

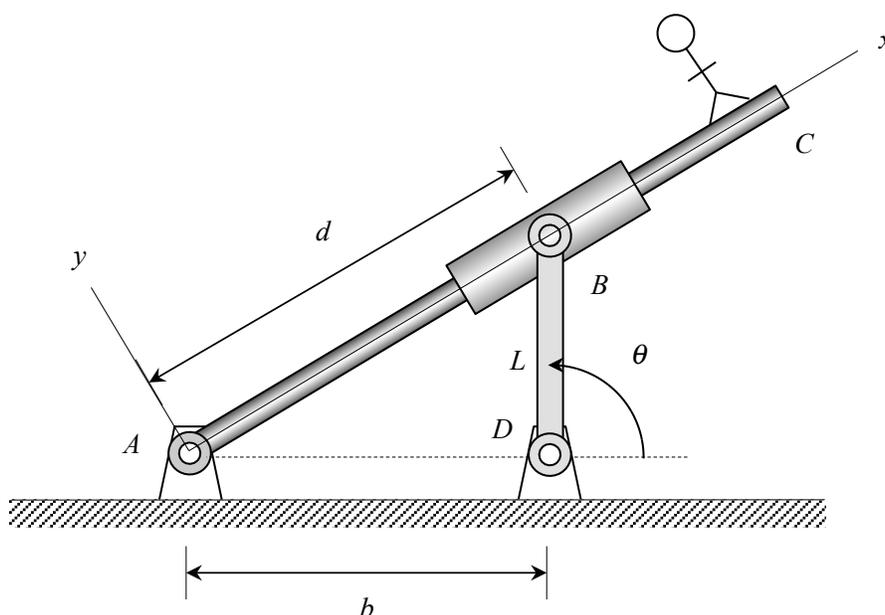
Homework H3.C

Given: Rod AC is pinned to ground at end A. Collar B is able to slide along the length of rod AC. Arm BD is connected between B and the fixed ground at D. The position of BD is represented by the angle θ measured CCW from the horizontal. At the position shown, $\theta = 90^\circ$ with $\dot{\theta}$ being constant.

Find: For this position,

- Determine the angular velocity of AC and the value of \dot{d} .
- Determine the angular acceleration of AC and the value of \ddot{d} .

HINT: Use an observer attached to AC, and relate the kinematics of points A and B through the moving reference frame kinematics equations.



Use the following parameters in your analysis: $L = 30$ mm, $b = 40$ mm and $\dot{\theta} = 4$ rad/s.