Physics 5300, Theoretical Mechanics   Spring 2015

Quiz 4

Given: Friday Feb 6

Problem 1   A mass m is suspended from a massless string, the other end of which is wrapped several times around a horizontal cylinder of radius R and moment of inertia I, which is free to rotate about a fixed horizontal axle. Using a suitable coordinate, set up the Lagrangian and Lagrange equation of motion, and find the acceleration of the mass m. [The kinetic enery of the rotatong cylinder is $\frac{1}{2}I\omega^2$.]