Answer on Question #55636, Physics / Mechanics | Relativity

In a simple pendulum experiment, T^2/s^2 is plotted on the vertical axis while ---------- is plotted on the horizontal axis

A. l^2/m^2

B. $1/l\ cm^{-1}$

C. l/cm

D. logl

Solution:

The period of a simple pendulum can be found by

$$T = 2\pi\sqrt{\frac{l}{g}}$$

Therefore, for small amplitudes the period of a simple pendulum depends only on its length and the value of the acceleration due to gravity.

If both sides of Equation are squared then

$$T^2 = \frac{4\pi^2 l}{g}$$

A graph of T^2 versus l should result in a straight line.

The period squared is the dependent variable and should be plotted on the y axis. The length is the independent variable and should be plotted on the x axis.

Answer: C. l/cm