

34-) $B = \begin{bmatrix} 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 2 \\ 3 & 2 & 1 & 3 \\ 6 & 8 & 7 & 5 \end{bmatrix}$ matrisinin rangını bulunuz.

Çözüm:

$$B = \begin{bmatrix} 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 2 \\ 3 & 2 & 1 & 3 \\ 6 & 8 & 7 & 5 \end{bmatrix} \sim \begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 0 & -3 & 2 \\ 0 & -4 & -8 & 3 \\ 0 & -4 & -11 & 5 \end{bmatrix} \sim \begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 0 & -3 & 2 \\ 0 & -4 & -8 & 3 \\ 0 & 0 & -3 & 2 \end{bmatrix} \sim$$

$$\begin{matrix} H_{21}(-2), H_{31}(-3), & H_{43}(-1) & H_{42}(-1), H_3(-\frac{1}{4}) \\ H_{41}(-6) \end{matrix}$$

$$\begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 0 & -3 & 2 \\ 0 & 1 & 2 & -\frac{3}{4} \\ 0 & 0 & 0 & 0 \end{bmatrix} \sim \begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 1 & 2 & -\frac{3}{4} \\ 0 & 0 & -3 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix} \sim \begin{bmatrix} 1 & 0 & -1 & \frac{3}{2} \\ 0 & 1 & 2 & -\frac{3}{4} \\ 0 & 0 & 1 & -\frac{2}{3} \\ 0 & 0 & 0 & 0 \end{bmatrix} \sim$$

$$\begin{matrix} H_{23} & H_{12}(-2), H_3(-\frac{1}{3}) & H_{13}(1), H_{23}(-2) \end{matrix}$$

$$\begin{bmatrix} 1 & 0 & 0 & \frac{5}{6} \\ 0 & 1 & 0 & \frac{7}{12} \\ 0 & 0 & 1 & -\frac{2}{3} \\ 0 & 0 & 0 & 0 \end{bmatrix} \text{ dir. Böylece } r_A = 3 \text{ tür.}$$

35-) $A = \begin{bmatrix} 4 & -1 & 2 & 1 \\ 2 & 3 & -1 & -2 \\ 0 & 7 & m & -5 \\ 2 & -11 & 7 & 8 \end{bmatrix}$ matrisinin rangının 2 olması için m ne olmalıdır?