Show all work for credit
AND
Turn in your signed help sheet
AND
Stay in your seat until the end of class

NOTE:
Set up all the equations first and save the solutions to the end (the actual numerical answers will only be worth 2 points).
Member ABC has a mass of 2.4 kg, a mass moment of inertia of 0.45 kg-m\(^2\) and is attached to a pin support at B. An 0.8 kg sphere D strikes the end C of member ABC with a velocity of 3 m/s. Knowing L = 0.75 m and that the coefficient of restitution is 0.5 determine immediately after impact:

a) angular velocity of ABC
b) the velocity of the sphere.
A 5 kg wheel with a radius of gyration of 80 mm about its center rolls without slipping down the surface shown below. The velocity of the center of the wheel is equal to 0.3 m/s at point A (where the surface starts to curve). Determine:

a) the friction force, normal force and angular acceleration of the wheel just before the wheel reaches A

b) the friction force, normal force and angular acceleration just after the wheel passes A