DYNAMICS ASSIGNMENT

Planar Kinetics of a Rigid Body (Impulse and Momentum Method)
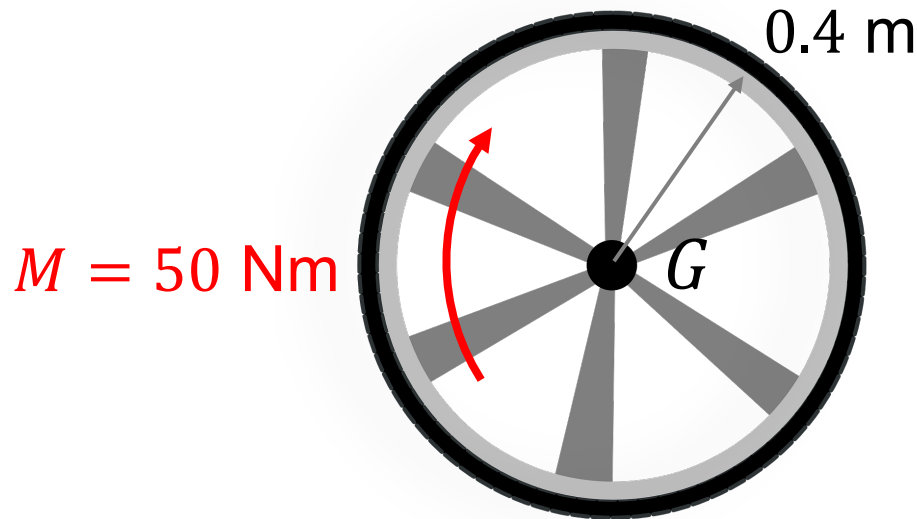
by:

Dr. Mohd Hasnun Arif HASSAN

Faculty of Manufacturing Engineering
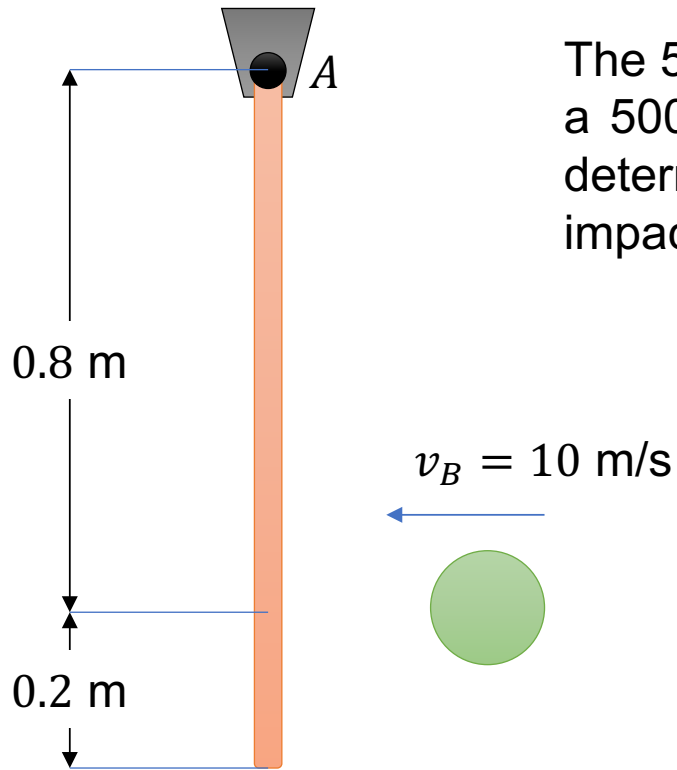
mhasnun@ump.edu.my

0.4 m

$M = 50$ Nm

G

The 15 kg wheel has a radius of gyration about its center G of $k_G = 280$ mm. When it is subjected to a couple moment of $M = 50$ Nm, it rolls without slipping. Determine the angular velocity of the wheel after 5 s, starting from rest. Also calculate the friction force that the ground applies to the wheel.

Question 2

0.8 m

$v_B = 10$ m/s

0.2 m

The 5-kg slender rod is suspended from the pin at A. If a 500 g ball is thrown at it with a velocity of 10 m/s, determine the angular velocity of the rod just after impact. The coefficient of restitution, $e = 0.4$.