

EJERCICIO FQ1BE346S:

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$$\alpha = 30^\circ$$

$$\mu = 0,2$$

$$m = 14 \text{ kg}$$

$$F = 150 \text{ N}$$

a) aceleració? *¡DINÀMICA!*

b) V després de 10 metres? *¡ENERGÍAS!*

a) Aceleració:

$$\Sigma \vec{F} = m \cdot \vec{a}$$

2^a Ley Newton

Eje x:

$$\Sigma F_x = m \cdot a$$

$$F - P_x - F_r = m \cdot a$$

$$F - mg \sin 30 - \mu \cdot N = m \cdot a$$

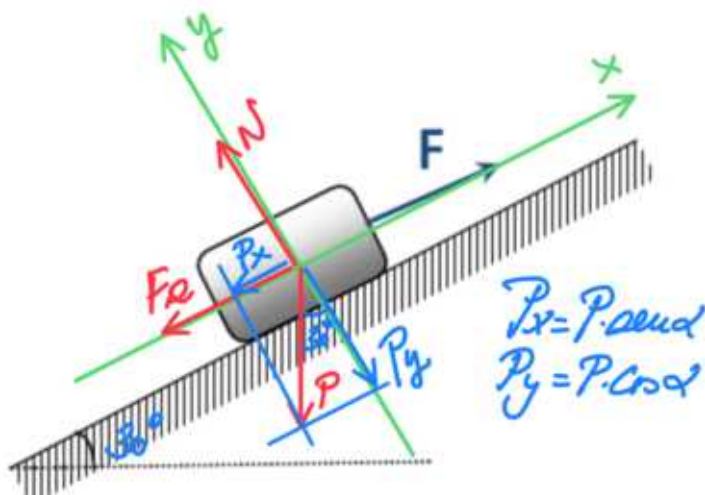
Eje y: $\Sigma F_y = 0 \Rightarrow N - P_y = 0 \Rightarrow N = mg \cos 30 = 118,82 \text{ N}$

$$F - mg \sin 30 - \mu \cdot mg \cos 30 = m \cdot a$$

$$35 - 14 \cdot 9,8 \cdot \sin 30 - 0,2 \cdot 14 \cdot 9,8 \cdot \cos 30 = 14 \cdot a$$

$$150 - 68,6 - 23,76 = 14a$$

$$57,64 = 14a \Rightarrow a = \frac{57,64}{14} = 4,12 \text{ m/s}^2 = a$$



$$P_x = P \cdot \sin \alpha$$

$$P_y = P \cdot \cos \alpha$$

Continua...

b) V después de 10 m:

$$W_{nc} = \Delta E \Rightarrow W_{FR} + W_F = E_B - E_A$$

$$F_R \cdot d \cdot \cos 180^\circ + F \cdot d \cdot \cos 0^\circ = (E_c + E_p)_B - (\cancel{E_c} + \cancel{E_p})_A$$

$$\mu \cdot N \cdot d \cdot (-1) + F \cdot d \cdot (1) = \frac{1}{2} m v_B^2 + m g h_B$$

$$-0,2 \cdot 118,82 \cdot 10 + 150 \cdot 10 = \frac{1}{2} 14 \cdot v_B^2 + m g \cdot 10 \text{ Sen } 30$$

$$-237,64 + 1500 = 7 v_B^2 + 686$$

$$1262,36 = 7 v_B^2 + 686$$

$$576,36 = 7 \cdot v_B^2$$

$$v_B^2 = \frac{576,36}{7} = 82,34$$

$$v_B = 9,07 \text{ m/s}$$

