

موضوع کنید

$$B = \begin{bmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{bmatrix} \text{ و } A = \begin{bmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{bmatrix}$$

افراز سطری A  $\Rightarrow$

$$\begin{aligned} \underline{a}'_1 &= (1 \quad 6) \\ \underline{a}'_2 &= (8 \quad 9) \\ \underline{a}'_3 &= (2 \quad -7) \end{aligned}$$

افراز ستونی B  $\rightarrow$

$$\begin{aligned} \underline{b}_1 &= \begin{pmatrix} 1 \\ 6 \end{pmatrix} \\ \underline{b}_2 &= \begin{pmatrix} 2 \\ 8 \end{pmatrix} \\ \underline{b}_3 &= \begin{pmatrix} 3 \\ 4 \end{pmatrix} \end{aligned}$$

$$\begin{bmatrix} \underline{a}'_1 \\ \underline{a}'_2 \\ \underline{a}'_3 \end{bmatrix} \begin{bmatrix} \underline{b}_1 & \underline{b}_2 & \underline{b}_3 \end{bmatrix} \downarrow$$

$$\Rightarrow AB = \begin{pmatrix} \underline{a}'_1 \underline{b}_1 = 37 & \underline{a}'_1 \underline{b}_2 = 50 & \underline{a}'_1 \underline{b}_3 = 27 \\ \underline{a}'_2 \underline{b}_1 = 62 & \underline{a}'_2 \underline{b}_2 = 88 & \underline{a}'_2 \underline{b}_3 = 60 \\ \underline{a}'_3 \underline{b}_1 = -40 & \underline{a}'_3 \underline{b}_2 = -52 & \underline{a}'_3 \underline{b}_3 = -22 \end{pmatrix} \quad \times$$

$$\underline{a}'_1 \underline{b}_1 = (1 \quad 6) \begin{pmatrix} 1 \\ 6 \end{pmatrix} = 1 + 36 = 37$$

$$\underline{a}'_1 \underline{b}_2 = (1 \quad 6) \begin{pmatrix} 2 \\ 8 \end{pmatrix} = 2 + 48 = 50$$

⋮

$$\underline{a}'_3 \underline{b}_3 = (2 \quad -7) \begin{pmatrix} 3 \\ 4 \end{pmatrix} = 6 - 28 = -22$$

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افراز سطری B  $\Rightarrow$

$$\begin{aligned} \underline{b}'_1 &= (1 \quad 2 \quad 3) \\ \underline{b}'_2 &= (6 \quad 8 \quad 4) \end{aligned}$$

افراز ستونی A  $\Rightarrow$

$$\begin{aligned} \underline{a}_1 &= \begin{pmatrix} 1 \\ 8 \\ 2 \end{pmatrix} \\ \underline{a}_2 &= \begin{pmatrix} 6 \\ 9 \\ -7 \end{pmatrix} \end{aligned}$$

$$(\underline{a}_1 \quad \underline{a}_2) \begin{pmatrix} \underline{b}'_1 \\ \underline{b}'_2 \end{pmatrix} = \underline{a}_1 \underline{b}'_1 + \underline{a}_2 \underline{b}'_2$$

$$= \begin{pmatrix} 1 & 2 & 3 \\ 8 & 16 & 24 \\ 2 & 4 & 6 \end{pmatrix} + \begin{pmatrix} 36 & 48 & 24 \\ 54 & 72 & 36 \\ -42 & -56 & -28 \end{pmatrix} = \begin{pmatrix} 37 & 50 & 27 \\ 62 & 88 & 60 \\ -40 & -52 & -22 \end{pmatrix} \quad *$$

$$A = \begin{pmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{pmatrix} \rightarrow \text{افزارستوی} \quad \begin{aligned} \underline{a}_1' &= (1 \ 6) \\ \underline{a}_r' &= (8 \ 9) \\ \underline{a}_r' &= (2 \ -7) \end{aligned}$$

$$B = \begin{pmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{pmatrix}$$

$$AB = \begin{pmatrix} \underline{a}_1' B \\ \underline{a}_r' B \\ \underline{a}_r' B \end{pmatrix} = \begin{pmatrix} (1 \ 6) \begin{pmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{pmatrix} \\ (8 \ 9) \begin{pmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{pmatrix} \\ (2 \ -7) \begin{pmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{pmatrix} \end{pmatrix}$$

$$= \begin{pmatrix} 37 & 50 & 27 \\ 62 & 88 & 60 \\ -40 & -52 & -22 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{pmatrix}$$

$$B = \begin{pmatrix} 1 & 2 & 3 \\ 6 & 8 & 4 \end{pmatrix}$$

افزارستوی

$$\underline{b}_1' = \begin{pmatrix} 1 \\ 6 \end{pmatrix}$$

$$\underline{b}_2' = \begin{pmatrix} 2 \\ 8 \end{pmatrix}$$

$$\underline{b}_3' = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$$

$$AB = [A \underline{b}_1' \quad A \underline{b}_2' \quad A \underline{b}_3']$$

$$= \left( \begin{pmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{pmatrix} \begin{pmatrix} 1 \\ 6 \end{pmatrix} \quad \begin{pmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{pmatrix} \begin{pmatrix} 2 \\ 8 \end{pmatrix} \quad \begin{pmatrix} 1 & 6 \\ 8 & 9 \\ 2 & -7 \end{pmatrix} \begin{pmatrix} 3 \\ 4 \end{pmatrix} \right)$$

$$= \begin{pmatrix} 37 & 50 & 27 \\ 62 & 88 & 60 \\ -40 & -52 & -22 \end{pmatrix}$$

$$A = \begin{pmatrix} 8 & 3 & 7 \\ -2 & 5 & -3 \end{pmatrix}$$

$$B = \begin{pmatrix} -2 & 5 \\ 3 & 7 \\ 6 & -4 \end{pmatrix}$$

هرجا حالت انجام شود :