

**Physics 410/609—Computational Physics**  
**Exercise 1—Due Wednesday, January 23, 2013**

1) Prepare a data file with one column of numbers  $\delta t$ . A range  $0.01 \leq \delta t \leq 0.5$  would be particularly convenient, but it is not required. Explain how you prepared the file.

2) Prepare a second data file with two columns of numbers. This file should contain  $\delta t$  and  $0.25\delta t^2$ . Show the commands you used to create the second data file.

3) Graph your data, preferably using `axis`, with the  $x$ -axis properly labeled  $\delta t$  using a Greek symbol for  $\delta$ . You may label the  $y$ -axis as error. Put a title on the graph that is your name (first and last).

4) Graph the same data, but this time make a log-log plot. (This is very easy to do using `axis`, but you don't have to use `axis`.)

5) Prepare a data file with two columns of numbers  $x$  and  $\exp(-.5x)$ , where  $x$  takes on values between 0 and 10 in increments of 0.1. Explain how you prepared the file.

6) Graph the data showing individual points plotted as diamonds.

7) Replot the same data as a semi-log plot with the  $y$ -axis logarithmic and the points connected by a solid line.