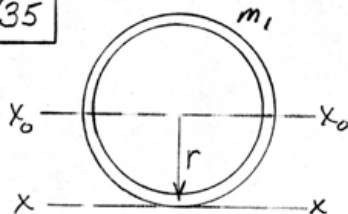


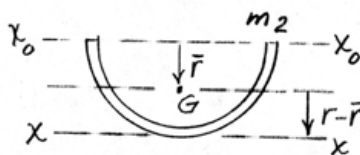
B/35



Full ring:

$$I_{xx} = I_{x_0 x_0} + m_1 r^2$$

$$= \frac{1}{2} m_1 r^2 + m_1 r^2 = \underline{\underline{\frac{3}{2} m_1 r^2}}$$

Half ring: $\bar{r} = 2r/\pi$

$$I_{x_0 x_0} = \frac{1}{2} \left(\frac{1}{2} 2 m_2 r^2 \right) = \frac{1}{2} m_2 r^2$$

$$I_G = \frac{1}{2} m_2 r^2 - m_2 \bar{r}^2$$

$$= \frac{1}{2} m_2 r^2 - m_2 \frac{4r^2}{\pi^2}$$

$$I_{xx} = I_G + m_2 (r - \bar{r})^2 = \frac{1}{2} m_2 r^2 - m_2 \frac{4r^2}{\pi^2} + m_2 r^2 \left(1 - \frac{2}{\pi} \right)^2$$

$$= \frac{3}{2} m_2 r^2 + m_2 r^2 \left(1 - \frac{4}{\pi} + \frac{4}{\pi^2} \right) - m_2 r^2 \frac{4}{\pi^2}$$

$$= \underline{\underline{m_2 r^2 \left(\frac{3}{2} - \frac{4}{\pi} \right)}}$$