

Answer on Question #58931 – Math - Trigonometry

Question

For the simple harmonic motion equation $d = 4\sin(8\pi t)$, what is the maximum displacement from the equilibrium position? _____

Answer: 4.

Question

For the simple harmonic motion equation $d = 4\sin(8\pi t)$, what is the period?
If necessary, use the slash (/) to represent a fraction.

Solution

$d = A\sin(\omega t) = 4\sin(8\pi t)$, period is $T = \frac{2\pi}{\omega} = \frac{2\pi}{8\pi} = \frac{1}{4} = 1/4$ seconds.

Answer: 1/4 seconds.

Question

What is the period, in seconds, of a simple pendulum of length 5 meters? Use the gravitational constant $g = 9.8 \text{ m/s}^2$ and round your answer to two decimal places. _____

Solution

Given length of a simple pendulum $l = 5$ meters and the gravitational constant is $g = 9.8 \text{ m/s}^2$, the period is $T = 2\pi \sqrt{\frac{l}{g}} \approx 4.49$ seconds.

Answer: 4.49 seconds.