

Answer on Question #59260-Physics-Mechanics-Relativity

The equation of a simple harmonic oscillator may be written as $a = -\omega^2 x$ (the symbol have their usual meaning).in experiment to determine the period of oscillation of a loaded spiral spring T, which of the following is the correct relationship between T and ω

$$T=\omega$$

$$T=2\pi\omega$$

$$T=2\pi/\omega$$

$$T=\pi/\omega$$

Answer: $T = \frac{2\pi}{\omega}$.

The frequency of oscillations is

$$f = \frac{\omega}{2\pi}$$

The period of oscillations is

$$T = \frac{1}{f} = \frac{1}{\frac{\omega}{2\pi}} = \frac{2\pi}{\omega}$$