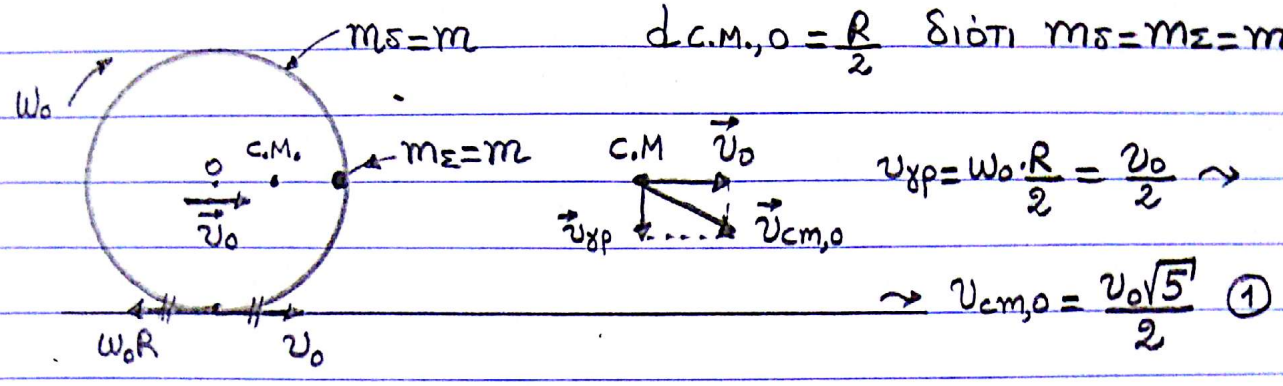

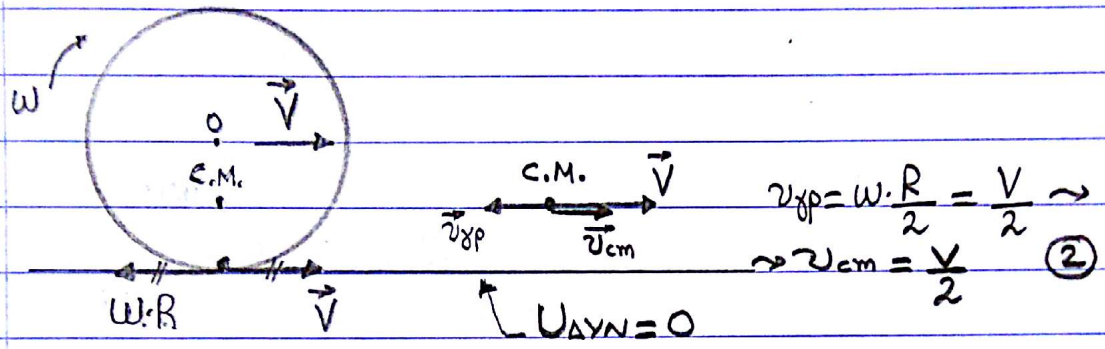

$$I_S = m_\Delta \cdot R^2 + m_\Delta \cdot \frac{R^2}{4} + m_\Sigma \cdot \frac{R^2}{4} \Rightarrow I_S = \frac{3}{2} mR^2$$

$$K_{APX} = \frac{1}{2} I_S \cdot \omega_0^2 + \frac{1}{2} (2m) \cdot v_{cm,O}^2 \overset{(1)}{\Rightarrow} K_{APX} = 2m \cdot v_0^2 \quad (3)$$

$$K_{TEA} = \frac{1}{2} I_S \cdot \omega^2 + \frac{1}{2} (2m) \cdot v_{cm}^2 \overset{(2)}{\Rightarrow} K_{TEA} = m \cdot V^2 \quad (4)$$

$$E_{MHX(APX)} = E_{MHX(TEA)} \Rightarrow K_{APX} + U_{S(APX)} + U_{\Sigma(APX)} = K_{TEA} + U_{S(TEA)} \overset{(3)}{\underset{(4)}{\Rightarrow}}$$

$$\Rightarrow 2mv_0^2 + mgR = m \cdot V^2 \Rightarrow V = \sqrt{2v_0^2 + g \cdot R}$$