

Theorem of Parallel Axes.

Moment of inertia of a body about a given axis I is equal to the sum of moment of inertia of the body about an axis parallel to given axis and passing through center of mass of the body I_g and Ma^2 where M is the mass of the body and a is the perpendicular distance between the two axes.

$$I = I_g + Ma^2$$

Example: Moment of inertia of a disc about an axis through its center and

perpendicular to the plane is $\frac{1}{2}MR^2$, so moment of inertia about an axis through its tangent and perpendicular to the plane will be

$$I = I_g + Ma^2$$

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

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

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