

### Answer on Question #47582-Physics-Other

What is the minimum velocity to be given to the bob of a pendulum of length 'l' which is suspended normally so that it makes a complete vertical rotation?

#### Solution

To make a complete vertical rotation the bob of a pendulum must have initial kinetic energy equal to potential energy at the highest point of trajectory:

$$\frac{mv^2}{2} = mg \cdot 2l.$$

The minimum velocity to be given to the bob of a pendulum is

$$v = \sqrt{4gl} = 2\sqrt{gl}.$$

**Answer:**  $2\sqrt{gl}$ .