

The velocity of the mass as a function of time t is described by the equation:

$$v(t) = v_{\max} \cdot \sin(\omega t + \phi)$$

where:

- v_{\max} is the maximum velocity (amplitude of velocity),
- ω is the angular frequency of the oscillations,
- ϕ is the initial phase.

The angular frequency ω is related to the period T by the formula:

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

For a period $T = 0.4$ seconds:

$$\omega = \frac{2\pi}{0.4} = 5\pi \text{ rad/s}$$

If the mass starts moving from the equilibrium position with an upward velocity, the initial phase ϕ is 0. Then, the velocity equation becomes:

$$v(t) = 0.8 \cdot \sin(5\pi t)$$