

2.4: Radius of Gyration

The second moment of inertia of any body can be written in the form mk^2 . Thus, for the rod, the disc (about an axis perpendicular to its plane), the triangle and the disc (about a diameter), k has the values

- $\frac{l}{\sqrt{3}} = 0.866l$,
- $\frac{a}{\sqrt{2}} = 0.707a$,
- $\frac{a}{\sqrt{6}} = 0.408a$, and
- $\frac{a}{2} = 0.500a$

respectively.

k is called the **radius of gyration**. If you were to concentrate all the mass of a body at its radius of gyration, its moment of inertia would remain the same.

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