



Assignment (1)
Due Date: 15/3/2016

1- Using the graphical method, solve the following system of equations:

$$x_1 - x_2 = 10$$

$$2x_1 - 3x_2 = -6$$

2- For matrix $A = \begin{bmatrix} 2 & 1 & 1 \\ 4 & 4 & 1 \\ 6 & -5 & 8 \end{bmatrix}$:

a. Determine the determinate of the matrix.

b. Find the LU decomposition of matrix A.

c. Using the above, solve the system of equations: $Ax = [4 \ 7 \ 15]^T$

3- Given the following system of equations, use Cramer's rule to solve:

$$x_1 - x_2 + 2x_3 = 2$$

$$-x_1 + 5x_2 + 4x_3 = 6$$

$$2x_1 + 4x_2 + 29x_3 = -3$$

4- Use Gauss elimination to solve the following system of equations:

$$4x_1 + x_2 - x_3 = -2$$

$$5x_1 + x_2 + 2x_3 = 4$$

$$6x_1 + x_2 + x_3 = 6$$

5- Use the Gauss-Seidel method to solve the following system.

$$4x_1 + x_2 - x_3 = 3$$

$$2x_1 + 7x_2 + x_3 = 19$$

$$x_1 - 3x_2 + 12x_3 = 31$$