PHYS 40 Homework 2

For the homework problems below, upload your final code, code output (along with comments reporting on the output), and any plot images to Canvas.

1. Logarithmic plotting

a) Consider two mathematical functions, $y_1 = x$, and $y_2 = x^2$. Create appropriate vectors to represent these functions, for an x-range of 0 to 1.

b) Plot both functions on a single figure. Use a command like `fig1=figure()` before plotting to set up a specific figure window. Re-adjust the axis ranges manually (within your plotting script). Include a title, axis labels, and legends. The line and marker styles, colors, and font size are up to you.

c) Set up a second figure window and plot $\log(y_1)$ and $\log(y_2)$ vs. $\log(x)$ (base-10 logarithms). Use figure decoration as above. What happened when you plotted the logarithm of zero?

d) Set up a third figure and make a log–log plot as before, but this time using the `loglog()` command.

2. List slicing

Slice the string `s='seehemewe'` (using indices) to produce the following substrings:

a. `'see'`
b. `'he'`
c. `'me'`
d. `'we'`
e. `'hem'`
f. `'meh'`
g. `'wee'`