

Work sheet-2

1. Use the Gauss-Jordan elimination method to solve the linear system

$$\begin{pmatrix} 4 & 8 & 4 & 0 \\ 1 & 4 & 7 & 2 \\ 1 & 5 & 4 & -3 \\ 1 & 3 & 0 & -2 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{pmatrix} = \begin{pmatrix} 8 \\ 10 \\ -4 \\ -4 \end{pmatrix}$$

2. Given $\mathbf{A} = \begin{pmatrix} 4 & 2 & -1 & 3 \\ 3 & -4 & 2 & 5 \\ -2 & 6 & -5 & -2 \\ 5 & 1 & 6 & -3 \end{pmatrix}$. Find matrices \mathbf{L} and \mathbf{U} so that $\mathbf{LU} = \mathbf{A}$.

3. Use Gauss-Seidel iteration to attempt solving question number 1. Try 10 iterations.