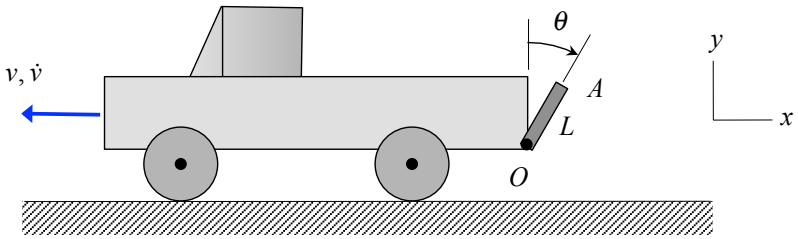
Homework 2.A

Given: A truck is moving to the left with a speed of v, with this speed changing at a rate of $\dot{v}$. At the same instant, the tailgate (having a length of L) on the bed of the truck is being lowered at a rate of $\dot{\theta}$, with this angular speed changing at a rate of $\ddot{\theta}$.

Find: Determine the velocity and acceleration for end A of the tailgate. Write your answers as vectors.



Use the following parameters in your analysis: L = 2 ft, v = 80 ft/s, $\dot{v}$ = -8 ft/s^2, θ = 36.87°, $\dot{\theta}$ = 2 rad/s and $\ddot{\theta}$ = -3 rad/s^2.