

$$\begin{bmatrix} 2 & 2 & 1 & 7 \\ -1 & 2 & 0 & 3 \\ 3 & 2 & 1 & 8 \\ 4 & 2 & 0 & 8 \end{bmatrix} \quad \text{Pivot} = 2$$

$$R_2' = -2R_1 + R_2$$

$$R_3' = R_3 - R_1$$

$$R_4' = R_4 - 2R_1$$

$$\begin{array}{l} R_1 \\ R_2' \\ R_3' \\ R_4' \end{array} \begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 3 & 2 & 1 & 8 \\ 4 & 2 & 0 & 8 \end{bmatrix}$$

$$R_3' = R_3 - (1+R_1)$$

$$R_3' = [0 \ -1 \ -1 \ 0]$$

$$\begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 0 & -1 & -1 & 0 \\ 4 & 2 & 0 & 8 \end{bmatrix}$$

$$R_4' = R_4 - (2R_1)$$

$$R_4' = [0 \ -2 \ -2 \ -6]$$

$$\begin{array}{l} R_1 \\ R_2' \\ R_3' \\ R_4' \end{array} \begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 0 & -1 & -1 & 0 \\ 0 & -2 & -2 & -6 \end{bmatrix}$$

$$\text{Pivot} = -6$$

$$R_3'' = -6R_3' + R_1$$

$$R_3'' = 6R_3' + R_1$$

$$R_3'' = \begin{bmatrix} 0 & 0 & -7 & -13 \end{bmatrix}$$

$$\begin{array}{l} R_1 \\ R_2' \\ R_3'' \\ R_4' \end{array} \begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 0 & 0 & -7 & 0 \\ 0 & -2 & -2 & -6 \end{bmatrix}$$

$$R_4'' = (-3)R_4' + R_2'$$

$$\begin{array}{l} R_1 \\ R_2' \\ R_3'' \\ R_4'' \end{array} \begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 0 & 0 & -7 & 0 \\ 0 & 0 & -7 & 5 \end{bmatrix}$$

$$\text{Pivot} = -7$$

$$R_4''' = R_4'' - R_3''$$

$$\begin{bmatrix} 2 & 2 & 1 & 7 \\ 0 & -6 & -1 & -13 \\ 0 & 0 & -7 & 0 \\ 0 & 0 & 0 & 5 \end{bmatrix}$$

$$\text{Pivot} = (5)$$

Rank of Matrix is 4 = Full Rank.