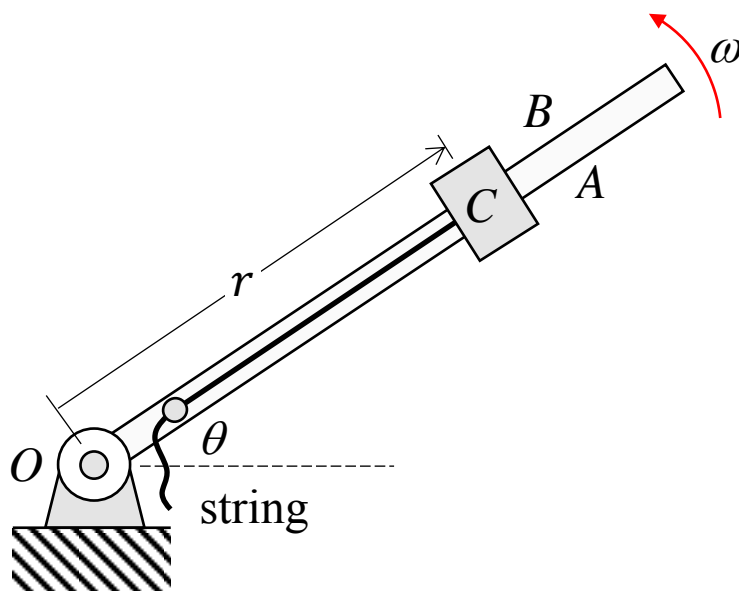


Homework H.4.A

Given: An arm rotates about a vertical axis passing through O at a rate of ω with this rotation changing at a rate of $\dot{\omega}$. Block C , having a mass of m , slides smoothly over the arm at a rate of \dot{r} with this sliding motion changing at a rate of \ddot{r} .

Find: At this instant, determine:

- The tension force in the cord;
- The normal force of the arm on block C ;
- Which side of the arm (A or B) that the block makes contact.



Use the following parameters in your analysis: $m = 10$ kg, $\omega = 5$ rad/s, $\dot{\omega} = 2$ rad/s², $r = 0.3$ m, $\dot{r} = -0.6$ m/s and $\ddot{r} = 0$ m/s².