Homework 3
Due Friday, September 16th at 5pm
in 251 LeConte

Read Chapter 7 of Taylor's Classical Mechanics.

1. Taylor 6.3, p231

2. Taylor 6.5, p231

3. Taylor 6.1 & 6.16, pp 230 & 233

4. Taylor 6.17, p233

5. Taylor 6.10 & 6.20, pp 232 & 233

6. Taylor 6.21, p234

7. Taylor 6.22, p234

Optional: The following problem from Taylor is not part of this week's assignment. However, it will be assigned as part of next week's homework. So, if you like, you can do it this week.

- Taylor 6.25, p234

The reason I include it here is that it has a nice connection with the oscillations material you've been thinking about. A regular pendulum makes a very good clock (this was Galileo's astonishing insight) but it doesn't make a perfect one. (Why not? Hint: There are multiple reasons.) But by thinking about the results of Taylor 6.25 Huygens' concocted a brilliant pendulum that is theoretically a perfect clock! Can you think of a way to construct such a pendulum? [Hint: It's a bit like your homework problem with the pendulum wrapped around the cylinder. You want to change how the pendulum swings.] Unfotunately, Huygens' idea isn't practical; it turns out that there is too much friction and it ends up being a worse clock in practice then the good old pendulum bob.