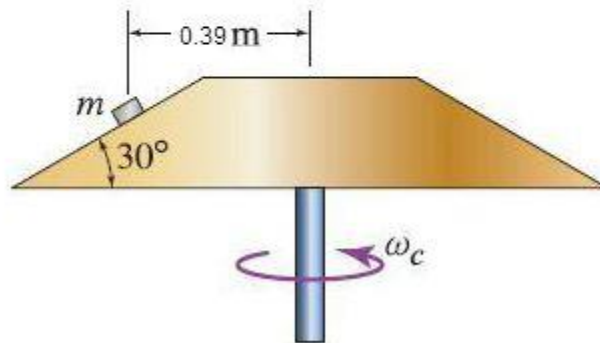


Block on Rotating Conical Surface

Name: _____ Date: _____

The small object of mass m is placed on the rotating conical surface at the radius shown. If the coefficient of static friction between the object and the rotating surface is 0.6, calculate the maximum angular velocity ω_c of the cone about the vertical axis for which the object will not slip. Assume the ω_c is increased very gradually so that the angular acceleration of the cone can be ignored.



[For this problem, replace the angular velocity with the frequency of rotation, f .]