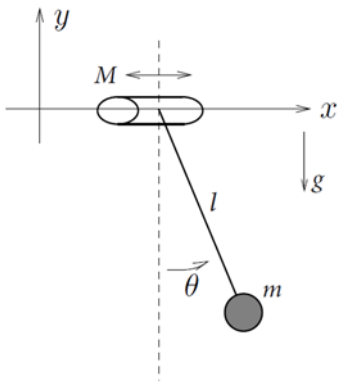
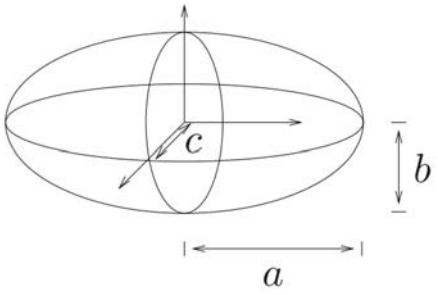
Homework 11-12

(Due time: 24:00, Apr. 30, 2020)

1. Derive the equations of motion for the pendulum on a wire: an idealized planar pendulum whose pivot is free to slide along a horizontal wire. Assume that the top of the pendulum can move freely on the wire (no friction).



2. Compute the inertia tensor for the ellipsoid shown below.



3. For the three-link manipulator shown below:

   (a) Derive the dynamics of the manipulator.

   (b) Write a Matlab function to solve the dynamics of the manipulator and verify your result in (a).