

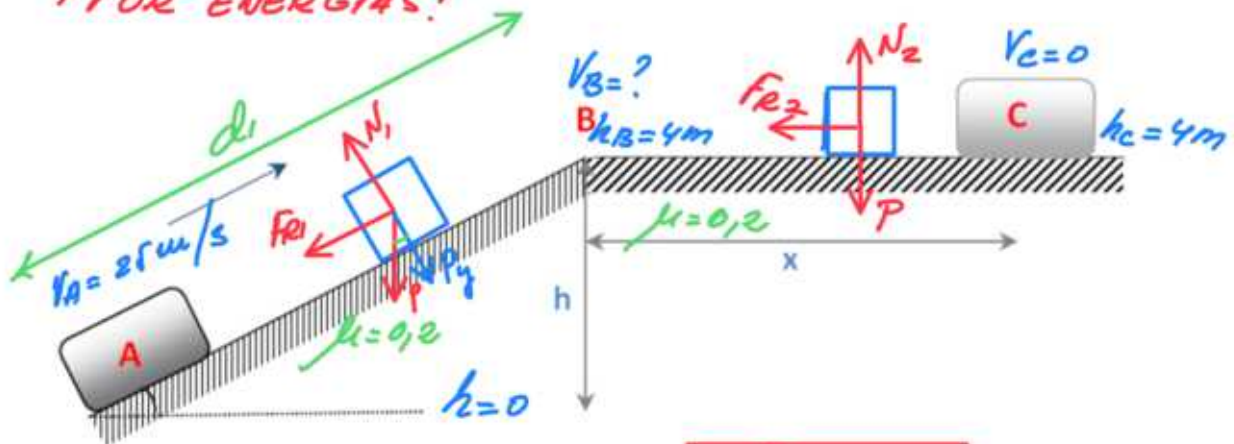
EJERCICIO FA1RE3481:

"achiimages.com"

$$m = 7 \text{ kg}; \alpha = 30^\circ; v_A = 25 \text{ m/s}$$

$$h = 4 \text{ m}; \mu = 0,2; v_B = ?; x = ?$$

¡POR ENERGÍAS!



a) ¿Velocidad en B?

$$W_{nc} = \Delta E$$

TRAMO AB: (La Normal no realiza trabajo)
(El peso es conservativo)

$$W_{F_{f1}} = E_B - E_A \Rightarrow F_{f1} \cdot d \cdot \cos 180 = (E_C + E_P)_B - (E_C + E_P)_A$$
$$\mu \cdot N_1 \cdot d \cdot (-1) = \frac{1}{2} m v_B^2 + m g h_B - \frac{1}{2} m v_A^2$$

$$N_1 = ? \Rightarrow \sum F_y = 0 \Rightarrow N_1 - P_y = 0 \Rightarrow N_1 = P_y = m g \cos 30$$

$$d_1 = ?$$



$$\sin 30 = \frac{h}{d_1} \Rightarrow d_1 = \frac{h}{\sin 30}$$

$$\underbrace{-0,2 \cdot \cancel{m} \cdot g \cdot \cos 30}_{N_1} \cdot \underbrace{\frac{4}{\sin 30}}_{d_1} = \frac{1}{2} \cancel{m} v_B^2 + \underbrace{m \cdot g \cdot 4}_{h_C} - \frac{1}{2} \cancel{m} \cdot 25^2$$

$$-13,57 = \frac{1}{2} v_B^2 + 39,2 - 312,5$$

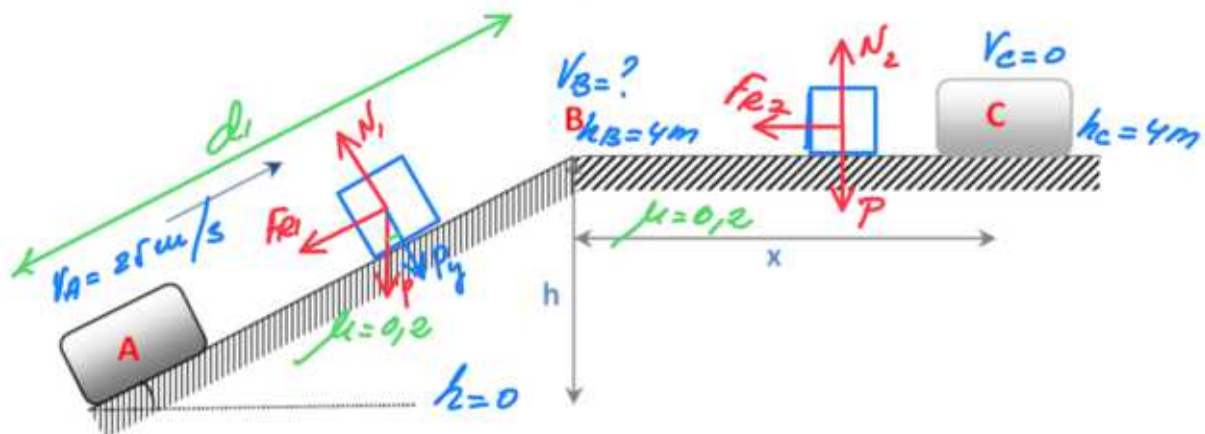
$$312,5 - 13,57 - 39,2 = \frac{1}{2} v_B^2$$

$$259,73 = \frac{1}{2} v_B^2 \Rightarrow v_B^2 = 519,46 \Rightarrow v_B = 22,79 \text{ m/s}$$

b) Distancia x en plano horizontal?

Continúa

b) Distância x em plano horizontal?



Trabalho B-C:

$$W_{nc} = \Delta E$$

$$W_{F_{f2}} = E_C - E_B$$

$$W_{F_{f2}} = (\cancel{E_c} + \cancel{E_p})_C - (E_B + \cancel{E_p})_B$$

$$F_{f2} \cdot x \cdot \cos 180 = \cancel{\mu g h_C} - \frac{1}{2} \mu v_B^2 - \cancel{\mu g h_B}$$

$$\mu \cdot N_2 \cdot x \cdot (-1) = -\frac{1}{2} \mu v_B^2$$

$$N_2 = ? \Rightarrow \sum F_y = 0 \Rightarrow N_2 = P = \mu \cdot g$$

$$-\mu \cdot \cancel{\mu} \cdot g \cdot x = -\frac{1}{2} \cancel{\mu} v_B^2 \rightarrow 22,79$$

$$+ 0,2 \cdot 9,8 \cdot x = + \frac{1}{2} 22,79^2$$

$$1,96x = \frac{1}{2} 519,38$$

$$1,96x = 259,69$$

$$x = 132,49 \text{ m}$$