PHYS 6352
April 17, 2014

CHALLENGE 1 (40 pts)

Project 1 (assigned February 12) involved a finite difference, two dimensional computation of the range of a ballistic projectile under the action of a velocity-dependent drag.

In class we had discussed the "order" of a computation, the way in which the error in the computation depends on the step size h of a finite difference method. It was demonstrated in class that the range computation had no identifiable order. The errors did tend to get smaller as h decreased, but not according to any clear pattern. This meant – among other things – that Richardson extrapolation could not be used.

Explain, in a paragraph or two, why there is no deinite order in h for the range computation.