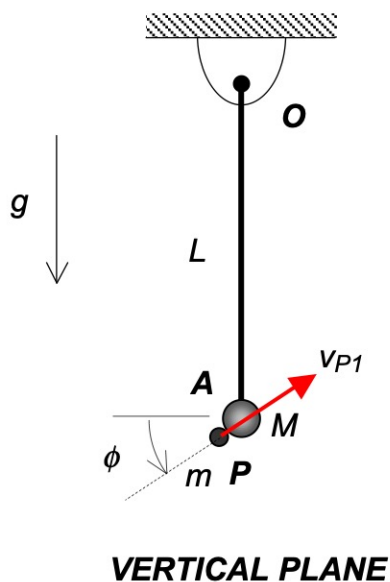


**Homework H.4.T**

**Given:** Rigid arm OA (having length  $L$  and having negligible mass) is pinned to ground at end O. A particle of mass  $M$  is attached to end A of OA. At instant "1", a pellet P (having a mass of  $m$ ) strikes the stationary particle A with a speed of  $v_{P1}$  in the direction shown below in the figure. At the end of a short time interval impact, P sticks to A.

**Find:** Determine the angular speed of arm OA immediately after P sticks to A.



Use the following parameters in your analysis:  $\phi = 30^\circ$ ,  $L = 4$  ft,  $mg = 4$  lb,  $Mg = 8$  lb and  $v_{P1} = 150$  ft/s.