All questions are from Taylor, Chapter 4. Please show all your work and write legibly for full credit! As always, if you have any questions please don't hesitate to ask.

- **4.2**: Some practice with line integrals.

- **4.23**: For the purposes of finding your potential energies, you can take the origin to be your zero point.

- **4.30**: It may help to think about what the distance between O and the CM is.

- **4.36**: In addition to the rest of the problem, make a plot of the potential energy here as well to check your equilibrium positions and stability.

- **4.46**: You can follow along with the main ideas of the example pretty closely here, except you'll have to bring along the different mass terms. Making the final step requires reasoning about how different angles would give different components different signs.