

Answer on Question #66935- Physics-Classical Mechanics

The time period of a simple pendulum, called 'second pendulum' is 2 s. Calculate the length, angular frequency and frequency of the pendulum

Solution

The frequency is

$$f = \frac{1}{T} = \frac{1}{2} = 0.5 \text{ Hz.}$$

The angular frequency is

$$\omega = \frac{2\pi}{T} = \frac{2\pi}{2} = \pi \approx 3.14 \frac{\text{rad}}{\text{s}}.$$

$$T = 2\pi \sqrt{\frac{l}{g}}$$

The length is

$$l = g \left(\frac{T}{2\pi} \right)^2 = 9.8 \left(\frac{1}{2\pi} \right)^2 \approx 0.25 \text{ m.}$$

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