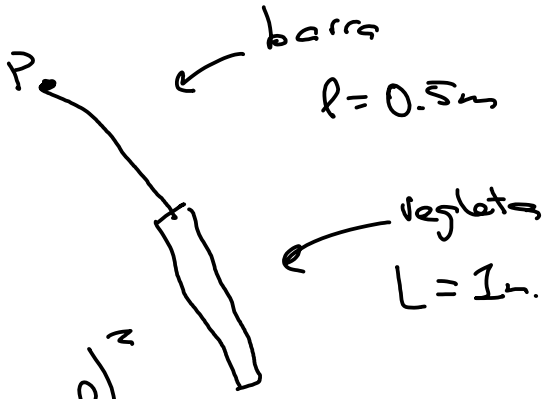
TALLER 9

15.32



a) T.E.P.

$$I_p = I_{cm} + M\left(\frac{L}{2} + \ell\right)^2$$

$$\downarrow$$

$$\frac{1}{12}ML^2$$

$$I_p = M\left(\frac{13}{12}[m^2]\right)$$

$$T = 2\pi\sqrt{\frac{I_p}{Mgd}}$$

$$\uparrow$$

$cg = cm$

$$T = 2\pi\sqrt{\frac{13/12}{g(1m)}} = 2.09s$$

b) $$T_s = 2\pi\sqrt{\frac{1m}{g}} = 2.01s$$

$$\frac{|T_s - T|}{T_s} \cdot 100 \sim 4.08\%$$

16.32

$m = 0.18\,kg$

$l = 3.6\,m$

$A = 0.1\,m$

$\lambda = 0.5\,m$

$v = 30\,m/s.$

$$P = \frac{1}{2}\sqrt{\mu F}\,\omega^2 A^2$$

$$v = \sqrt{F/\mu} \rightarrow v \cdot \mu = \sqrt{F \cdot \mu}$$

$$\left.\begin{aligned} \omega &= 2\pi\nu \\ \nu &= \frac{v}{\lambda} \end{aligned}\right\} \omega^2 = 4\pi^2 \frac{v^2}{\lambda^2}$$

$$P = \frac{1}{2}\left(\frac{m}{l}\right)\left(4\pi^2 \frac{v^3}{\lambda^2}\right) A^2$$

$$P = 1.07\,kW$$