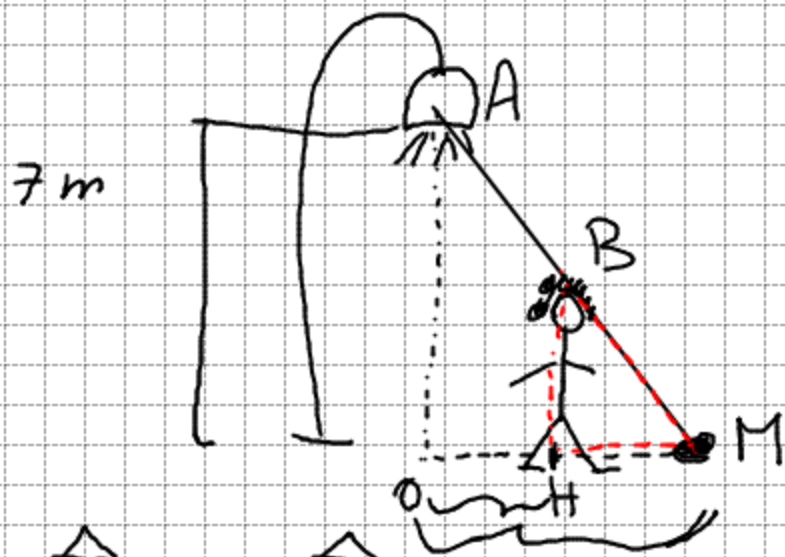


6)  $h_{\text{BENIAMINO}} = 2 \text{ m}$

$v = 5 \text{ km/h} = 5 : 3.6 \text{ m/s} \cong 1,4 \text{ m/s}$



$s = vt$

$\triangle AOM \cong \triangle BHM$

$AO = 7 \text{ m}$

$BH = 2 \text{ m}$

$AO : OM = BH : HM$

$\frac{7}{v_{\text{omb}} \cdot \Delta t} = \frac{2}{v_{\text{omb}} \cdot \Delta t - v \cdot \Delta t}$

$OM = X_{\text{OMBRA}} = v_{\text{OMBRA}} \cdot \Delta t$

$OH = X_{\text{BENIAMINO}} = v \Delta t$

$\frac{7 \text{ m}}{v_0 \cdot \Delta t} = \frac{2 \text{ m}}{(v_0 - v) \Delta t}$

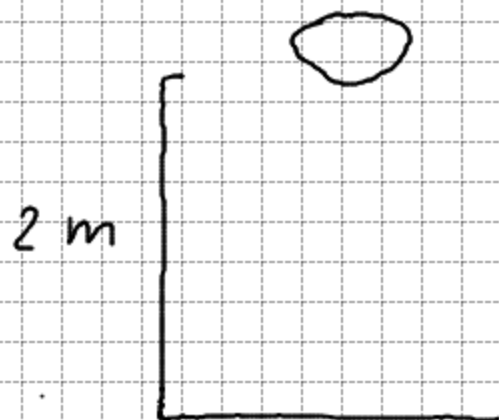
$\frac{7(v_0 - v)}{v_0(v_0 - v)} = \frac{2v_0}{v_0(v_0 - v)}$

$7v_0 - 9,7 = 2v_0$

$5v_0 = 9,7$

$v_0 = 1,9 \text{ m/s}$

7)



$$v = at = 9,81 \frac{\text{m}}{\text{s}^2} \cdot 0,64 \text{ s} = 6,28 \text{ m/s}$$

$$g = 9,81 \text{ m/s}^2$$

$$s = \frac{1}{2} at^2$$

$$t = \sqrt{\frac{2s}{a}}$$

$$t = \sqrt{\frac{2 \cdot 2 \text{ m}}{9,81 \frac{\text{m}}{\text{s}^2}}}$$

$$t = \sqrt{\frac{4 \text{ m}}{9,81 \frac{\text{m}}{\text{s}^2}}}$$

$$t = \sqrt{0,41 \text{ s}^2}$$

$$t = 0,64 \text{ s}$$

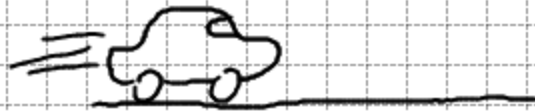
10)

$$v_0 = ? \quad v_f = 30 \text{ m/s}$$

$$\Delta t = 15 \text{ s}$$

$$\Delta s = 300 \text{ m}$$

$$\Delta v = \frac{\Delta s}{\Delta t} = \frac{300 \text{ m}}{15 \text{ s}} = 20 \text{ m/s}$$



$$v_0 = v_f - \Delta v = 30 \text{ m/s} - 20 \text{ m/s} = 10 \text{ m/s}$$

$$a = \frac{\Delta v}{\Delta t} = \frac{20 \text{ m/s}}{15 \text{ s}} \approx 1,3 \text{ m/s}^2$$

6)

$$a = 0,5 \text{ m/s}^2$$

$$\Delta s = 180 \text{ m}$$

$$v_f = 126 \text{ km/h} = 35 \text{ m/s}$$

$$v_i = 21,6 \text{ m/s}$$



~~$$t = \sqrt{\frac{2s}{a}} = \sqrt{\frac{360 \text{ m}}{0,5 \text{ m/s}^2}} =$$~~

~~$$\sqrt{720 \text{ s}^2} = 26,8 \text{ s}$$~~

~~$$s = \frac{1}{2} a t^2 + v_i t + s_0$$~~

~~$$v_f^2 - v_i^2 = 2a(s_f - s_i)$$~~

~~$$v_i = \sqrt{2 \times 0,5 \times 180 + 35^2} =$$

$$= 32,3 \frac{\text{m}}{\text{s}}$$~~

~~$$\Delta v = a t = 0,5 \text{ m/s}^2 \cdot 26,8 \text{ s} \approx 13,4 \text{ m/s}$$~~

~~$$v_i = v_f - \Delta v = 35 \text{ m/s} - 13,4 \text{ m/s} =$$

$$21,6 \text{ m/s}$$~~