Practice Exercise 01

You may use MATLAB/python and any package within.

1. Write a function to:

    1. To solve a system of simultaneous equations.

    2. Find the roots of a polynomial equation of the second order. The function should also produce a plot of the equation.

2. For a given range of numbers write a function to sum the number of prime numbers within the given range. Plot the prime numbers on a scatter plot.

3. The Fibonacci sequence is simply a series of numbers in which each number is the sum of the two preceding numbers. Write a function to plot the Fibonacci numbers within a certain range. For additional exercise, plot the Fibonacci spiral for a given range.

4. Compute the 1000th partial sum of the the Riemann zeta function is the infinite series, defined by:

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s}$$