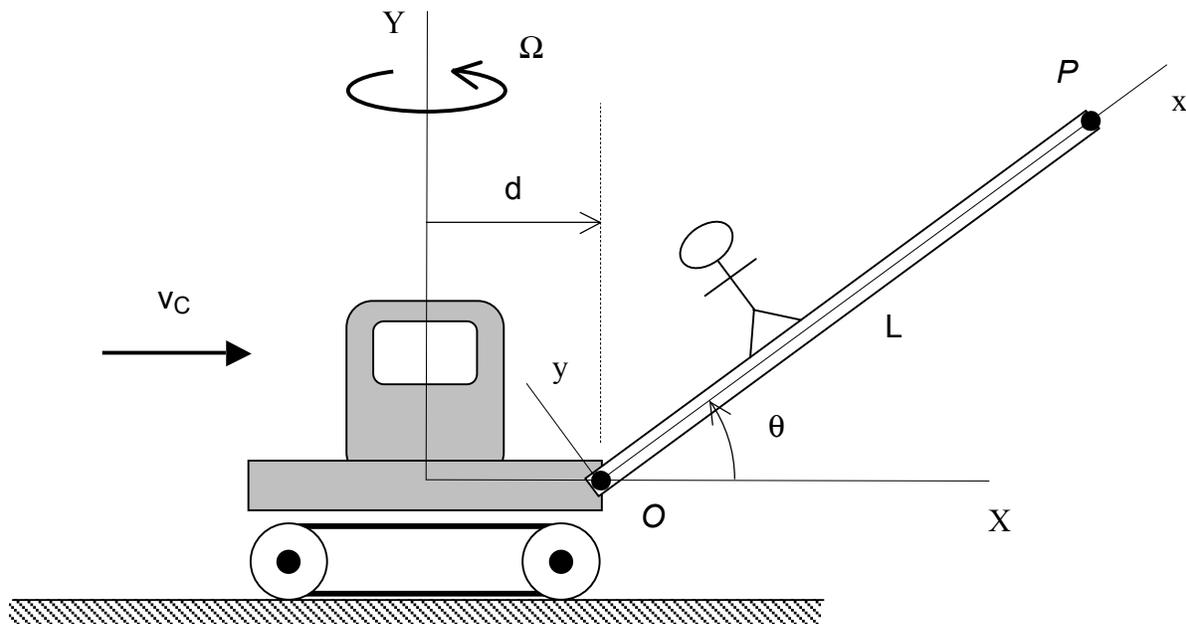


## Homework H3.G

**Given:** A crane is moving to the right with a constant speed of  $v_C$  and is rotating about a vertical axis with a constant rate of  $\Omega$ . The boom is being raised at a rate of  $\dot{\theta}$  with  $\dot{\theta}$  changing at a rate of  $\ddot{\theta}$ .

**Find:** Determine the acceleration of end P of the boom.



Use the following parameters in your analysis:  $v_C = 0.5$  ft/s,  $\Omega = 1.5$  rad/s,  $\theta = 36.87^\circ$ ,  $\dot{\theta} = 0.6$  rad/s,  $\ddot{\theta} = 1.2$  rad/s<sup>2</sup>,  $L = 20$  ft and  $d = 4$  ft.