

## Answer on Question #77655, Physics Mechanics Relativity

A wave is represented by equation  $x=0.025 \cos(3.14z-62.8t)$ , where the distances are in meters and time in seconds. Find the amplitude, speed, the wave length the phase angle and the frequency of the wave. Find the amplitude, the speed, the phase angle, and the frequency of the wave. Find the displacement  $x$  at the time  $t=0.10$  s at a point  $z = 0.50$  m.

### Solution.

A wave is represented by equation  $x=0.025 \cos(3.14z-62.8t)$

Amplitude  $A = 0.025$

The wave length  $\lambda = \frac{2\pi}{3.14} = 2 \text{ m}$

The phase angle  $\varphi = 0$

The frequency  $f = 62.8 \text{ Hz}$

Speed  $v = f \cdot \lambda = 62.8 \cdot 2 = 125.6 \frac{\text{m}}{\text{s}}$

$x = 0.025 \cdot \cos(3.14 \cdot 0.5 - 62.8 \cdot 0.1) = 0.025 \cdot \cos\left(\frac{3\pi}{2}\right) = 0.025 \cdot 0 = 0 \text{ m}$

**Answer:** Amplitude  $A = 0.025$

The wave length  $\lambda = 2 \text{ m}$

The phase angle  $\varphi = 0$

The frequency  $f = 62.8 \text{ Hz}$

Speed  $v = 125.6 \frac{\text{m}}{\text{s}}$

$x = 0 \text{ m}$