

# PÉNDULO

HOJA N° 28

FECHA

32) PÁG. 49

$$T = 1s$$

$$T = 2\pi \sqrt{\frac{l}{g}} \Rightarrow \left(\frac{T}{2\pi}\right)^2 \cdot g = l \Rightarrow l = \frac{1^2}{(2\pi)^2} \cdot 9,8 \text{ m/s}^2$$

$$l = 0,24 \text{ m} \quad /$$

33) PÁG. 49

$$T = 1s \quad g_L = 1,67 \text{ m/s}^2$$

1 - 100

USANDO LA FORMULA ANTERIOR...

0,042

$$l = \frac{1^2}{(2\pi)^2} \cdot 1,67 \text{ m/s}^2 \Rightarrow l = 0,042 \text{ m} \text{ o } 4,2 \text{ cm} \quad /$$

34) PÁG. 49

$$f = \frac{1}{T}$$

$$T = \frac{1}{f}$$

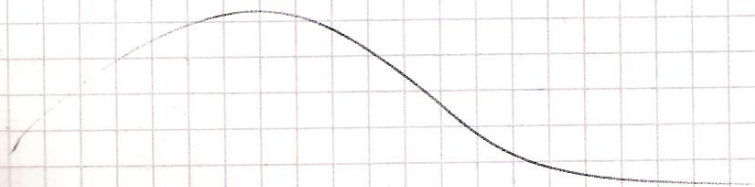
$$T = 2s$$

$$f = 0,5 \text{ Hz}$$

$$l = \left(\frac{T}{2\pi}\right)^2 \cdot g \Rightarrow l = \left(\frac{2s}{2\pi}\right)^2 \cdot 9,8 \text{ m/s}^2 \Rightarrow l = 0,99 \text{ m}$$

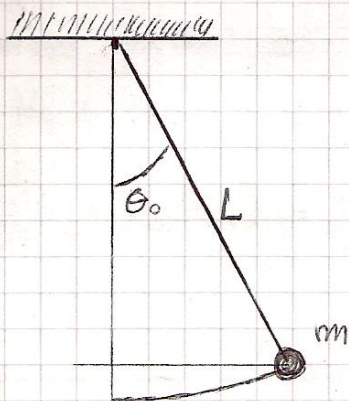
$$T = 2\pi \sqrt{\frac{l}{g}} \Rightarrow T = 2\pi \sqrt{\frac{0,99 \text{ m}}{1,67 \text{ m/s}^2}} \Rightarrow T = 4,83s$$

$$f = \frac{1}{T} \Rightarrow f = 0,20 \text{ Hz} \quad /$$





35 PÁG. 49



$$\text{Sen } \alpha = \frac{O}{H}$$

$$H \cdot \text{Sen} = O$$

$$L \cdot \text{Sen } \theta = A$$

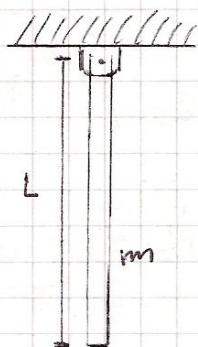
$$v = A \omega \cos(\omega t + \alpha)$$

$$v = A \omega \Rightarrow A = \frac{v}{\omega} \Rightarrow \theta = \frac{V_0}{\sqrt{\frac{g}{L}}}$$

$$\Rightarrow \theta = V_0 \sqrt{\frac{L}{g}}$$

NINGUNA DE LAS ANTERIORES

36 PÁG. 49



$$I_0 = I_{\text{cm}} + m \left(\frac{L}{2}\right)^2$$

$$I_0 = \frac{1}{12} m L^2 + \frac{1}{4} m L^2$$

$$I_0 = \frac{1}{3} m L^2$$

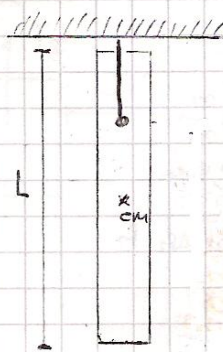
$$T = \frac{2\pi}{\omega} ; \omega = \sqrt{\frac{mgL/2}{I_0}} \Rightarrow T = 2\pi \sqrt{\frac{I_0}{mgL/2}}$$

$$\Rightarrow T = 2\pi \sqrt{\frac{\frac{1}{3} m L^2}{mgL/2}} \Rightarrow T = 2\pi \sqrt{\frac{2L}{3g}}$$



37 PAG. 50

$$T = 1s$$



$$\left[ \frac{1}{4}L \right]$$

$$I_0 = I_{cm} + m \left( \frac{1}{4}L \right)^2$$

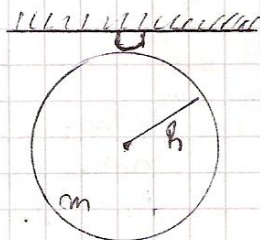
$$I_0 = \frac{1}{12} m L^2 + m \frac{L^2}{16}$$

$$I_0 = \frac{7}{48} m L^2$$

$$T = \frac{2\pi}{\omega} \Rightarrow T = 2\pi \sqrt{\frac{I_0}{m g \frac{L}{4}}} \Rightarrow T = 2\pi \sqrt{\frac{7 m L^2 \cdot 4}{48 g}} \Rightarrow T = 2\pi \sqrt{\frac{7L}{12g}}$$

$$\Rightarrow \left( \frac{T}{2\pi} \right)^2 \frac{12g}{7} = L \Rightarrow L = \left( \frac{1}{2\pi} \right)^2 \cdot 12 \cdot 9.8 \text{ m/s}^2 \Rightarrow L = 0.425 \text{ m}$$

38 PAG. 50



$$I_0 = I_{cm} + m h^2$$

$$I_0 = \frac{1}{2} m h^2 + m h^2$$

$$I_0 = \frac{3}{2} m h^2$$

$$T = \frac{2\pi}{\omega} \Rightarrow T = 2\pi \sqrt{\frac{I_0}{m g h}} \Rightarrow T = 2\pi \sqrt{\frac{3 m h^2}{2 g h}} \Rightarrow T = 2\pi \sqrt{\frac{3h}{2g}}$$

RTA @