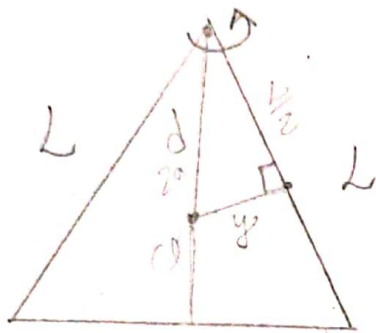


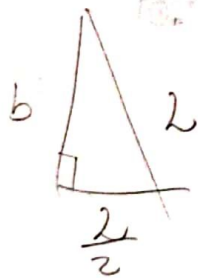
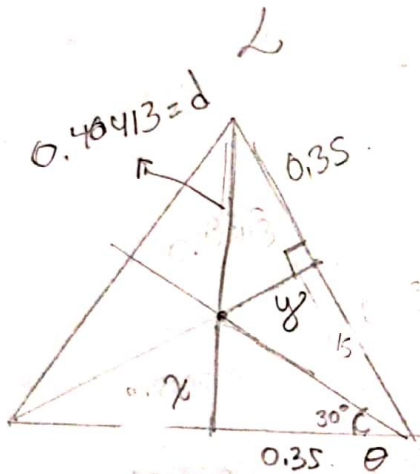
1



$$T = ? \quad \omega = ?$$

$$L = 70 \text{ cm} = 0.7 \text{ m}$$

$$\theta = 15^\circ$$



Encontrando d

$$\sum \vec{M}_H = \sum \vec{C}_H = \sum \vec{T}_H$$

$$\tan \theta = \frac{O}{A}$$



$$\tan(30)(0.35) = x$$

$$x = 0.202072 \text{ mts}$$

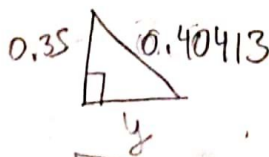
$$d = b - x$$

$$d = 0.6062 - 0.202072$$

$$d = 0.404128 \text{ mts}$$

$$b = \sqrt{0.7^2 - 0.35^2}$$

$$b = 0.60621 \text{ mts}$$



$$y = \sqrt{(0.40413)^2 - (0.35)^2}$$

$$y = 0.20204$$

Momento de Inercia
Ivara.

$$I = \frac{1}{12} m (0.7)^2 + m (0.20204)^2$$

$$I = \frac{49}{1200} \text{ m} + 0.04082 \text{ m}$$

$$I = 0.0816534 \text{ m [kg.m]}$$

Momento de Inercia en el centro de masa.

$$I = (3)(0.0816534 \text{ m})$$

$$I = 0.24496 \text{ m}$$

Momento de Inercia con respecto al pivote.

$$I_0 = 0.24496 \text{ m} + 3 \text{ m} (0.40413)^2$$

$$I_0 = 0.734923 \text{ m}$$

Periodo.

$$T = 2\pi \sqrt{\frac{I}{mgd}}$$

$$T = 2\pi \sqrt{\frac{0.734923 \text{ m}}{(3 \text{ m})(9.8)(0.40413)}}$$

$$T = 1.562 \text{ s}$$

Rapidez Angular

$$\omega = \sqrt{\frac{mgd}{I}} = \sqrt{\frac{(3 \text{ m})(9.8)(0.40413)}{0.734923 \text{ m}}}$$

$$\omega = 4.0208075 \left[\frac{\text{rad}}{\text{s}} \right]$$

$$\dot{\omega} = -\left(15 \times \frac{\pi}{180^\circ}\right) (4.0208) \sin(\omega t + \phi)$$

$$\dot{\omega} = 1.05454 \frac{\text{rad}}{\text{s}^2}$$