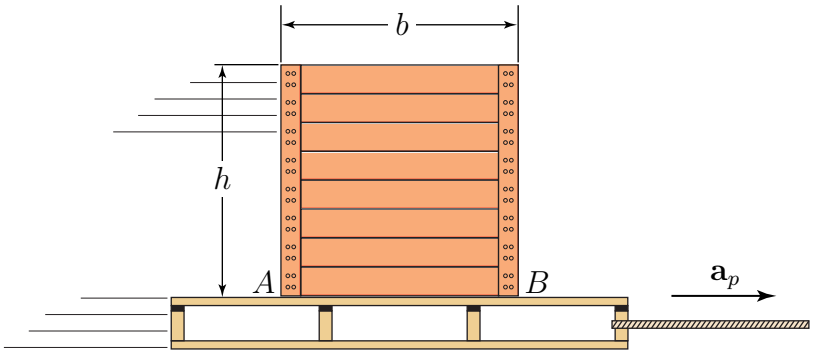
Name _____ Section _____

Problem Set 12
Due April 21, 1999 at the Exam

Professors Gray & Costanzo Spring 1999

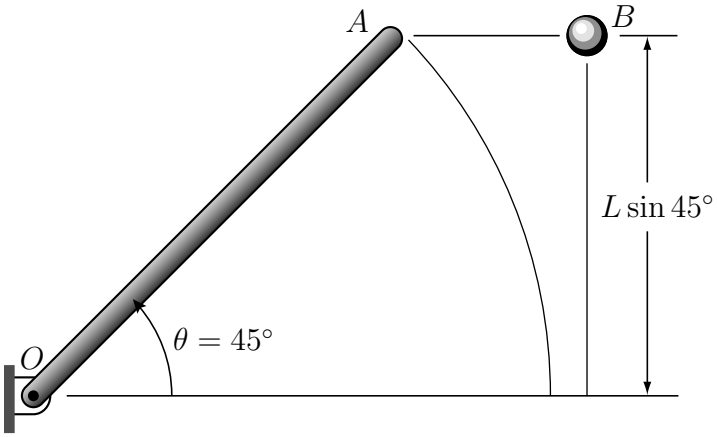
Problem 1

The uniform crate has a mass m and rests on a pallet for which the coefficient of static friction between the crate and pallet is μ_s. If the pallet is given an acceleration of a_p, show that the crate will tip and slip at the same time provided $\mu_s = b/h$.



Problem 2

The slender rod of mass m is released from rest when $\theta = 45°$. At the same instant ball B having the same mass m is released. Will B or end A of the rod have the greatest speed when they pass the horizontal ($\theta = 0°$)? What is the difference in their speeds?



Problem 3

A uniform rod AB, of weight 30 lb and length 3 ft, is attached to the 40 lb cart C. Neglecting friction, determine immediately after the system has been released from rest, (a) the acceleration of the cart, (b) the angular acceleration of the rod.