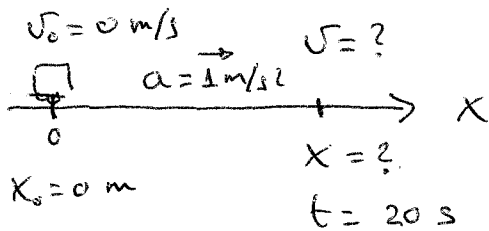


# Física y Química - MRUA - H1

1



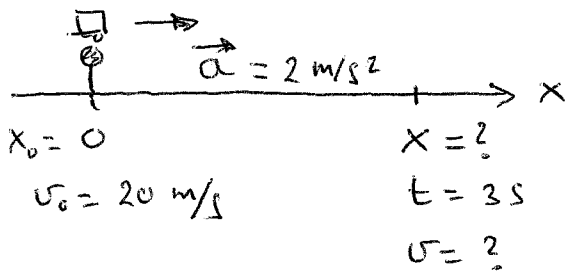
a)  $v = v_0 + at$

$$v = 0 + 1 \cdot 20 = \underline{20 \text{ m/s}}$$

b)  $x = x_0 + v_0 t + \frac{at^2}{2}$

$$x = 0 + 0 + \frac{1 \cdot 20^2}{2} = \underline{200 \text{ m}}$$

2



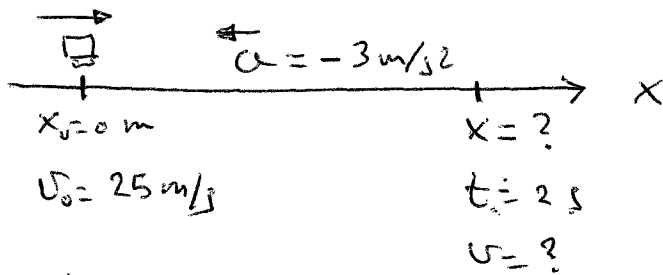
a)  $v = v_0 + at$

$$v = 20 + 2 \cdot 3 = \underline{26 \text{ m/s}}$$

b)  $x = x_0 + v_0 t + \frac{at^2}{2} = 0 + 20 \cdot 3 + \frac{2 \cdot 3^2}{2}$

$$x = 60 + \frac{18}{2} = 60 + 9 = \underline{69 \text{ m}}$$

3



a)  $v = v_0 + at$

$$v = 25 - 3 \cdot 2 = 19 \text{ m/s}$$

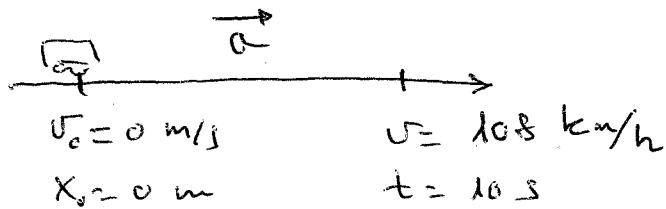
$$v = 19 \frac{\text{m}}{\text{s}} \cdot \frac{3600 \text{ s}}{1 \text{ h}} \cdot \frac{1 \text{ km}}{1000 \text{ m}} = \underline{68,4 \text{ km/h}}$$

b)  $x = x_0 + v_0 t + \frac{at^2}{2}$

$$x = 0 + 25 \cdot 2 - \frac{3 \cdot 2^2}{2} = 50 - 6 = 44 \text{ m}$$

$$s = x - x_0 = 44 - 0 = \underline{44 \text{ m}}$$

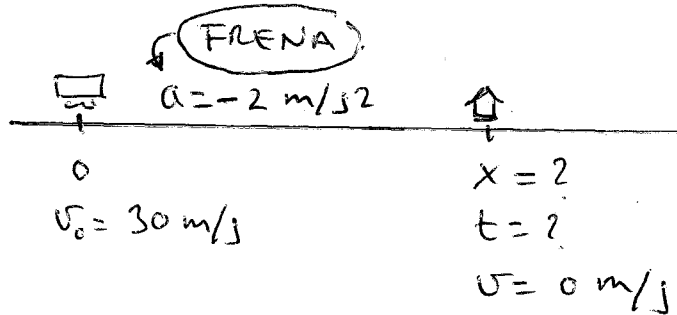
4



$$v = 108 \frac{\text{km}}{\text{h}} \cdot \frac{1 \text{ h}}{3600 \text{ s}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} = 30 \text{ m/s}$$

$$v = v_0 + at \rightarrow a = \frac{v - v_0}{t} = \frac{30 - 0}{10} = \boxed{3 \text{ m/s}^2}$$

5



se para al llegar a la estación.

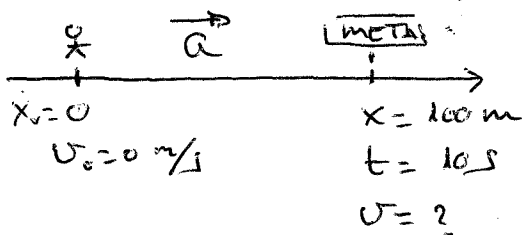
a)  $v = v_0 + at$

$$t = \frac{v - v_0}{a} = \frac{0 - 30}{-2} = \boxed{15 \text{ s}}$$

b)  $x = x_0 + v_0 t + \frac{at^2}{2}$

$$x = 0 + 30 \cdot 15 - \frac{2 \cdot 15^2}{2} = 450 - 225 = \boxed{225 \text{ m}}$$

6



a)  $x = \cancel{x_0 + v_0 t} + \frac{at^2}{2} \Rightarrow x = \frac{at^2}{2} \Rightarrow 2x = at^2 \Rightarrow$

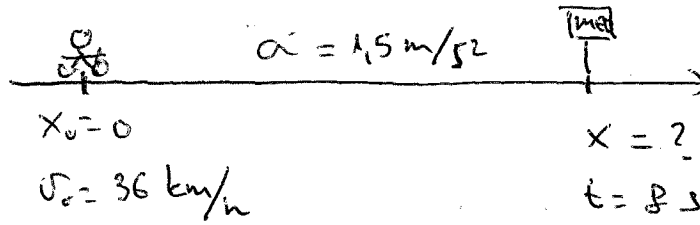
$$\Rightarrow at^2 = 2x \Rightarrow \boxed{a = \frac{2x}{t^2}}$$

$$a = \frac{2 \cdot 100}{10^2} = \frac{200}{100} = \boxed{2 \text{ m/s}^2}$$

$$b) v = v_0 + at = 0 + 2 \cdot 10 = 20 \text{ m/s}$$

$$v = 20 \frac{\text{m}}{\text{s}} \cdot \frac{3600 \text{ s}}{1 \text{ h}} \cdot \frac{1 \text{ km}}{1000 \text{ m}} = \underline{72 \text{ km/h}}$$

7)



$$v_0 = 36 \frac{\text{km}}{\text{h}} \cdot \frac{1 \text{ h}}{3600 \text{ s}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} = 10 \text{ m/s}$$

$$a) v = v_0 + at = 10 + 1,5 \cdot 8 = \underline{22 \text{ m/s}}$$

$$b) x = x_0 + v_0 t + \frac{at^2}{2}$$

$$x = 0 + 10 \cdot 8 + \frac{1,5 \cdot 8^2}{2} = 80 + 48 = \underline{128 \text{ m}}$$