

EXERCÍCIOS PROJÉTIS.



a) $\Delta t = ?$

a) $\Delta y = -\frac{gt^2}{2}$

$-0.019 = -\frac{10t^2}{2}$

b) $v_{0x} = ?$

$-0.019 = -\frac{5t^2}{2}$

$-0.019 = -\frac{10t^2}{2}$

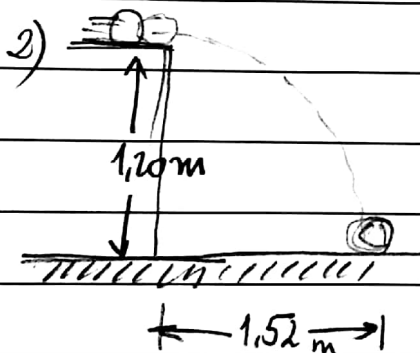
$t = 0.062 \text{ s}$

$-0.019 = -5t^2 \times (1)$

b) $\Delta x = v_{0x} \cdot t$

$30 = v_{0x} \cdot 0.062$

$30 = v_{0x} = \frac{4.8 \cdot 10^2 \text{ m}}{0.062}$



a) $\Delta t = ? \quad y = \frac{gt^2}{2}$

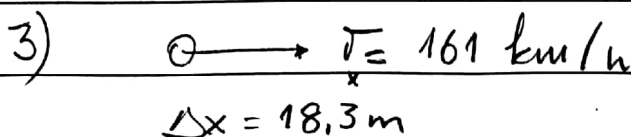
$-1.20 = -\frac{10t^2}{2}$

$\frac{2.40}{10} = t^2 \Rightarrow t = 0.49 \text{ s}$

b) $v_{0x} = ? \quad \Delta x = v_{0x} \cdot t$

$1.52 = v_{0x} \cdot 0.49$

$\frac{1.52}{0.49} = v_{0x} = 3.10 \text{ m/s}$



$\Delta x = 18.3 \text{ m}$

$v_x = 161 \div 3.6 = 44.72 \text{ m/s}$

$\Delta x = v_x \cdot t$

$9.15 = 44.72 = \frac{t}{10} \Rightarrow 0.20 \text{ s}$

$$c) y = -gt_1^2$$

$$y_1 = -10 \cdot \frac{0,20^2}{2}$$

$$y_1 = -0,20$$

$$y_1 = -0,20 \text{ m}$$

$$b) \Delta x_2 = v_x \cdot t_2$$

$$9,15 = 44,72 \cdot t_2$$

$$\frac{9,15}{44,72} = t_2 = 0,20 \text{ s}$$

$$d) y = -gt_2^2$$

$$y_2 = -10 \cdot \frac{0,40^2}{2}$$

$$y_2 = -0,8 \text{ m}$$

$$\Delta y = y_2 - y_1$$

$$y_2 = -0,8 - (-0,20)$$

$$y_2 = -0,8 + 0,20$$

$$y_2 = -0,6 \text{ m}$$

e) o resultado não é o mesmo por a velocidade em y está aumentando em função da aceleração da gravidade.

$$4) \rightarrow v = 10 \text{ m/s}$$

$$\Delta t = 0,19 \text{ s}$$

$$a) \Delta y = ?$$

$$b) \Delta x = ?$$

$$a) \Delta y = -gt^2$$

$$\Delta y = -10 \cdot \frac{0,19^2}{2}$$

$$\Delta y = -0,18 \text{ m}$$

$$b) \Delta x = v_x \cdot t$$

$$\Delta x = 10 \cdot 0,19$$

$$\Delta x = 1,9 \text{ m}$$

$$5) \rightarrow v_e = 1,00 \cdot 10^9 \text{ cm/s}$$

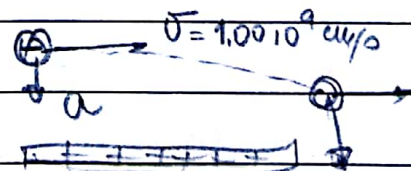
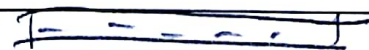
$$\Delta x = 2,00 \text{ cm}$$

$$\downarrow a = 1,00 \cdot 10^{17} \text{ cm/s}^2$$

$$a) \Delta t = ?$$

$$b) \Delta y = ?$$

$$c) v_x \text{ e } v_y$$



$$a) \Delta x = v_x \cdot t$$

$$2 = 1.00 \cdot 10^9 \cdot t$$

$$\frac{2}{1.00 \cdot 10^9} = t = \boxed{2 \cdot 10^{-9} \text{ s}}$$

$$b) y = -a \frac{t^2}{2}$$

$$y = -\frac{1.00 \cdot 10^{17} \cdot (2 \cdot 10^{-9})^2}{2}$$

$$y = \boxed{-0.20 \text{ cm}}$$

$$v_x = \frac{1.00 \cdot 10^9 \text{ cm}}{\text{s}}$$

$$v_y = a_y \cdot t$$

$$v_y = 1.00 \cdot 10^{17} \cdot 2 \cdot 10^{-9}$$

$$v_y = \boxed{2.0 \cdot 10^8 \text{ cm/s}}$$