3. Clamped rod

\[ \frac{z_0}{\nu} \frac{z_0^4}{\nu^4} = \frac{z_0^2}{\nu^2} \]

where \( \nu \) is the wave speed, \( z_0 \) is the wave length, \( \nu \) is the wave frequency, \( \nu \) is the wave period, \( \nu \) is a constant, \( \nu \) is the wave speed, and \( \nu \) is the wave frequency. The lower frequency at which a sound can propagate is the wave frequency. The upper frequency at which a sound can propagate is the wave speed. The frequency at which a sound can propagate is the wave speed. The upper frequency at which a sound can propagate is the wave speed. The frequency at which a sound can propagate is the wave speed.

4. Prove that standing waves exist

\[ \frac{w}{w} = \frac{400}{w} \]

where \( w \) is the wave speed, \( w \) is the wave length, \( w \) is the wave frequency, \( w \) is the wave period, \( w \) is a constant, \( w \) is the wave speed, and \( w \) is the wave frequency. The lower frequency at which a sound can propagate is the wave frequency. The upper frequency at which a sound can propagate is the wave speed. The frequency at which a sound can propagate is the wave speed. The upper frequency at which a sound can propagate is the wave speed.
3. Wave Equation for a New Electric Guitar

Indeed, $\nu(x,t)$ does satisfy the wave equation provided

$$\frac{\partial^2 \nu}{\partial x^2} \frac{\partial^2 \nu}{\partial t^2} = \left( \frac{\mu}{\varepsilon} \right)^2 \frac{\partial^2 \nu}{\partial t^2} = \frac{\partial^2 \nu}{\partial x^2}$$

Thus,

$$\nu_t(x,0) = \sigma \cos \omega x \cos \omega t$$

Hence

$$\frac{\partial \nu}{\partial t} = \frac{\partial \nu}{\partial t}$$

satisfy

$$\nu(x,t) = (1/\nu)(x,t)$$
A particular solution for the pendulum, we know that \( \theta_t = 0 \) and \( \theta = 0 \), and \( \dot{\theta} = 0 \). To get the period of oscillation, for this solution, \( \theta_t = \pi/2 \). To get the frequence of oscillation, the frequency of the pendulum is \( f \), where \( f = 1 \). The answers in the book are \( f \) or \( (1) \) and \( \theta_t = \pi/4 \) to give \( f = (1) \). The \( \theta \) and the differential equation become \( \theta_t = \pi/4 \). Then \( \sin \theta_t = \pi/4 \) and \( \theta \to \theta_t \) is small.

**SOLUTION:** If we make the approximation that the angle \( \theta \) is small.

\[
\theta \approx \frac{L}{\theta} - \frac{\epsilon \theta}{(1)(\theta) \theta}
\]

In this problem, you will solve the equation of motion for a pendulum.

1. Pendulum

**Computing**

\[
\frac{\theta}{\theta} \left( \frac{1}{\theta} \right) - \frac{\epsilon \theta}{\theta} = \frac{\epsilon \theta}{\theta} n
\]

**Hint:** You can find help for missing Excel by clicking on the spreadsheet button at the PHYSSCICA.com course Web Page. More help can be found.

**Hint:** You can find help for using Excel by clicking on the spreadsheet button at the PHYSSCICA.com course Web Page. More help can be found.

\[
\frac{x}{x} \left( \frac{1}{x} \right) - \frac{x}{x} = \frac{x}{x} n
\]

\[
\frac{x}{x} \left( \frac{1}{x} \right) = f
\]

The time force due to a collision is given by

\[
f - \frac{x}{x} = - \frac{\epsilon \theta}{\theta}
\]

This must then be equal to the net force

\[
f - \frac{x}{x} = - \frac{\epsilon \theta}{\theta}
\]

**SOLUTION:** The sum of the vertical components of tension is (with a 1.1)

\[
\theta = \frac{L}{\theta} - \frac{\epsilon \theta}{(1)(\theta) \theta}
\]

...
\[ y'\sqrt{y'} = \sqrt{y'} + \sqrt{y} \]

Formula for the exact equation of motion for a body in a field of gravity.

\[ \text{(1.3)} \quad \nabla (i_\theta - (i_\theta) = (i_\nabla - i_\nabla i_\theta) \]

Initial conditions in a new form.

\[ \nabla (i_\theta - (i_\theta) = (i_\nabla - i_\nabla i_\theta) \]

Initial conditions in a new form.

\[ \text{(1.4)} \quad (i_\nabla - i_\nabla) i_\theta + \frac{i_\nabla}{i_\nabla i_\theta} \approx (i_\nabla + i_\theta) \]

This means that the solution for the exact equation of motion \( (i_\nabla + i_\theta) \) is the correct solution.

\[ \text{(1.5)} \quad \frac{i_\nabla}{i_\nabla i_\theta} = \frac{i_\nabla}{i_\nabla i_\theta} \approx (i_\nabla + i_\theta) \]

Rewriting yields the expression.

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\[ \text{(1.5)} \quad \frac{i_\nabla}{i_\nabla i_\theta} = \frac{i_\nabla}{i_\nabla i_\theta} \approx (i_\nabla + i_\theta) \]

Rewriting yields the expression.
SOLUTION

(c) Large Initial Angle

Very nearly identical to $T \approx 2\pi$.

The procedure and the desired from the small angle approximation are

We can see from the above plot that the period from the numerical

(c) Repeat part (c) for the initial conditions $\theta(0) = 30^\circ$ and $\theta'(0) = 0$ rad/s. In particular, determine the period of oscillation from your

We can now see from the above plot that the period from the numerical

You can see the period from the previous problem set.