

2.21: Tetrahedra

? Exercise 2.21.1

Show that the moment of inertia about an axis through the centre of mass of a uniform solid regular tetrahedron of mass m and edge length a is $\frac{1}{20}ma^2$

? Exercise 2.21.2

Show that the moment of inertia of a methane molecule about an axis through the carbon atom is $\frac{8}{3}ml^2$, where l is the bond length and m is the mass of a hydrogen atom.

And, in case you are wondering that I haven't specified the *orientation* of the axis in either case, the solid regular tetrahedron and the methane molecule are both spherical tops, and the moment of inertia is the same about *any* axis through the centre of mass.

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