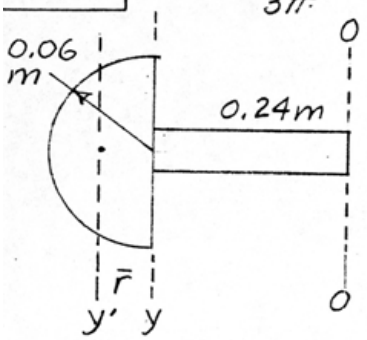
▶ B/49

$$\bar{r} = \frac{4r}{3\pi} = \frac{4(0.06)}{3\pi} = 0.0255 \text{ m}$$



From Table D/4 for semicylinder

$$I_{yy} = \frac{1}{4}mr^2 + \frac{1}{12}m\ell^2$$
$$= \frac{1}{4}0.8(0.06)^2 + \frac{1}{12}0.8(0.120)^2$$
$$= 7.20(10^{-4}) + 9.60(10^{-4})$$
$$= 16.80(10^{-4}) \text{ kg}\cdot\text{m}^2$$

$$I_{y'y'} = I_{yy} - m\bar{r}^2 =$$
$$= 16.80(10^{-4}) - 0.8(0.0255)^2$$
$$= 11.61(10^{-4}) \text{ kg}\cdot\text{m}^2$$

$$I_{OO} = I_{y'y'} + md^2 = 11.61(10^{-4}) + 0.8(0.24 + 0.0255)^2$$
$$= 0.0575 \text{ kg}\cdot\text{m}^2$$

Handle: $I_{OO} \approx \frac{1}{3}m\ell^2 = \frac{1}{3}0.5(0.24)^2 = 0.0096 \text{ kg}\cdot\text{m}^2$

Total $I_{OO} = 0.0575 + 0.0096 = \underline{0.0671 \text{ kg}\cdot\text{m}^2}$