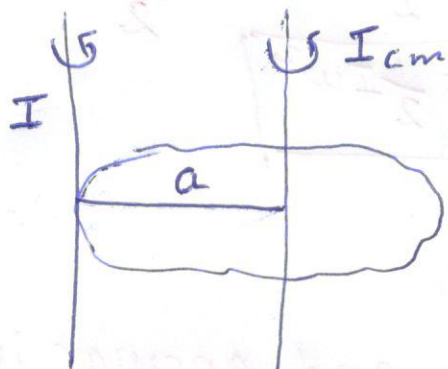


Theorem of parallel axis

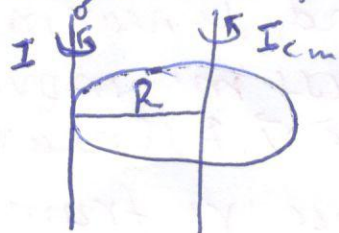
- * moment inertia of a body about a given axis 'I' is equal to the sum of moment inertia of a body about an axis parallel to a given axis and passing through the center of mass of the body I_{cm} .



a - is the perpendicular distance b/w two axis.

$$I = I_{cm} + Ma^2$$

E.g. $\Rightarrow$ The moment inertia of a disc about an axis through its parallel axis;

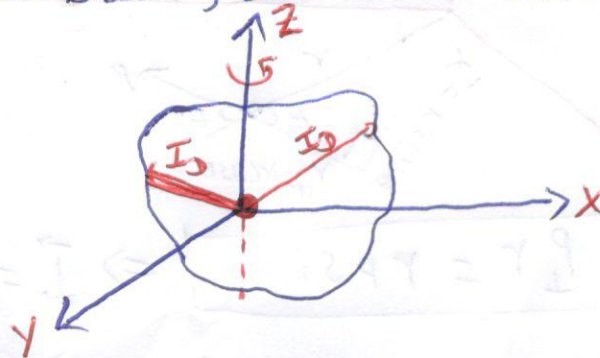


$$I = MR^2 + I_{cm}$$

$$I = MR^2 + \frac{1}{2}MR^2 = \frac{3}{2}MR^2$$

perpendicular axis theorem

- * Consider a plane body of mass 'M', let X & Y axis be two mutual perpendicular lines in the plane of the body, the axis intersect at the origin O.



$\rightarrow$ The moment inertia of a body about Z-axis (passing through O & $\perp$ to the plane of the body) given by

$$I_z = I_x + I_y$$