Lab Assignment (Basic Gaussian Elimination)

1. Use Gaussian elimination to solve the system of linear equations

$$x_1 + 5x_2 = 7$$
$$-2x_1 - 7x_2 = -5.$$

   - Follow the Gaussian elimination algorithm

   - Show your calculation step by step

2. Use Gaussian elimination to solve the system of linear equations

$$2x_2 + x_3 = -8$$
$$x_1 - 2x_2 - 3x_3 = 0$$
$$-x_1 + x_2 + 2x_3 = 3.$$

   - Follow the Gaussian elimination algorithm

   - Show your calculation step by step

3. Use Gaussian elimination to solve the system of linear equations

$$x_1 - 2x_2 - 6x_3 = 12$$
$$2x_1 + 4x_2 + 12x_3 = -17$$
$$x_1 - 4x_2 - 12x_3 = 22.$$

   - Follow the Gaussian elimination algorithm

   - Show your calculation step by step

4. Make your own subroutine or function to solve $Ax = b$ using Gaussian elimination.

   - Input : a $n \times n$ matirx A, a $n \times 1$ vector b

   - Output: x