**The Compound Pendulum**

Example 1

A uniform rod of mass 10 kg and length 2.1m can swing freely in a vertical plane round a horizontal pin at one end. Form the equation of rotational motion for the oscillation about the vertical equilibrium position. If the rod swings through a small angle, find the approximate period of oscillation.

Example 2

A pendulum is made of a strip of wood with a square board screwed to it at one end. It is hung over a nail by a small eye screwed into it at the other end. The wooden strip is 1.2 m long and has a mass of 0.5 kg. The board is 0.4m square and has a mass of 1.5 kg. Find the period when the pendulum makes small oscillations about the vertical.

Example 3

A disc of mass m and radius *a* performs small oscillations about a smooth horizontal axis which is tangential to the disc. Find the length of the equivalent simple pendulum.