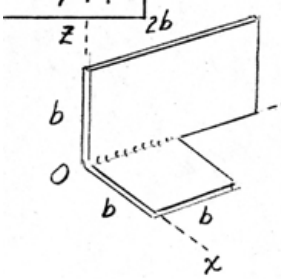
*** B/71**



$$I_{xx} = \frac{1}{3}\rho b^4 + \frac{1}{12}\rho(2b^2)(b^2+4b^2) + \rho(2b^2)\left(\frac{b^2}{4}+b^2\right) = \frac{11}{3}\rho b^4$$

$$I_{yy} = \frac{1}{3}\rho b^4 + \frac{1}{3}\rho(2b^2)b^2 = \rho b^4$$

$$I_{zz} = \frac{1}{12}\rho b^2(b^2+b^2) + \rho b^2\left(\frac{b^2}{4}+\frac{b^2}{4}\right) + \frac{1}{3}\rho(2b^2)(2b)^2 = \frac{10}{3}\rho b^4$$

$$I_{xy} = \rho b^2\left(\frac{b}{2}\frac{b}{2}\right) = \frac{1}{4}\rho b^4,\ I_{xz} = 0,\ I_{yz} = \rho b^4$$

Substitute in Eq. B/11 letting $I = I_0 \rho b^4$ & get

$$\begin{vmatrix} \frac{11}{3}-I_0 & -\frac{1}{4} & 0 \\ -\frac{1}{4} & 1-I_0 & -1 \\ 0 & -1 & \frac{10}{3}-I_0 \end{vmatrix} = 0,$$

Expand & get

$$I_0^3 - 8I_0^2 + 18.160I_0 - 8.347 = 0$$

Solve by computer program or algebraic formula & get

$$I_1 = 3.78\rho b^4$$
$$I_2 = 0.612\rho b^4$$
$$I_3 = 3.61\rho b^4$$