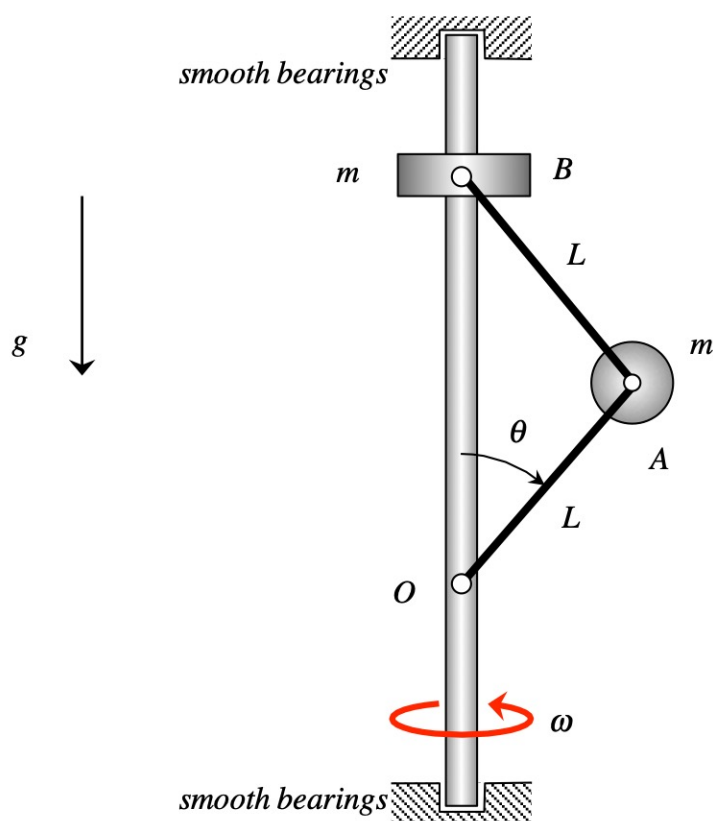


Homework H.4.S

Given: Particle A (having a mass of m) is attached to rod OA, with end O being pinned to a vertical shaft. Particle A is also attached to particle B (having a mass of m) through rod AB, with particle B being constrained to slide along the rotation axis of the shaft. At a time when the shaft is rotating with a rate of ω_1 and with $\theta = \theta_1$, and while particles A and B are stationary with respect to the shaft, the particles are released. Assume all surfaces to be smooth and the mass of rods OA and AB to be negligible.

Find: Determine the speed of particle B when $\theta = \theta_2$.



Use the following parameters in your analysis: $m = 20$ kg, $L = 0.5$ m, $\omega_1 = 6$ rad/s, $\theta_1 = 30^\circ$ and $\theta_2 = 90^\circ$.