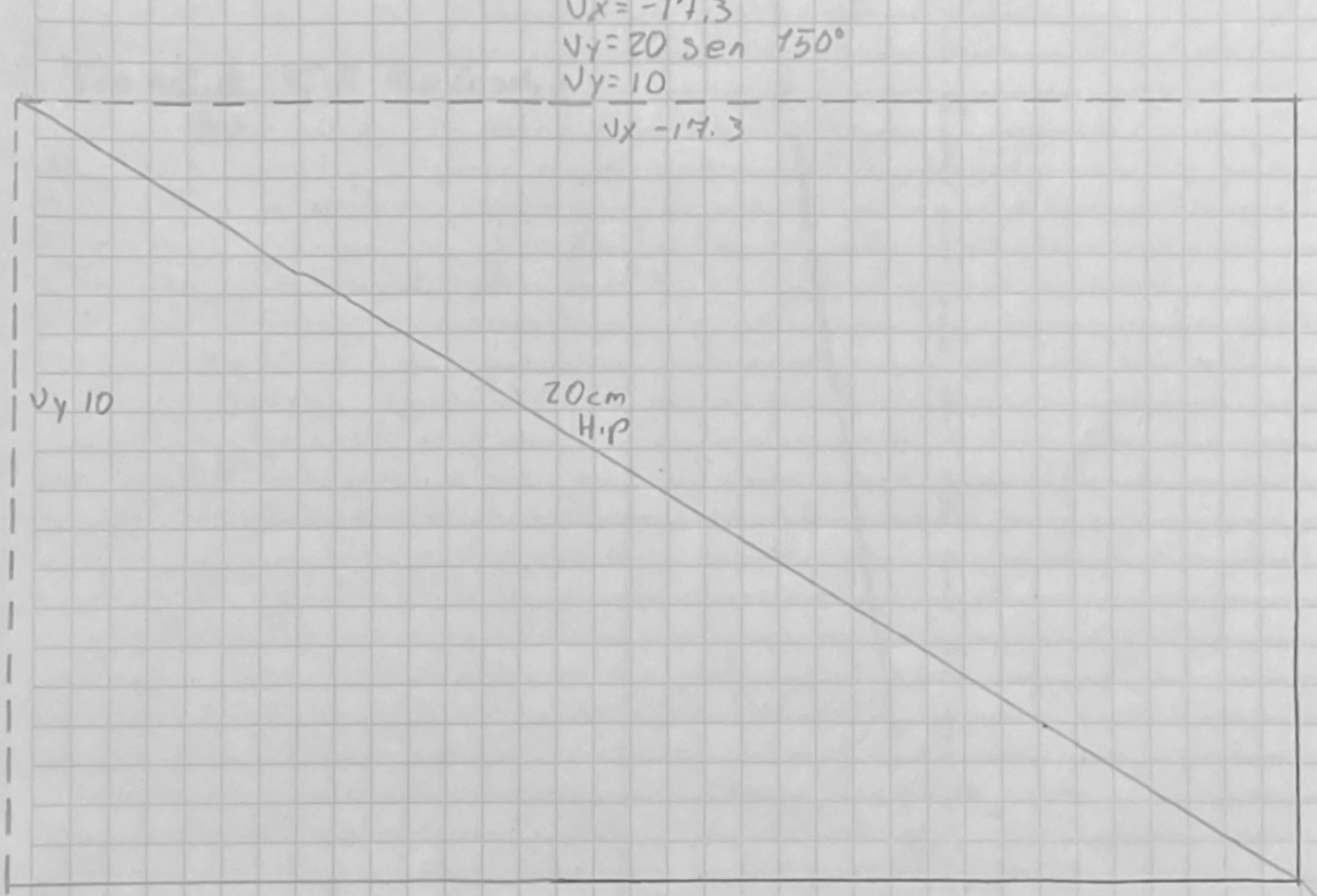
$Vy = 5 \text{ sen } 100°$
$Vy = 4.92$

$\text{Sen}\alpha \ \frac{C.O}{H.P} \Rightarrow \frac{C.O}{H.P} = H.P \ \text{Sen}\alpha$

$Co > \alpha = \frac{C.A}{H.P} \Rightarrow C.A = H.P \ Co > \alpha$

$V_1 = 20cm \ \alpha\ 150°$

$Vx = 20 \ Co > 150°$
$Vx = -17.3$
$Vy = 20 \text{ sen } 150°$
$Vy = 10$




$\text{Sen}\alpha \ \frac{C.O}{H.P} \ Co > 150°$

$Cos\alpha \ \frac{C.A}{H.P} \Rightarrow C.A = H.P \ Cos\alpha$

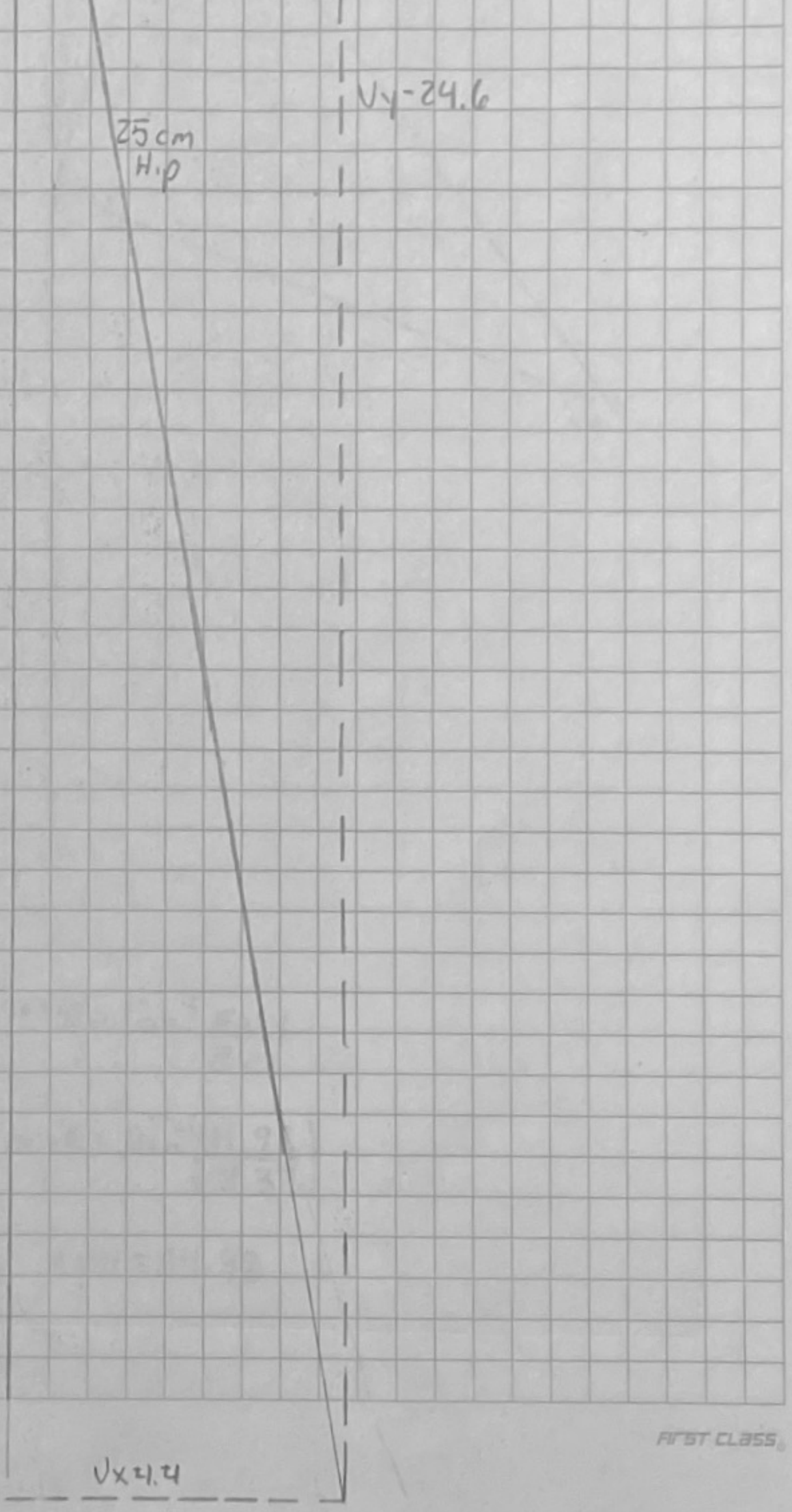
$V_1 = 25\ cm \ \alpha\ 280$

$V_x = 25 \cos 280°$
$V_x = 4.34$

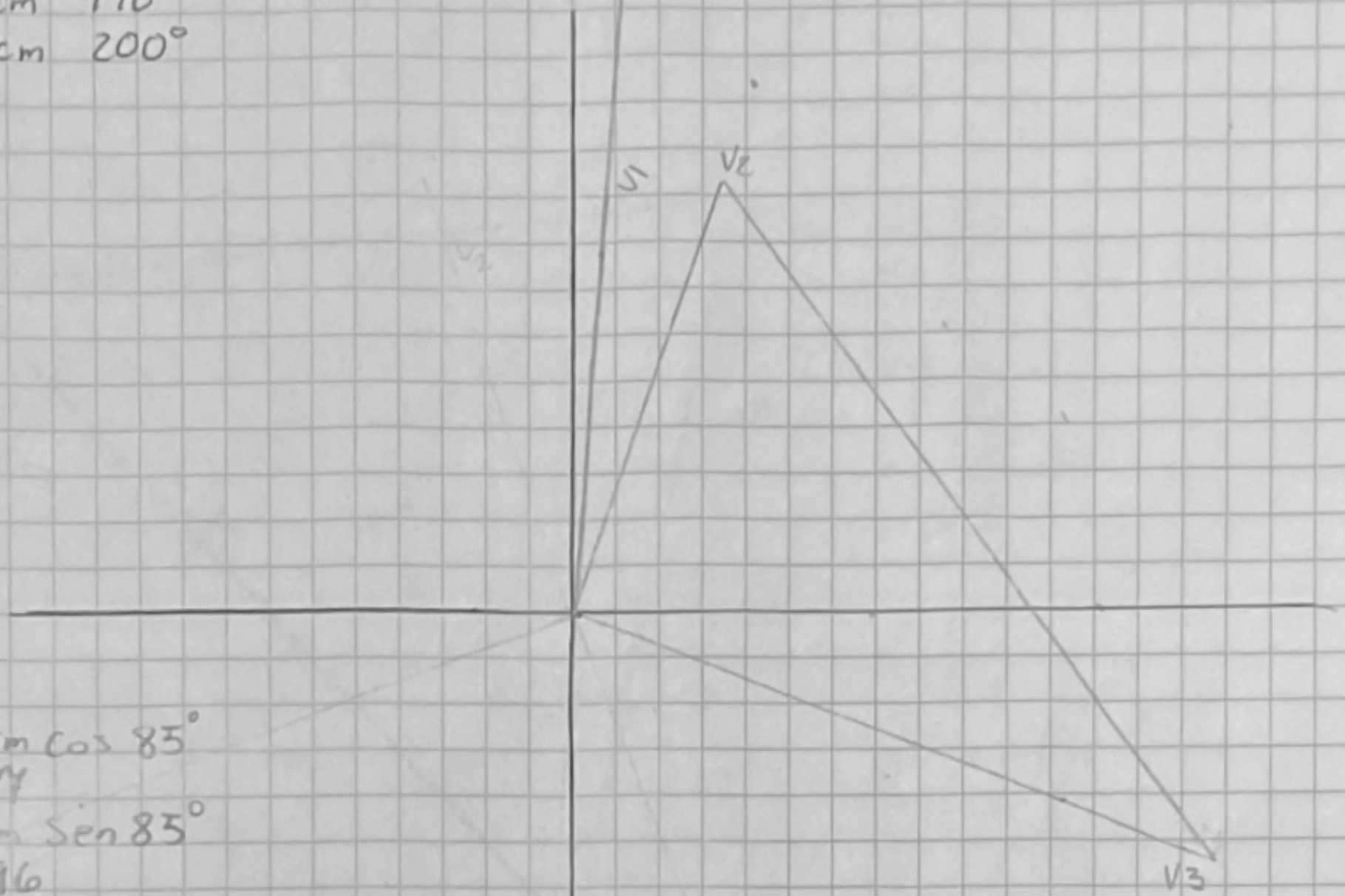
$V_y = 25 \operatorname{sen} 280°$
$V_y = -24.6$

$\operatorname{Sen}\alpha \frac{C.O}{H.P} = \frac{C.O}{H.P} = H.P \operatorname{Sen}\alpha$

$\cos\alpha = \frac{C.A}{H.P} \Rightarrow C.A = H.P \cos\alpha$



$V_1 = 10\,cm \quad 85°$
$V_2 = 5\,cm \quad 110°$
$V_3 = 8\,cm \quad 200°$




$V_{1X} = 10\,cm \cos 85°$
$V_{1X} = 0.87$
$V_{1y} = 10\,cm \operatorname{Sen} 85°$
$V_{1y} = 9.96$

$V_{2X} = 5\,cm \cos 110°$
$V_{2X} = -1.71$
$V_{2y} = 5\,cm \operatorname{Sen} 110°$
$V_{2y} = 4.69$

$V_{3X} = 8\,cm \cos 200°$
$V_{3X} = -7.51$
$V_{3y} = 8\,cm \operatorname{Sen} 200°$
$V_{3y} = -2.73$

$$\Sigma V_X = V_{1X} + V_{2X} + V_{3X}$$
$$\Sigma V_X = -8.35$$

$$\Sigma V_y = V_{1y} + V_{2y} + V_{3y}$$
$$\Sigma V_y = 11.92$$

$$\alpha VR = \operatorname{Tan}^{-1} \frac{\Sigma V_y}{\Sigma V_X}$$

$$\alpha VR = \operatorname{Tan}^{-1} \left( \frac{11.92}{-8.35} \right)$$

$$\alpha VR = 54.98$$

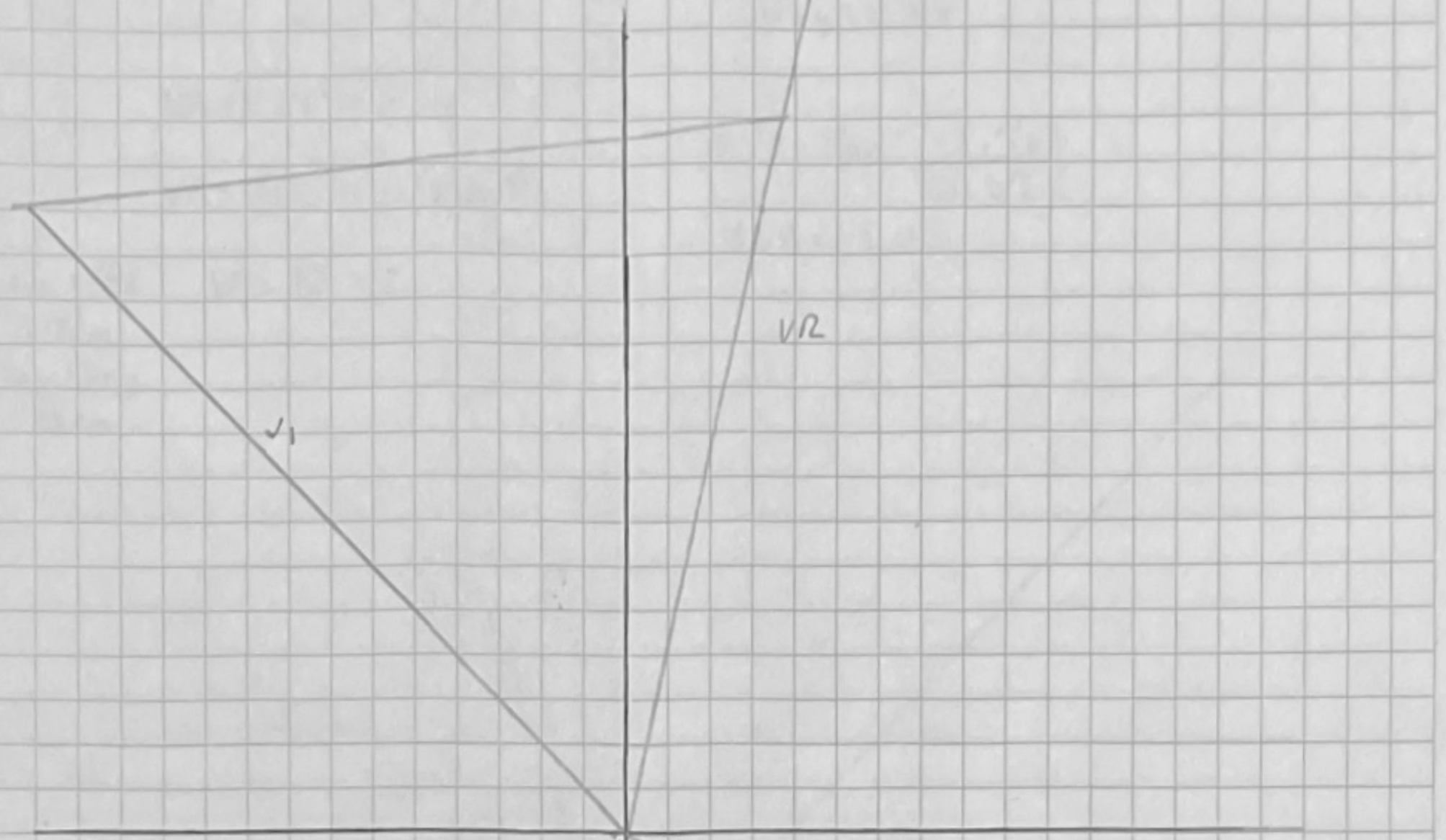
$$VR = \sqrt{\Sigma V_X^2 + \Sigma V_y^2}$$

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

$$VR = 14.55$$

$V_1 = 10\,cm \angle 45°$ $V_3 = 8\,cm \angle 210$

$V_2 = 15\,cm \angle 100°$




$V_{1x} = 10\,cm \cos 45°$

$V_{1x} = 7$

$V_{1y} = 10\,cm \operatorname{Sen} 45°$

$V_{1y} = 7$

$V_{2x} = 15\,cm \cos 100°$

$V_{2x} = -2.6$

$V_{2y} = 10\,cm \operatorname{sen} 100°$

$V_{2y} = 14.7$

$V_{3x} = 8\,cm \cos 210°$

$V_{3x} = -6.9$

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

$V_{3y} = -4$

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

$\Sigma Vx = -2.5$

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

$\Sigma Vy = 17.7$

$VR = \sqrt{\Sigma Vx^2 + \Sigma Vy^2}$

$VR = \sqrt{(-2.5)^2 + (17.7)^2}$

$VR = 17.87$

$\alpha VR = \operatorname{Tan}^{-1} \dfrac{\Sigma Vy}{\Sigma Vx}$

$\alpha VR = \operatorname{Tan}^{-1} \left( \dfrac{17.7}{-2.5} \right)$

$\alpha VR = -81.9$

$V_1 = 10\ cm\ 45°$
$V_2 = 5\ cm\ 110°$
$V_R = V_1 - V_2$

$V_1x = 10 \cos 45$
$V_1x = 7.07$

$V_1y = 10\ Sen\ 45$
$V_1y = 7.07$

$V_2x = 5 \cos 110°$
$V_2x = -1.7$

$V_2y = 5\ sen\ 110°$
$V_2y = 4.69$

$VR\sqrt{\Sigma Vx^2 + \Sigma Vy^2}$

$VR = \sqrt{(5.37)^2 + (11.76)^2}$

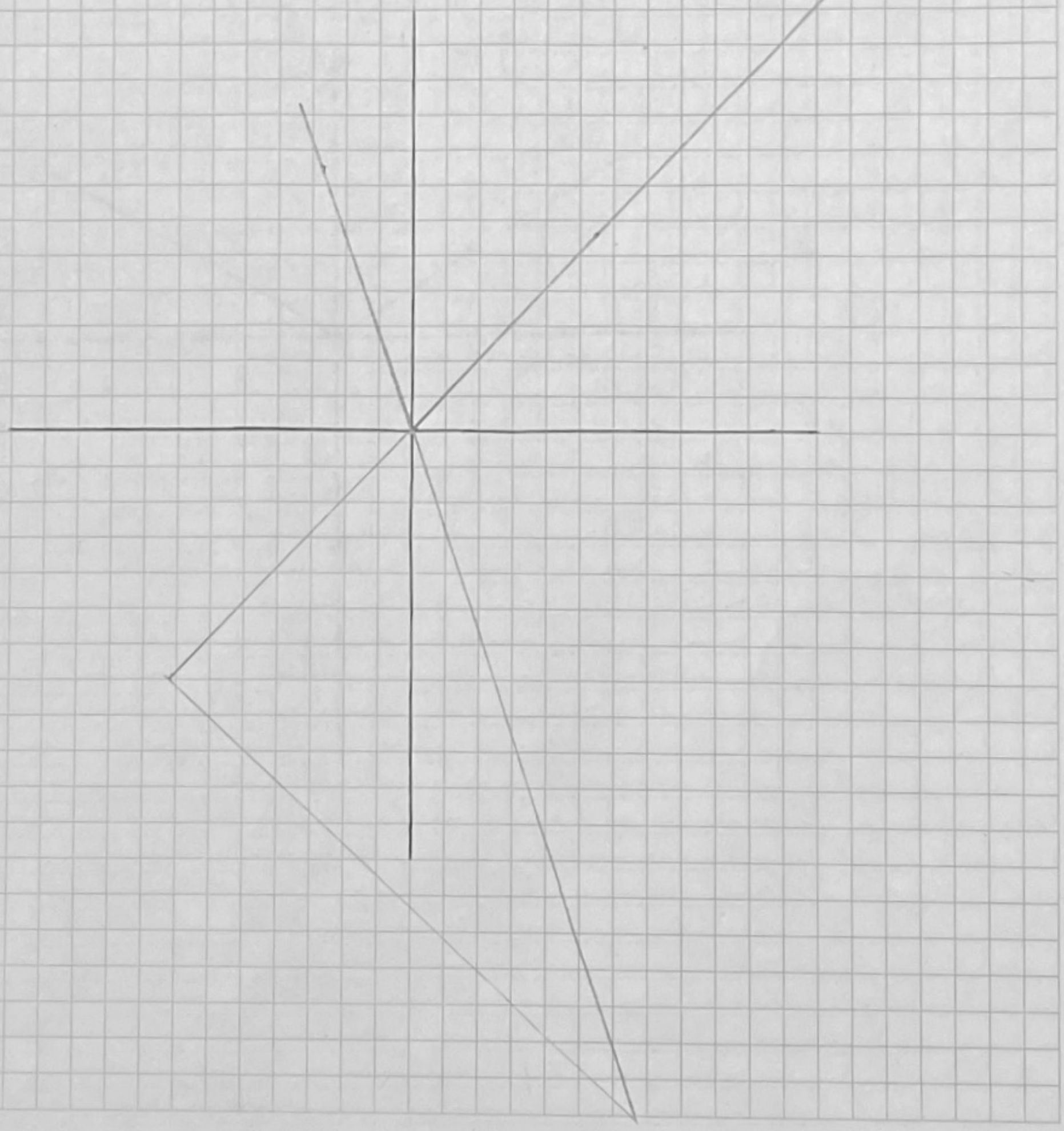
$VR = 12.92.$

$\alpha VR = Tan^{-1}\left(\frac{11.76}{5.37}\right)$

$\alpha VR = 65.45$

$\Sigma Vx = V_1x + V_2x$
$5.37 cm$

$\Sigma Vy = V_1y + V_2y$
$11.76\ cm$



$V_1 = 5cm\ 30°$

$V_2 = 5cm\ 150°$

$VR = V_2 - V_1$

$V_1X = 5cm \cos 30°$

$V_1X = 4.3$

$V_1y = 5cm \operatorname{Sen} 30°$

$V_1y = 2.5$

$V_2x = 5cm \cos 150°$

$V_2x = -4.3$

$V_2y = 5cm \operatorname{Sen} 150°$

$V_2y = 2.5$

$VR = \sqrt{\varepsilon Vx^2 + \varepsilon Vy^2}$

$VR = \sqrt{(0)^2 + (5)^2}$

$VR = 5$

$\alpha VR = \operatorname{Tan}^{-1}\left(\frac{5}{0}\right)$

$\alpha VR = 0$