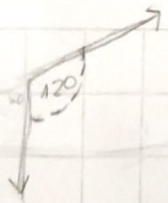
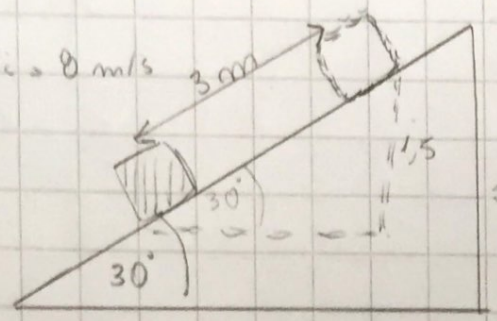
Gonzalo Fernando Guerra Figueroa
2° Eco

Pregunta n° 1



$m = 5\ kg$
$V_i = 8\ m/s$
$V_f = 0$
$d = 3\ m$
$\mu = ?$



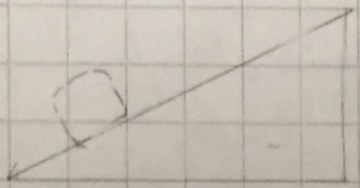
$\sin\theta = \frac{c.o}{h}$

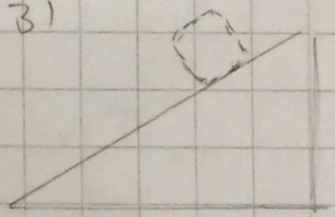
$\sin 30 = \frac{c.o}{3}$

$c.o = 1,5$

31

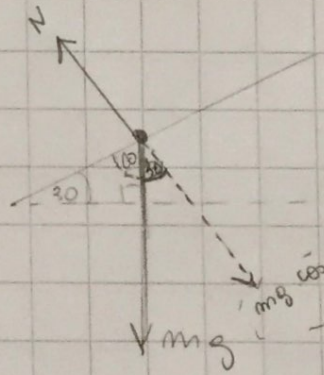
A)





$K = \checkmark$
$V_g = X$

$K = X$
$V_g = \checkmark$



Entre A y B

$\Delta E = W_{fnc}$

$E_B - E_A = W_{fnc}$

$E_B - E_A = (\mu \cdot N) \cdot d \cdot \cos 180$

$E_B - E_A = (\mu \cdot mg\cos 30) \cdot 3 \cdot -1$

$E_B - E_A = (\mu \cdot 43,3) \cdot 3 \cdot -1$

$mgh - \frac{1}{2}mv^2 = -129,9\,\mu$

$75 - 160 = -129,9\,\mu$

$-85 = -129,9\,\mu$

$0,65 = \mu$

$\mu = 0,65$

$\Delta K = W_N$

$K_f - K_i = W_P + W_R$

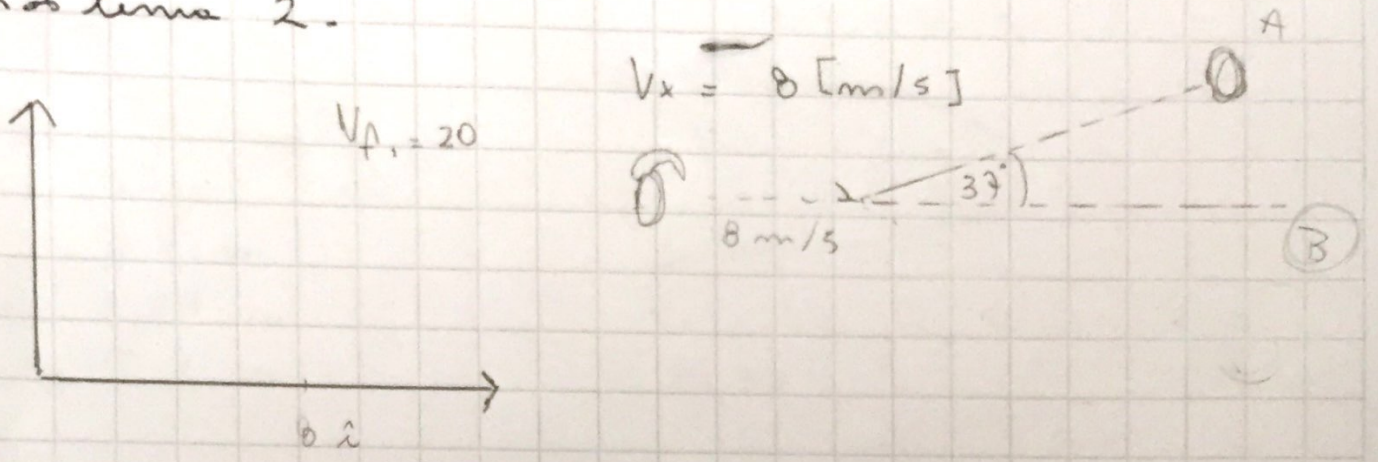
$0 - 160 = -75 - 129,9\,\mu$

$-85 = -129,9\,\mu$

$0,65 = \mu$

Gonzalo Orozco Siguenza
2° Eco

Problema 2.



Eje x

$$P_{i_x} = P_{f_x}$$

$$P_{i_{Ax}} + P_{i_{xB}} = P_{f_{1x}} + P_{f_{2x}}$$

$$m_1 \cdot V_1 + m_2 V_{i_2} = m_1 \cdot V_{f_1} + m_2 \cdot V_{f_2} \quad / \cdot 1/m$$

$$V_1 + V_2 = V_{f_1} + V_{f_2}$$

$$16 = \cos 37 \cdot 20 + V_{x_B}$$

$$\boxed{16 - 20 \cos 37 = V_{x_B}}$$

Eje y

$$P_{i_y} = P_{f_y}$$

$$P_{i_y} + P_{i_y} = P_{f_1} + P_{f_y}$$

$$0 = m V_{f_1} + V_{f_2}$$

$$0 = m (V_{f_1} + V_{f_2}) \quad / \cdot 1/m$$

$$0 = (V_{f_1} + V_{f_2})$$

$$= 20 \cdot \sin 37 + V_{f_{2y}}$$

$$-12{,}03 = V_{f_{2y}}$$

$\theta = 20 \sin 37$

$16 - 20 \cos 37$

$\theta = 89{,}9°$

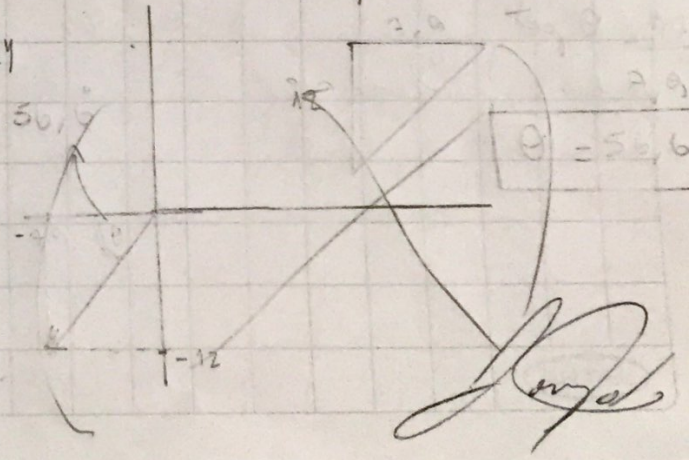
$$V_x = 0{,}027\,\hat{i}$$

$$V_y = -12\,\hat{j}$$

$$\boxed{\vec{V} = 0{,}027\,\hat{i} + (-12\,\hat{j})}$$

$$|\vec{V}| = \sqrt{(0{,}027)^2 + (12)^2}$$

$$\boxed{= 12{,}1 \ [m/s]}$$



Gonzalo Ayarza Figueroa
1°Eco

Problema n° 3

$d = 314\ m$
$t = 30\ s$
$R_1 = 0,1\ m$
$R_2 = 0,04\ m$
$R_3 = 0,4\ m$

$d = v \cdot t$
$314 = v \cdot 30$
$\} \ v = 10,46\ m/s$

$V_1 = V_2$
$10,46$

$\omega = \Delta\theta / t$

1 rev = 2π
$R_3 = 0,4$

a) Perímetro $= 2\pi \cdot 0,4$
$= 2,51\ [m]$

N° vueltas: Recorrido / perímetro
$314\ m / 2,51\ m$
$125,09$
N° vueltas = 125

b) $\bar{\omega} = \chi$ →

$= 2\pi \cdot \left(\frac{125}{30}\right)$

$= 26,2\ [rad/s]$

c) $V_1 = V_2 \quad \therefore \ W_1 = W_2$

$W_1 = \frac{26,18 \cdot 0,04}{0,1}$

$W = 10,5\ [rad/s]$