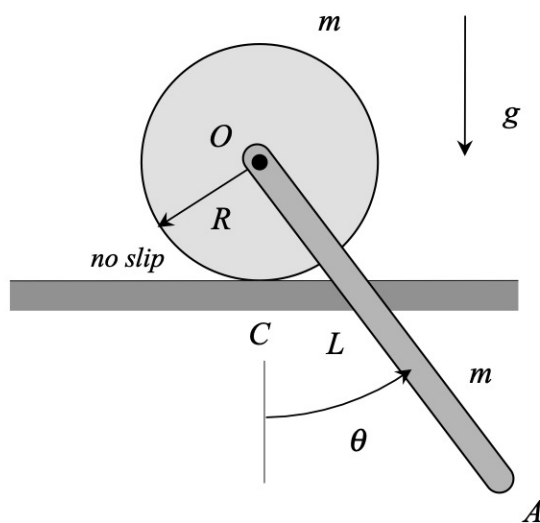


**Homework H.5.O**

**Given:** A thin homogeneous bar OA (of mass  $m$  and length  $L$ ) is pinned to a homogeneous disk (of mass  $m$  and radius  $R$ ) at the disk's center  $O$ . The disk is able to roll without slipping on a rough horizontal surface. The system is released from rest with the bar at an angle of  $\theta$  measured counterclockwise from vertical.

**Find:** For this problem:

- Determine the angular acceleration of the disk on release.
- Determine the angular acceleration of bar OA on release.



Use the following parameters in your analysis:  $m = 30$  kg,  $R = 0.5$  m,  $L = 1.5$  m and  $\theta = 60^\circ$ .