

Phys 410

Fall 2014

Homework #3

Due Thursday, 25 September, 2014

All problems are from Taylor, *Classical Mechanics*.

- 1) Problem 4.2 Work on three different paths
- 2) Problem 4.7 Unusual gravitational potential energy
- 3) Problem 4.16 Force from potential
- 4) Problem 4.21 Curl of the gravitational force
- 5) Problem 4.23 Conservative forces
- 6) Problem 4.26 Time-dependent gravity
- 7) Problem 4.28 Motion in one dimension
- 8) Problem 4.34 The pendulum
- 9) Problem 4.41 The Virial theorem
- 10) Problem 4.48 Collision and loss of kinetic energy
- 11) Problem 4.53 Electron collides with a hydrogen atom (NOTE: assume that the collision is **elastic** in part c)

Extra Credit

- 1) Problem 4.38 Pendulum period for large oscillations