

Answer on Question #65638-Physics-Mechanics-Relativity

A sinusoidal wave is described by $y(x, t) = 3.0 \sin(3.52t - 2.01x)$ cm x is the position along the wave propagation. Determine the amplitude, wave number, wavelength, frequency and velocity of the wave.

Solution

The amplitude is $A=3.0$ cm.

The wave number is $k = 2.01 \text{ cm}^{-1}$.

The frequency is

$$f = \frac{3.52}{2\pi} = 0.56 \text{ Hz}.$$

The velocity of the wave is

$$v = \frac{\omega}{k} = \frac{3.52}{2.01} = 1.75 \frac{\text{cm}}{\text{s}}.$$

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