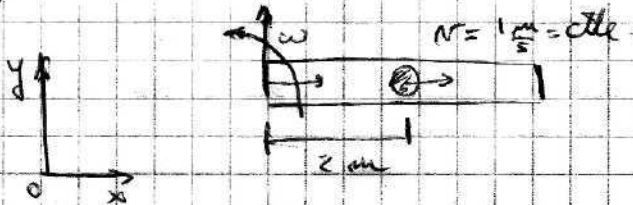


1) Teorema de las fuerzas vivas  $\rightarrow$  trabajo

2)



$$\vec{Q} = \cancel{Q_0 \hat{i}} + \cancel{Q_1 \hat{j}} + \vec{\omega} \times \vec{r}' + \vec{\omega} \times (\vec{\omega} \times \vec{r}') + 2 \vec{\omega} \times \vec{v}'$$

$$= 1 \hat{k} \times (1 \hat{k} \times 2 \hat{i}) + 2 \hat{k} \times 1 \hat{i}$$

$$\vec{Q} = \vec{\omega} \times 2 \hat{i} + 2 \hat{j} - 2 \hat{i} \left( \frac{m}{s^2} \right)$$

$$\vec{\omega} = -1 \hat{k} \frac{\text{rad}}{\text{s}^2}$$

$\vec{Q} \rightarrow$  tiene que ser 0 en sentido j

3)



$$F = 2 m g = m \frac{v^2}{R} \hat{e}_m$$

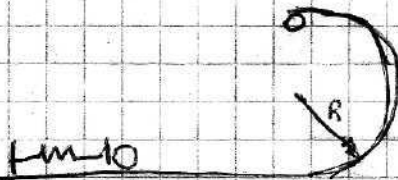
$$v = \sqrt{2 g R}$$

$$T = \frac{1}{2} m (2 g R) = m g R$$

$$U_g = m g 2 R = 2 m g R$$

$$T + U_g = 3 m g R$$

$$\frac{1}{2} k x^2 = U_e = 3 m g R$$



$m = 10$

$$m = 10 \text{ kg}$$

$$R = 1 \text{ m}$$

$$k = 10 \frac{\text{kgf}}{\text{cm}}$$

$$\Delta x = \sqrt{\frac{6 m g R}{k}} = \sqrt{\frac{6 \cdot 0,1 \text{ kg} \cdot 9,8 \text{ m/s}^2 \cdot 1 \text{ m}}{1000 \text{ N/m}}} = 0,0245 \text{ m}$$

$$\boxed{2,45 \text{ cm}}$$

$$1) W_{A \rightarrow B}^F = \int_{A \rightarrow B} \vec{F} \cdot d\vec{l} = \int_{A \rightarrow B} m \frac{d\vec{v}}{dt} \cdot d\vec{l} = \frac{1}{2} m (v_B^2 - v_A^2)$$

$$\vec{v} = v_x \hat{i} + v_y \hat{j} + v_z \hat{k}$$

$$d\vec{r} = dv_x \hat{i} + dv_y \hat{j} + dv_z \hat{k}$$