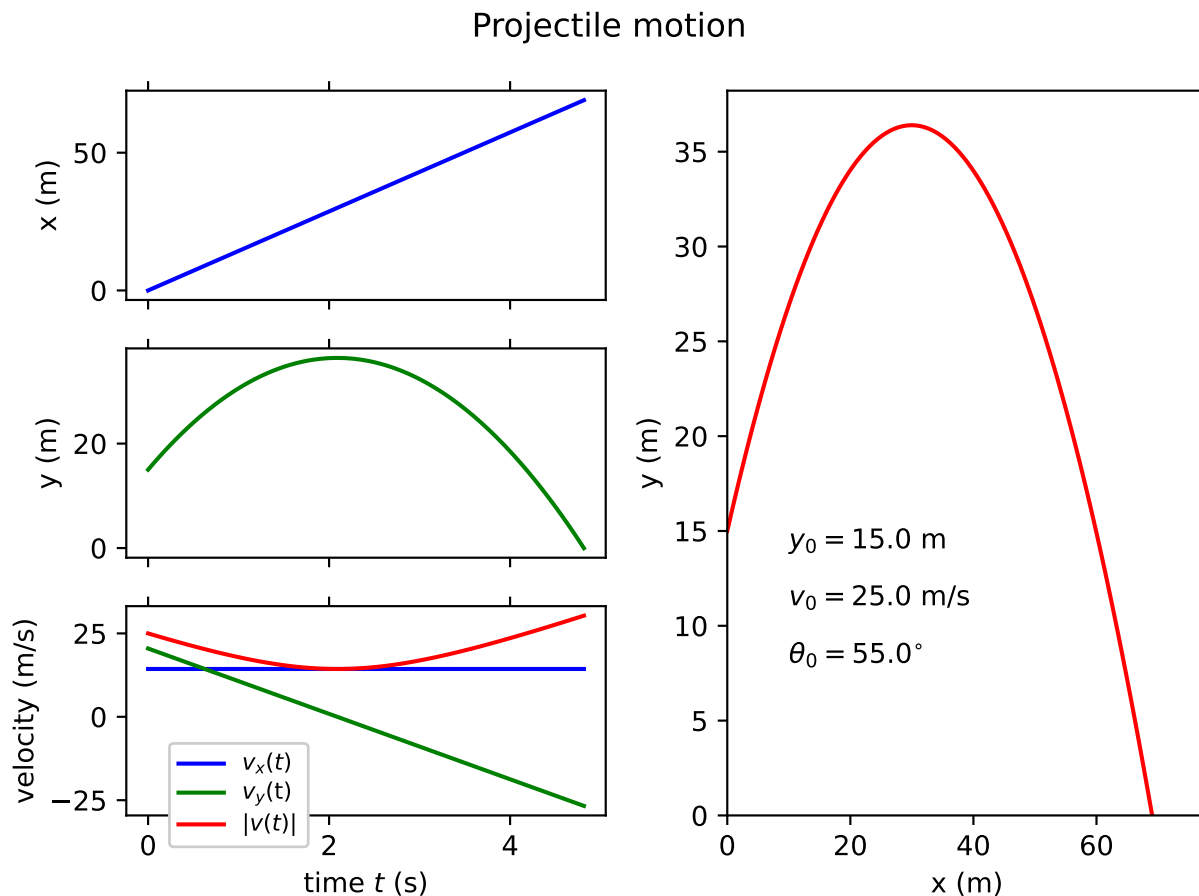


Assignment 5: Plotting with Python

- Make sure that your scripts run without error in order to get credit. Do not hesitate to ask for help if needed!
- Check the output of the Autograder for any issue that should be fixed. In case of “Unexpected error”, email me so I can take a look as it may be an issue with the Autograder rather than your code.
- Take ownership of your learning! Remember that you are responsible for the work you turn in. Simply copying somebody else’s answers, copying from the Internet, using AI to generate your code, sharing your code (or part of your code) in any way, or copying it from someone else will be considered academic dishonesty. Please, contact me if you have any questions about collaborations.

Problem 1

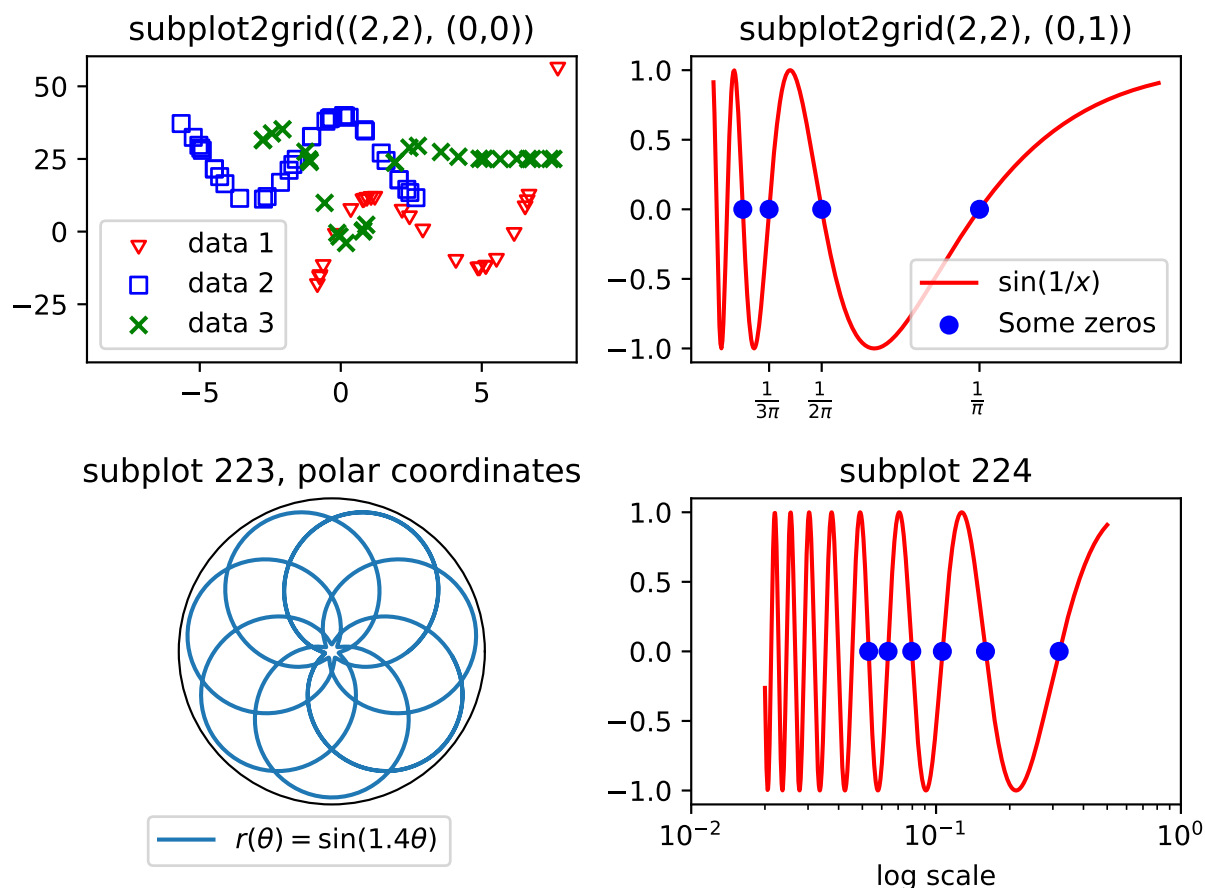
Try your best to reproduce this figure:



You can re-use parts of your code from assignment 3 (problem 2) or 4 as a starting point, and use your knowledge of mechanics to determine the velocity of the projectile. The code does not need to get any parameter from the user.

Problem 2

Try your best to reproduce this figure:



You will need to consult the online documentation for some of the features of the figure.

- The data for the scatter plot in the upper left corner is found in file `hw05-data1.txt`, `hw05-data2.txt`, and `hw05-data3.txt`;
- The lower left plot uses polar coordinates and plots the function $r(\theta) = \sin(1.4\theta)$. Note that there are no tick marks at all, and the legend is not in a standard location;
- both plots on the right are of $\sin(1/x)$. The top version is plotted between 0.05 and 0.5 on a linear scale (the usual), while the lower version is plotted from 0.02 to 1 on a logarithmic scale;
- the symbols on the right-hand-side plots indicate the zeros of the function, which are located at $1/(n\pi)$, for $n > 1$. The first 3 of those values are used as tick marks on the top plot.