# Problems of the Week 10

Always show your work to receive credit (NO WORK=NO CREDIT)

1. Two particles of mass m are attached to the ends of a light rod of length L. The rod lies on a frictionless horizontal table. It is struck by a particle of mass m and velocity $v_o\mathbf{i}$. After the collision, the particle moves in the opposite direction. Assuming an elastic collision, calculate the angular velocity of the rod after the collision.
    A. $0.81(v_o/L)$ B. $0.63(v_o/L)$ C. $1.32(v_o/L)$ D. $0.50(v_o/L)$ E. $1.73(v_o/L)$
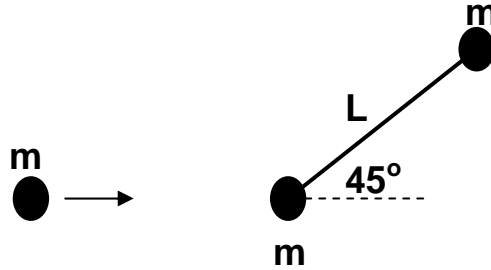
2. It is possible to make a coin roll on a table in a circular path as shown in the figure. As the coin rolls it leans inward with its axis of rotation tilted. Assume the radius of the coin is 1.0cm; the radius of the circle is 10.0cm; and the speed of the coin is 0.25m/s. Assume the coin rolls without slipping. Find the angle, θ, which the axis makes with the horizontal.
    A. 2.3° B. 5.5° C. 11.5° D. 14.6° E. 17.8°