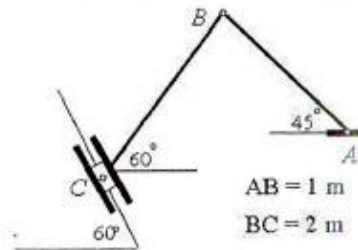


Question 1:

A disk having a radius of 50 Cm rotates with an initial angular velocity of 2 rad/s and has a constant angular deceleration of 1 rad/s². Determine the magnitudes of the velocity and acceleration of a point on the rim of the disk when t=2 s.

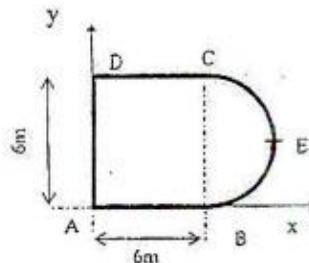
Question 2:

In the shown mechanism rod AB (L=1m) rotates with angular velocity $\omega_{AB}=120$ r.p.m (C.W) and with angular acceleration 2 rad/s² (C.C.W). For the shown instant determine \underline{V}_B , \underline{V}_C and \underline{a}_B



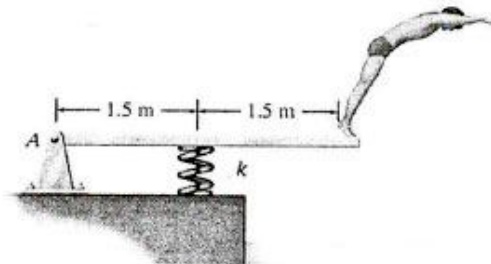
Question 3:

The shown metal frame ABECDA composed of 3 uniform rods AB, AD, CD and semicircular rod BEC all with the same cross section ($\rho=4$ kg/m). Find the center of mass, I_A and k_A for the frame.



Question 4:

Determine the angular acceleration of the 25 kg diving board and the horizontal and vertical components of reaction at the pin A the instant the man jumps off. Assume that the board is uniform and rigid, and that at the instant he jumps off the spring is compressed a maximum amount of 200 mm, and the board is horizontal. Take $k = 7 \text{ kN/m}$.



Question 5:

The shown uniform rod AB ($m=10 \text{ kg}$) is connected to spring ($k=1000 \text{ N/m}$, $L_0=0.15 \text{ m}$). The rod is released from rest from the shown position, and passes the vertical position. Determine ω_2 .

