

2-19-8-121

$$\tau = -mg \sin \theta \cdot L = I \alpha$$

$$\sin \theta \sim \theta$$

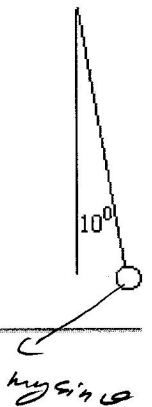
$$\tau = -\frac{mgL}{I} \theta$$

$$\omega = \sqrt{\frac{mgL}{I}}$$

$$T = \frac{2\pi}{\omega} = 2\pi \sqrt{\frac{I}{mgL}}$$

$$\theta(t) = A \cos(\omega t + \phi)$$

$$\theta(0) = \theta_0 \quad t=0$$



$$\theta(t) = \theta_0 \cos(\omega t)$$

$$\omega(t) = -\omega \theta_0 \sin(\omega t)$$

$$\alpha(t) = -\omega^2 \theta_0 \cos(\omega t)$$

$$T_H = \frac{\pi}{2} \sqrt{\frac{I}{mgL}}$$

1/2 of period

$$\omega(T_H) = -\omega \theta_0$$

is negative