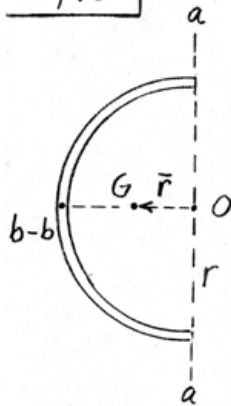


B/16



For complete ring of mass $2m$,

$$I_o = (2m)r^2 \quad \& \quad I_{aa} = \frac{1}{2}(2m)r^2$$

So for half ring $I_{aa} = \frac{1}{2}mr^2$

$$I_{bb} = \bar{I} + (r - \bar{r})^2 m$$

$$= I_o - m\bar{r}^2 + (r - \bar{r})^2 m$$

$$= I_o + m(r^2 - 2r\bar{r})$$

$$= mr^2 + m(r^2 - 2r\bar{r})$$

$$= 2mr^2 \left(1 - \frac{\bar{r}}{r}\right) \quad \text{where } \bar{r} = \frac{2r}{\pi}$$

$$\text{So } I_{bb} = 2mr^2 \left(1 - \frac{2}{\pi}\right)$$