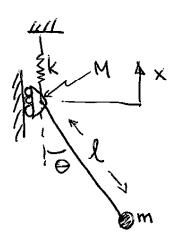
1. Derive the equations of motion in terms of x and θ of the pendulum below using Lagrange equations. Also linearize the equations by assuming small motions.



2. Derive the equations of motion in terms of x and θ for the system below.

