

Wednesday Reading Assessment: Unit 7, Power and Conservation of Energy

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1 Conservation of Energy

1. A particle of mass m is hung from the ceiling by a massless string of length 1.0 m , as shown in Figure 1. The particle is released from rest, when the angle between the string and the downward vertical direction is 30° . What is its speed when it reaches the lowest point of its arc?

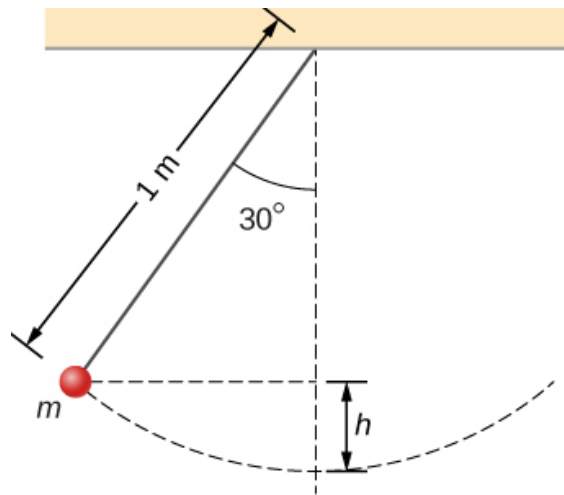


Figure 1: A particle hung from a string constitutes a simple pendulum. It is shown when released from rest, along with some distances used in analyzing the motion.

2. What is the gravitational potential energy as a function of the angle θ ?
3. Approximate the result in the prior question as some polynomial.