1. Taylor 5.4

   HINT: Be sure to draw a clean figure of the cylinder with the string & pendulum mass.
   You will likely find that choosing $(x, y) = (0, 0)$ at the center of the cylinder will make things easier.

2. Taylor 5.10

   HINT: the inside front cover of the text is useful!

3. Taylor 5.13

4. Taylor 5.18

   HINT: Choose the origin at the initial position of the mass with $+x$ to the right & $+y$ upward. Then imagine displacing the mass to (x, y) where x & y are small relative to a.

5. Computational Problem on course website. (Lifeguard problem.)