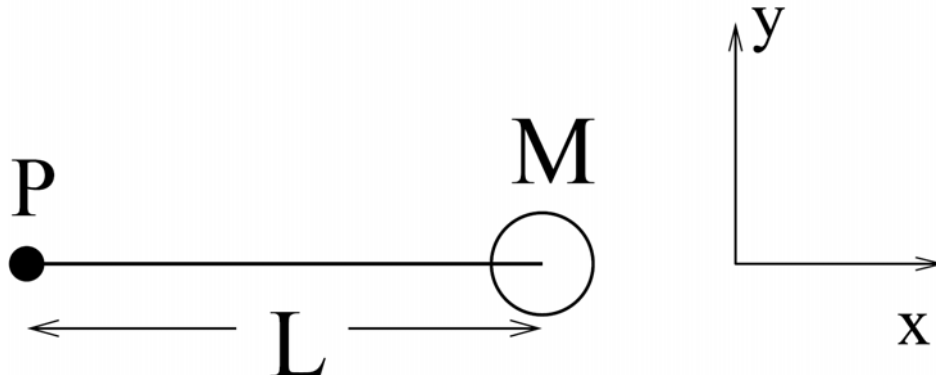


Friday March 10, 2006

In Lecture quiz #7, Physics 131

Name: _____



The object above is a “simple” pendulum, namely a mass $M = 1$ kg on a massless rod of length $L = 1$ m, free to pivot around point P . The size of the disk of mass M is negligible compared to the length L . The coordinate system (x,y) is just for reference.

1. What is the value of the moment of inertia I of the pendulum around point P ?

Answer: $I = ML^2 = 1 \text{ kg m}^2$

2. How much torque τ (don't worry about the sign) is gravity causing around point P at the instant when the pendulum is horizontal (as shown)?

Answer: $\tau = r_{\perp} F = L Mg = 9.8 \text{ Nm}$