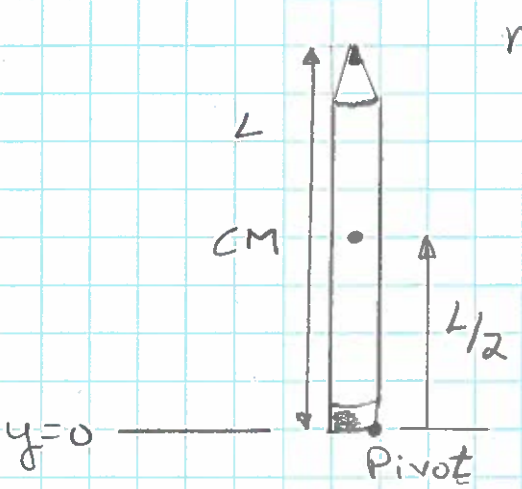
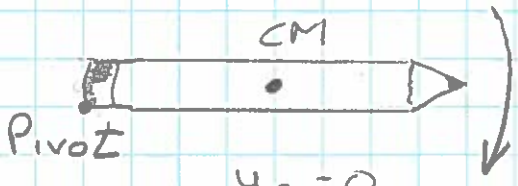
Initial



$y_i = L/2$

$\omega_i = 0$

Final



$y_f = 0$

ω_f

Conserve energy $i \to f$:

$$\Delta E_{mech} = \Delta K + \Delta U_g = W_{nc}$$

$$\frac{1}{2} I_P (\omega_f^2 - \omega_i^2) + Mg(y_f - y_i) = 0$$

the rod is rotating about its endpoint; so from Table 12.2, its moment of inertia is $I_P = \frac{1}{3} ML^2$

$$\frac{1}{2}\left(\frac{1}{3} ML^2\right) \omega_f^2 - Mg\frac{L}{2} = 0$$

$$\frac{1}{3} L \omega_f^2 - g = 0 \Rightarrow \omega_f = \sqrt{\frac{3g}{L}}$$

Now, the speed at the end is:

$$v = r\omega = L\omega = L\sqrt{\frac{3g}{L}} = \underline{\sqrt{3gL}}$$