

Physics 5300, Theoretical Mechanics Spring 2015

Quiz 5

Given: Friday Feb 13

Problem 1 A bead of mass m is threaded on a frictionless circular wire hoop of radius R and mass m (same mass). The hoop is suspended at the point A and is free to swing in its own vertical plane. Using angles ϕ_1, ϕ_2 as generalized coordinates, solve for the normal frequencies of small oscillations. [The KE of the hoop is $\frac{1}{2}I\omega^2$, where $I = 2mR^2$.]