Answer on Question #51964-Physics-Other

The equation of a simple harmonic oscillator is given as

$$\frac{d^2x}{dt^2} + \omega_0^2 x = 0.$$

The quantity ω_0^2 is can be used to determine

Solution

The quantity ω_0^2 is can be used to determine the angular frequency of oscillations $\omega_0 = \sqrt{\omega_0^2}$, frequency of oscillations

$$f = \frac{\omega_0}{2\pi} = \frac{\sqrt{\omega_0^2}}{2\pi}$$

or the period of oscillations:

$$T = \frac{2\pi}{\omega_0} = \frac{2\pi}{\sqrt{\omega_0^2}}.$$