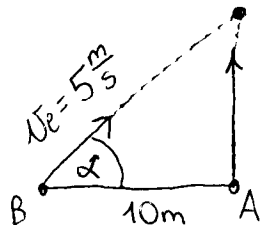
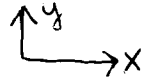


4.)



$a_v = 2 \text{ m/s}^2$ $t_v = 5 \text{ s}$ (ii) $t = ?$ (i) $\alpha = ?$



$$v_x = v \cos \alpha$$

$$v_y = v \sin \alpha$$

(i) $x_e = v_e \cos \alpha \cdot t$

$x_v = 10$

$$x = \frac{a_x}{2} t^2 + v_{0x} t + x_0$$

$y_e = v_e \sin \alpha \cdot t$

$y_v = \frac{a_v}{2} t^2$

mert $t < 5 \text{ s}$ biztosan

Találkoznak: $\begin{cases} x_e = x_v \\ y_e = y_v \end{cases}$

$$\begin{cases} (5 \frac{\text{m}}{\text{s}}) \cos \alpha \cdot t = 10 \text{ m} \\ (5 \frac{\text{m}}{\text{s}}) \sin \alpha \cdot t = (1 \frac{\text{m}}{\text{s}^2}) \cdot t^2 \end{cases} \rightarrow t = \frac{10}{5 \cos \alpha}$$

$$5 \sin \alpha \frac{2}{\cos \alpha} = \frac{4}{\cos^2 \alpha} \quad | \cdot \cos^2 \alpha$$

$$10 \sin \alpha \cos \alpha = 4$$

$$5 \sin 2\alpha = 4$$

$$\sin 2\alpha = \frac{4}{5} \rightarrow \underline{\alpha = 26,56^\circ}$$

(ii)

$$t = \frac{10}{5 \cos \alpha} = \frac{2}{\cos 26,56^\circ} = \underline{2,236 \text{ s}}$$