

Answer on Question #64021-Physics-Other

The length of a simple pendulum is 0.79 m and the mass of the particle ("the bob") at the end of the cable is 0.24 kg. The pendulum is pulled away from its equilibrium position by an angle of 8.50 degrees and released from rest. Assume that friction can be neglected and that the resulting oscillatory motion is simple harmonic motion. What is the angular frequency of the motion?

Solution

The angular frequency of the motion of a simple pendulum is given by the equation:

$$\omega = \sqrt{\frac{g}{l}},$$

where g is the acceleration due to the gravity, l is the length of a pendulum.

Thus,

$$\omega = \sqrt{\frac{9.8}{0.79}} = 3.5 \frac{rad}{s}.$$

Answer: $3.5 \frac{rad}{s}$.

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