

Exercise 1 *Plotting functions*

Plot and compare the functions $\sinh \sinh \tanh x$ and $\sin \sin \tan x$ over the interval $[0, 2]$.

Exercise 2 *Plotting parametric functions*

Plot the Bessel function $J_1(t)$ over $\sin(t + \pi/4)$ for $1 < t < 100$ using the same scaling for both axes.

Hint: The graph will look much smoother if you increase the number of points (sampling).

Exercise 3 *Plotting data from a file*

Get the file 'besslemod.dat' from <http://www.capca.ucalgary.ca/~wdobler/teaching/phys499/programs/besslemod.dat>.

- (a) Use gnuplot to plot $\text{modJ}(x)$
- (b) Using an appropriate graphical representation, find an approximate scaling of the form

$$\text{modJ}(x) \sim ax^b \quad x \rightarrow \infty$$

- (c) Produce a PostScript plot of your best graph and print it out.