The University of Alabama at Birmingham (UAB)
Department of Physics

PH 461/561 – Classical Mechanics I – Fall 2005

Assignment # 2   Due: **Thursday, August 25**
                              (Turn in for credit!)

Activities based on previous lecture:

1. A particle o mass m moves in one dimension under a constant force F_0
    with $F_0 < 0$.
    a. Plot its trajectories in phase space. (Note on the trajectories the direction
        of motion with the passage of time).
    b. Describe the orbits of the particle in configuration space (i.e., the particle
        path in configuration space).
    c. Show that the projection of the phase space trajectories onto the
        configuration space yield the particle orbits.

2. Fowles & Cassiday (7th Edition) Problem **2.4.**

Activities in preparation for *upcoming* lecture:

Study section **2.4** in textbook (pages 69-71 only) and answer the following questions:

1. A particle of mass m is launched in one-dimensional motion with initial velocity
    v_0. Find the velocity $v(t)$ if the particle is subjected to a force $F = -\alpha v$, with
    α being a positive constant.

2. Explain the concept of *terminal velocity*.