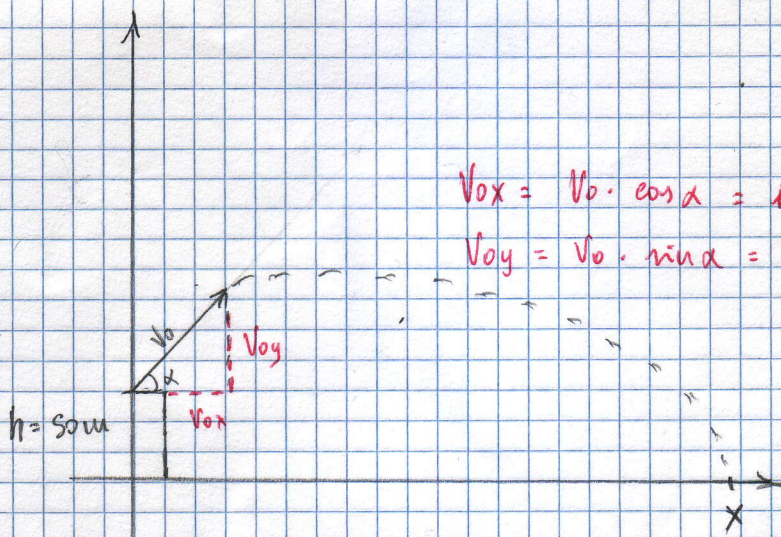


es. u. S



$$V_{0x} = V_0 \cdot \cos \alpha = 106,06$$

$$V_{0y} = V_0 \cdot \sin \alpha = 106,06$$

$$V_0 = 150 \frac{\text{m}}{\text{s}}$$

$$\alpha = 45^\circ$$

$$x = ? \text{ ①}$$

$$h_{\text{max}} = ? \text{ ②}$$

$$V_f = ? \text{ ③}$$

$$\text{①} \quad \text{HRL} \quad x = V_{0x} \cdot t \Rightarrow x = 106,06 \frac{\text{m}}{\text{s}} \cdot 22,08 \text{ s} = 2341,8 \text{ m}$$

$$\text{HCL} \quad y = h + V_{0y}t - \frac{1}{2}gt^2$$

$$0 = h + V_{0y}t - 4,9t^2 = 50 + 106,06t - 4,9t^2$$

$$-106,06 \pm \sqrt{11248,7 + 980} = \frac{-106,06 \pm 110,6}{9,8}$$

$$\frac{-106,06 \pm 110,6}{9,8}$$

$$\frac{4,52 \text{ m}}{-9,8} = -0,46 \text{ s}$$

$$+ 22,08 \text{ s}$$

$$\text{②} \quad h_{\text{max}} = y \rightarrow y = h + V_{0y}t - \frac{1}{2}gt^2$$

$$y = 50 \text{ m} + (106,06 \cdot 10,81 \text{ s}) - 4,9 (10,81 \text{ s})^2$$

$$y = 1202,3 \text{ m} - 572,3 \text{ m} = 630 \text{ m}$$

$$\text{HCL} \quad \begin{cases} g = 9,81 \frac{\text{m}}{\text{s}^2} \\ V = V_{0y} - gt \rightarrow t = \frac{V - V_{0y}}{g} = \frac{0 - 106,06}{-9,81} = 10,81 \text{ s} \\ S = 50 + V_{0y}t - \frac{1}{2}gt^2 \end{cases}$$

$$\text{③}$$

$$V_f = \sqrt{V_{fx}^2 + V_{fy}^2} = \sqrt{(106,06)^2 + (-110,5)^2} = 153,19 \frac{\text{m}}{\text{s}}$$

$$= V_{0x}$$

$$\text{HCL} \quad \begin{cases} g = -9,81 \frac{\text{m}}{\text{s}^2} \\ V = V_{0y} - gt \end{cases}$$

$$S = 50 + V_{0y}t - \frac{1}{2}gt^2$$

$$V_{fy} = 106,06 \frac{\text{m}}{\text{s}} - 216,6 \frac{\text{m}}{\text{s}} = -110,5 \frac{\text{m}}{\text{s}}$$