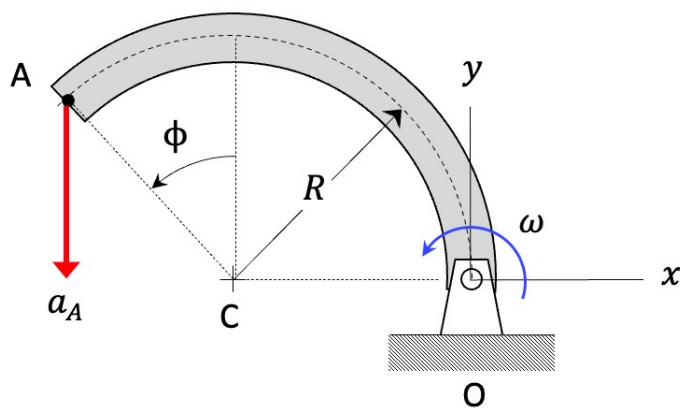


Homework H2.A

Given: A semi-circular bar is pinned to ground at end O. The bar has a radius of R and a total subtended angle of $\phi + 90^\circ$. The bar is known to be rotating in the counter-clockwise direction, with end A known to have an acceleration that is pointing in the negative y-direction with a magnitude of a_A .

Find: Determine the angular velocity and angular acceleration of the bar. Write your answers as vectors.



Use the following parameters in your analysis: $R = 2$ ft, $a_A = 10$ ft/s² and $\phi = 36.87^\circ$.