

Draft 94 cont.  
Next observe

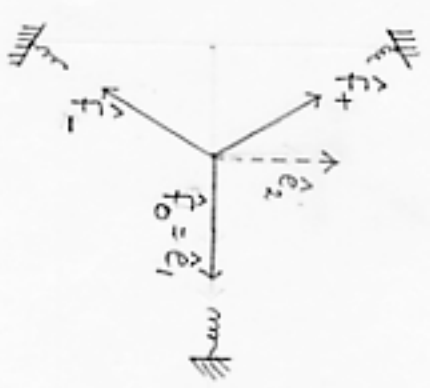
$$I_{33} = \int d^3r \rho(r) \{ r^2 - z^2 \} = \int d^3r \rho(r) (x^2 + y^2)$$

$$= I_{11} + I_{22}.$$

Therefore

$$I_{33} = \frac{m a^2}{12}$$

96. b) Select a space fixed set of axis  $\hat{e}_i$  as shown below and space fixed unit vectors  $\hat{f}_b$  with



$$\hat{f}_o = \hat{e}_1 \quad \hat{f}_T = -\frac{1}{2} \hat{e}_1 \pm \frac{\sqrt{3}}{2} \hat{e}_2$$

Let  $\vec{R}_{CM}$  = location of center of triangle. Let  $\vec{P}_b$  with  $b = 0, +, -$  be the locations of the respective vertices (Points) of the triangle and  $\vec{E}_b$  be the locations of the anchored ends of the springs. Then, we have

$$\vec{E}_b = \frac{d}{\sqrt{3}} \hat{f}_b$$

where  $d$  is the distance between anchor points,

and

$$\vec{P}_b = \vec{R}_{CM} + \frac{a}{\sqrt{3}} \hat{f}_b$$

Using these coordinates,