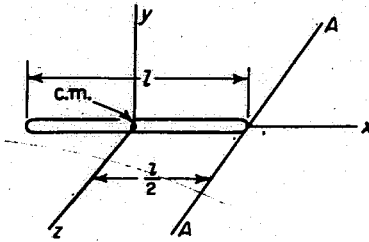


# INERTIAL PROPERTIES OF HOMOGENEOUS BODIES

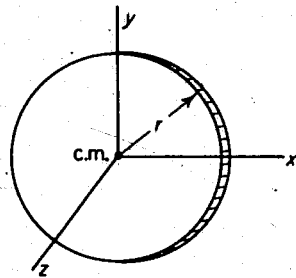


Thin rod

$$I_{xx} = 0$$

$$I_{yy} = I_{zz} = \frac{ml^2}{12}$$

$$I_{AA} = \frac{ml^2}{3}$$

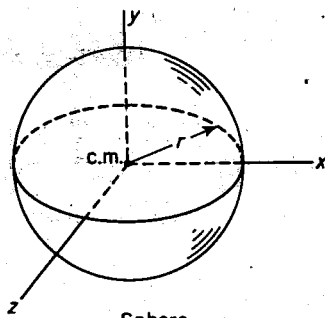


Thin circular disk

$$A = \pi r^2$$

$$I_{xx} = I_{yy} = \frac{mr^2}{4}$$

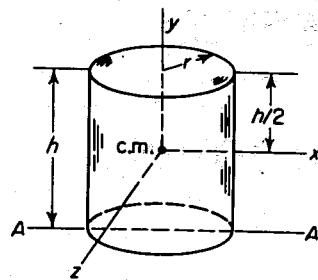
$$I_{zz} = \frac{mr^2}{2}$$



Sphere

$$V = \frac{4}{3} \pi r^3$$

$$I_{xx} = I_{yy} = I_{zz} = \frac{2}{5} mr^2$$



Right circular cylinder

$$V = \pi r^2 h$$

$$I_{xx} = I_{yy} = \frac{m}{12} (3r^2 + h^2)$$

$$I_{zz} = \frac{1}{2} mr^2$$

$$I_{AA} = \frac{m}{12} (3r^2 + 4h^2)$$