# Answer on Question#41351, Physics, Other

## Question:

The equation of motion for a particular mass at the end of a spring is

x=0.40cos(0.70t−30) m. For this oscillation, find the amplitude and the period.

a. 40 cm; 8.97 s

b. 20 cm ; 4.75s

c. 40 m; 9.87 s

d. 20 m; 4.75 s

## Answer:

The general form of the sine function is:

$$y = A\,sin(Bx + C) + D$$

where:

$A$ is the amplitude of the function

The period of the function is: $T = \frac{2\pi}{B}$

Therefore, amplitude equals:

$$A = 0.4\,m = 40\,cm$$

And period equals:

$$T = \frac{2\pi}{0.7} = 8.97\,s$$

Answer: a. 40 cm; 8.97 s