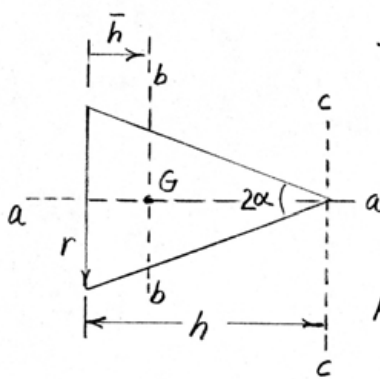


B/22

$$I_{aa} = \frac{3}{10} mr^2 ; I_{cc} = \frac{3}{20} mr^2 + \frac{3}{5} mh^2 \quad (\text{Table D/4})$$



$$I_{bb} = I_{cc} - m(h - \bar{h})^2, \quad \bar{h} = h/4$$

$$= I_{cc} - m \frac{9}{16} h^2$$

$$= \frac{3}{20} mr^2 + \frac{3}{5} mh^2 - \frac{9}{16} mh^2$$

$$= \frac{3}{20} mr^2 + \frac{3}{80} mh^2$$

$$\text{For } I_{aa} = I_{bb}, \quad \frac{3}{10} mr^2 = \frac{3}{20} mr^2 + \frac{3}{80} mh^2$$

$$\frac{3}{20} r^2 = \frac{3}{80} h^2$$

$$\text{Thus } \left(\frac{r}{h}\right)^2 = \frac{1}{4}, \quad r = \frac{1}{2}h \quad \& \quad \tan \alpha = \frac{r}{h} = \frac{1}{2}, \quad \underline{\alpha = 26.6^\circ}$$