

**Phys 410**

**Spring 2013**

**Homework #4**

**Due Friday, 22 February, 2013**

**NOTE: EXAM #1 is March 1, 2013, Covering chapters 1-5 of Taylor**

All problems are from Taylor, *Classical Mechanics*.

- 1) Problem 5.2 Small oscillations around the minimum of a potential
- 2) Problem 5.5 The different expressions for harmonic oscillation
- 3) Problem 5.11 Frequency and amplitude from 2 positions and speeds
- 4) Problem 5.13 Small oscillations
- 5) Problem 5.29 Period of a damped oscillator
- 6) Problem 5.33 Driven damped oscillations
- 7) Problem 5.36 Transient behavior of damped driven system
- 8) Problem 5.41 Half-power points near resonance
- 9) Problem 5.44 Another interpretation of Q
- ~~10) Problem 9.1 Buoyant force in an accelerating frame~~ **Save for NEXT week**

Extra Credit

- 1) Problem 5.39 Direct solution of the driven damped harmonic oscillator