Assignment 2

1. Determine the rank of the matrix $A = \begin{pmatrix} 1 & 2 & 1 & 0 \\ 2 & 4 & 8 & 6 \\ 3 & 6 & 6 & 3 \end{pmatrix}$

2. Determine the rank of the matrix $B = \begin{pmatrix} 3 & 12 & 9 \\ 2 & 10 & 12 \\ 1 & 12 & 2 \end{pmatrix}$

3. Determine the rank of the matrix $C = \begin{pmatrix} 0 & 0 & 1 & 2 & 1 \\ 1 & 3 & 1 & 0 & 3 \\ 2 & 6 & 4 & 2 & 8 \\ 3 & 9 & 4 & 2 & 10 \end{pmatrix}$

4. Using Gauss-Jordan method, find the inverse of the matrix
$$A = \begin{pmatrix} 1 & 1 & 2 \\ 2 & 4 & 4 \\ 3 & 3 & 7 \end{pmatrix}.$$

5. Using Gauss-Jordan method, find the inverse of the matrix
$$A = \begin{pmatrix} 3 & 12 & 9 \\ 2 & 10 & 12 \\ 1 & 12 & 2 \end{pmatrix}.$$

6. Solve the system of equations using Gauss-elimination method.

$$x_1 + x_2 = 4$$

$$x_2 - x_3 = 1$$

$$2x_1 + x_2 + 4x_3 = 7.$$