Matrice

Matematika za ekonomiste 1

Damir Horvat

FOI, Varaždin

Sadržaj

prvi zadatak

Zadatak 1

Napišite matricu $A = [a_{ij}]$ *tipa* $(3, 4)$ *ako je*

$$a_{ij} = \begin{cases} \cos \dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2 (i + j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

$$A =$$

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$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix}$$

Rješenje

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} & & & \\ & & & \\ & & & \end{bmatrix}$$

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$a_{11} =$

$$a_{ij} = \begin{cases} \cos \dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

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$$a_{11} = \log_2(1+1)$$

$$a_{ij} = \begin{cases} \cos\dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

$\boxed{\log_a a^x = x}$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} & & & \\ & & & \\ & & & \end{bmatrix}$$

$$a_{11} = \log_2(1+1) = \log_2 2$$

$$a_{ij} = \begin{cases} \cos\dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

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$$a_{11} = \log_2(1+1) = \log_2 2 = 1$$

$$a_{ij} = \begin{cases} \cos\dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

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$$a_{11} = \log_2(1+1) = \log_2 2 = 1$$

$$a_{12} =$$

$$a_{ij} = \begin{cases} \cos\frac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje

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$$a_{11} = \log_2(1+1) = \log_2 2 = 1$$

$$a_{12} = \log_2(1+2) = \log_2 3$$

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Rješenje

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Rješenje

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$$a_{13} = \log_2(1+3) = \log_2 4$$

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Rješenje $\log_2 4 =$

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Rješenje $\log_2 4 = \log_2 2^2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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$$a_{ij} = \begin{cases} \cos\dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2(i+j), & \text{ako je } i \leqslant j \end{cases}$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

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$$a_{21} = \cos \frac{2\pi}{2}$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

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$$a_{21} = \cos\frac{2\pi}{2} = \cos\pi$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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$$a_{ij} = \begin{cases} \cos \dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2 (i + j), & \text{ako je } i \leqslant j \end{cases}$$

$a_{23} =$

$$a_{14} = \log_2 (1 + 4) = \log_2 5$$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \\ & & & \end{bmatrix}$$

$$a_{ij} = \begin{cases} \cos \dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2 (i+j), & \text{ako je } i \leqslant j \end{cases}$$

$$a_{23} = \log_2 (2+3) = \log_2 5$$

$$a_{24} =$$

$$a_{14} = \log_2 (1+4) = \log_2 5$$

$$a_{21} = \cos \frac{2\pi}{2} = \cos \pi = -1$$

$$a_{22} = \log_2 (2+2) = \log_2 4 = 2$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \\ & & & \end{bmatrix}$$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

$\boxed{\log_a a^x = x}$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & & & \end{bmatrix}$$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

$\boxed{\log_a a^x = x}$

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$$a_{32} = \cos \frac{3\pi}{2} = 0$$

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Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

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$$a_{32} = \cos \frac{3\pi}{2} = 0$$

$$a_{33} = \log_2 (3+3)$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & 0 & \log_2 6 & \end{bmatrix}$$

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$$a_{32} = \cos \frac{3\pi}{2} = 0$$

$$a_{33} = \log_2 (3+3) = \log_2 6$$

Rješenje

$\log_2 4 = \log_2 2^2 = 2$

$\boxed{\log_a a^x = x}$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & 0 & \log_2 6 & \end{bmatrix}$$

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$$a_{22} = \log_2 (2+2) = \log_2 4 = 2$$

$$a_{34} =$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & 0 & \log_2 6 & \end{bmatrix}$$

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$$a_{33} = \log_2 (3+3) = \log_2 6$$

$$a_{22} = \log_2 (2+2) = \log_2 4 = 2$$

$$a_{34} = \log_2 (3+4)$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

$\boxed{\log_a a^x = x}$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & 0 & \log_2 6 & \log_2 7 \end{bmatrix}$$

$$a_{ij} = \begin{cases} \cos \dfrac{i\pi}{2}, & \text{ako je } i > j \\ \log_2 (i + j), & \text{ako je } i \leqslant j \end{cases}$$

$$a_{14} = \log_2 (1 + 4) = \log_2 5$$

$$a_{21} = \cos \frac{2\pi}{2} = \cos \pi = -1$$

$$a_{22} = \log_2 (2 + 2) = \log_2 4 = 2$$

$$a_{23} = \log_2 (2 + 3) = \log_2 5$$

$$a_{24} = \log_2 (2 + 4) = \log_2 6$$

$$a_{31} = \cos \frac{3\pi}{2} = 0$$

$$a_{32} = \cos \frac{3\pi}{2} = 0$$

$$a_{33} = \log_2 (3 + 3) = \log_2 6$$

$$a_{34} = \log_2 (3 + 4) = \log_2 7$$

Rješenje $\log_2 4 = \log_2 2^2 = 2$

$$\boxed{\log_a a^x = x}$$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \end{bmatrix} = \begin{bmatrix} 1 & \log_2 3 & 2 & \log_2 5 \\ -1 & 2 & \log_2 5 & \log_2 6 \\ 0 & 0 & \log_2 6 & \log_2 7 \end{bmatrix}$$

$$a_{11} = \log_2 (1+1) = \log_2 2 = 1$$

$$a_{12} = \log_2 (1+2) = \log_2 3$$

$$a_{13} = \log_2 (1+3) = \log_2 4 = 2$$

$$a_{14} = \log_2 (1+4) = \log_2 5$$

$$a_{21} = \cos \frac{2\pi}{2} = \cos \pi = -1$$

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$$a_{32} = \cos \frac{3\pi}{2} = 0$$

$$a_{33} = \log_2 (3+3) = \log_2 6$$

$$a_{34} = \log_2 (3+4) = \log_2 7$$

drugi zadatak

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji}$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji}$

$$\begin{bmatrix} & -1 & \\ & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji}$

$$\begin{bmatrix} & -1 & \\ {\color{blue}-1} & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji}$

$$\begin{bmatrix} & -1 & e \\ -1 & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji}$

$$\begin{bmatrix} & -1 & e \\ -1 & & 3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} & -1 & e \\ -1 & & 3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & & 3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji}$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji}$

$$\begin{bmatrix} & -1 & \\ & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji}$

$$\begin{bmatrix} & -1 & \\ 1 & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji}$

$$\begin{bmatrix} & -1 & -e \\ 1 & & \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji}$

$$\begin{bmatrix} & -1 & -e \\ 1 & & -3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \overset{i=j}{\rightsquigarrow} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji} \overset{i=j}{\rightsquigarrow} a_{ii} = -a_{ii}$

$$\begin{bmatrix} & -1 & -e \\ 1 & & -3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji} \xrightarrow{i=j} a_{ii} = -a_{ii}$

$$2a_{ii} = 0$$

$$\begin{bmatrix} & -1 & -e \\ 1 & & -3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji} \xrightarrow{i=j} a_{ii} = -a_{ii}$

$$2a_{ii} = 0$$

$$a_{ii} = 0$$

$$\begin{bmatrix} & -1 & -e \\ 1 & & -3 \\ e & 3 & \end{bmatrix}$$

Zadatak 2

Dopunite matricu

$$\begin{bmatrix} \cdot & -1 & \cdot \\ \cdot & \cdot & \cdot \\ e & 3 & \cdot \end{bmatrix}$$

tako da bude

a) *simetrična,*

b) *antisimetrična.*

Rješenje

a) $a_{ij} = a_{ji} \xrightarrow{i=j} a_{ii} = a_{ii}$

$$\begin{bmatrix} a & -1 & e \\ -1 & b & 3 \\ e & 3 & c \end{bmatrix} \qquad a, b, c \in \mathbb{R}$$

b) $a_{ij} = -a_{ji} \xrightarrow{i=j} a_{ii} = -a_{ii}$

$$2a_{ii} = 0$$

$$a_{ii} = 0$$

$$\begin{bmatrix} 0 & -1 & -e \\ 1 & 0 & -3 \\ e & 3 & 0 \end{bmatrix}$$

treći zadatak

Zadatak 3

Odredite $a, b \in \mathbb{R}$ *tako da matrica*

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

bude

a) *gornje trokutasta,*

b) *donje trokutasta.*

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$a - b = 0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$a - b = 0$$

$$a - 1 = 0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$a-b=0$$

$$a-1=0$$

$$b-1=0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a - b &= 0 \\ a - 1 &= 0 \\ b - 1 &= 0 \end{aligned}\right\}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \rightsquigarrow a = 1$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &\\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &\quad 1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a - b &= 0 \\ a - 1 &= 0 \\ b - 1 &= 0 \end{aligned}\right\} \begin{aligned} &1 - 1 = 0 \\ &\rightsquigarrow a = 1 \\ &\rightsquigarrow b = 1 \end{aligned}$$

$$A =$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &\color{blue}{1-1=0} \\ &\color{blue}{\rightsquigarrow}\ a=1 \\ &\color{blue}{\rightsquigarrow}\ b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$a = 0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$a = 0$$

$$b = 0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a - b &= 0 \\ a - 1 &= 0 \\ b - 1 &= 0 \end{aligned}\right\} \begin{aligned} &1 - 1 = 0 \\ &\rightsquigarrow a = 1 \\ &\rightsquigarrow b = 1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2 + 4b^2 & a & b \\ a - b & a^2 & a + b \\ a - 1 & b - 1 & b^2 \end{bmatrix}$$

$$\begin{aligned} a &= 0 \\ b &= 0 \\ a + b &= 0 \end{aligned}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \quad \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\}$$

a) gornje trokutasta matrica

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \quad \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) donje trokutasta matrica

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\} \rightsquigarrow a=0$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a=0 \\ &\rightsquigarrow b=0 \end{aligned}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a=0 \\ &\rightsquigarrow b=0 \\ &0+0=0 \end{aligned}$$

a) $\boxed{\text{gornje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \quad \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) $\boxed{\text{donje trokutasta matrica}}$

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\} \quad \begin{aligned} &\rightsquigarrow a=0 \\ &\rightsquigarrow b=0 \\ &0+0=0 \end{aligned}$$

$$A =$$

a) gornje trokutasta matrica

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a-b&=0 \\ a-1&=0 \\ b-1&=0 \end{aligned}\right\} \quad \begin{aligned} &1-1=0 \\ &\rightsquigarrow a=1 \\ &\rightsquigarrow b=1 \end{aligned}$$

$$A = \begin{bmatrix} 5 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

b) donje trokutasta matrica

$$A = \begin{bmatrix} a^2+4b^2 & a & b \\ a-b & a^2 & a+b \\ a-1 & b-1 & b^2 \end{bmatrix}$$

$$\left.\begin{aligned} a&=0 \\ b&=0 \\ a+b&=0 \end{aligned}\right\} \quad \begin{aligned} &\rightsquigarrow a=0 \\ &\rightsquigarrow b=0 \\ &0+0=0 \end{aligned}$$

$$A = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ -1 & -1 & 0 \end{bmatrix}$$

četvrti zadatak

Zadatak 4

Odredite $a, b \in \mathbb{R}$ *tako da matrica*

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

bude

a) *gornje trokutasta,*

b) *simetrična.*

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$a^2 - 9 = 0$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$a^2 - 9 = 0$

$a^2 + b = 0$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$a^2 - 9 = 0$$

$$a^2 + b = 0$$

$$b + 9 = 0$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \rightsquigarrow b = -9$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \quad \begin{aligned} &\rightsquigarrow a^2 - 9 = 0 \\ & \\ &\rightsquigarrow b = -9 \end{aligned}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow b=-9 \end{aligned}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow \left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 - 9 &= 0 \end{aligned}\right\} \\ &\rightsquigarrow b = -9 \end{aligned}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{array}{l} \rightsquigarrow \left.\begin{aligned} a^2-9&=0 \\ a^2-9&=0 \end{aligned}\right\} \rightsquigarrow a^2 = 9 \\ \rightsquigarrow b=-9 \end{array}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a^2 - 9 = 0 \\ &\rightsquigarrow a^2 - 9 = 0 \\ &\rightsquigarrow b = -9 \end{aligned}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 - 9 &= 0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2 &= 9 \\ a_1 &= 3 \end{aligned}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow \left.\begin{aligned} a^2-9=0 \\ a^2-9=0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2&=9 \\ a_1&=3 \\ a_2&=-3 \end{aligned} \\ &\rightsquigarrow b=-9 \end{aligned}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow \left.\begin{aligned} a^2 - 9 = 0 \\ a^2 - 9 = 0 \end{aligned}\right\} \rightsquigarrow a^2 = 9 \\ &\rightsquigarrow b = -9 \end{aligned}$$

$$a_1 = 3$$

$$a_2 = -3$$

$a = 3$

$b = -9$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow b=-9 \end{aligned}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2-9&=0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2&=9 \\ a_1&=3 \\ a_2&=-3 \end{aligned}$$

$a = 3$

$b = -9$

$B_1 =$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow b=-9 \end{aligned}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2-9&=0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2&=9 \\ a_1&=3 \\ a_2&=-3 \end{aligned}$$

$a=3$

$b=-9$

$$B_1 = \begin{bmatrix} 1 & 3 & -9 \\ 0 & 3 & 3 \\ 0 & 0 & 2 \end{bmatrix}$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow \left.\begin{aligned} a^2-9&=0 \\ a^2-9&=0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2&=9 \\ a_1&=3 \\ a_2&=-3 \end{aligned} \\ &\rightsquigarrow b=-9 \end{aligned}$$

$a=3$

$b=-9$

$$B_1 = \begin{bmatrix} 1 & 3 & -9 \\ 0 & 3 & 3 \\ 0 & 0 & 2 \end{bmatrix}$$

$a=-3$

$b=-9$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= 0 \\ a^2 + b &= 0 \\ b + 9 &= 0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow \left.\begin{aligned} a^2 - 9 = 0 \\ a^2 - 9 = 0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2 &= 9 \\ a_1 &= 3 \\ a_2 &= -3 \end{aligned} \\ &\rightsquigarrow b = -9 \end{aligned}$$

$a = 3$

$b = -9$

$$B_1 = \begin{bmatrix} 1 & 3 & -9 \\ 0 & 3 & 3 \\ 0 & 0 & 2 \end{bmatrix}$$

$a = -3$

$b = -9$

$$B_2 =$$

Rješenje

a) $\boxed{\text{gornje trokutasta matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2-9 & 3 & a \\ a^2+b & b+9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2+b&=0 \\ b+9&=0 \end{aligned}\right\} \begin{aligned} &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow a^2-9=0 \\ &\rightsquigarrow b=-9 \end{aligned}$$

$$\left.\begin{aligned} a^2-9&=0 \\ a^2-9&=0 \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2&=9 \\ a_1&=3 \\ a_2&=-3 \end{aligned}$$

$a=3$

$b=-9$

$$B_1 = \begin{bmatrix} 1 & 3 & -9 \\ 0 & 3 & 3 \\ 0 & 0 & 2 \end{bmatrix}$$

$a=-3$

$b=-9$

$$B_2 = \begin{bmatrix} 1 & -3 & -9 \\ 0 & 3 & -3 \\ 0 & 0 & 2 \end{bmatrix}$$

b) $\boxed{\text{simetrična matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & \boxed{a} & b \\ \boxed{a^2 - 9} & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & \boxed{a} & b \\ \boxed{a^2 - 9} & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$a^2 - 9 = a$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & \boxed{b} \\ a^2 - 9 & 3 & a \\ \boxed{a^2 + b} & b + 9 & 2 \end{bmatrix}$$

$$a^2 - 9 = a$$

b) $\boxed{\text{simetrična matrica}}$

$$B = \begin{bmatrix} 1 & a & \boxed{b} \\ a^2 - 9 & 3 & a \\ \boxed{a^2 + b} & b + 9 & 2 \end{bmatrix}$$

$$a^2 - 9 = a$$

$$a^2 + b = b$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & \boxed{a} \\ a^2 + b & \boxed{b+9} & 2 \end{bmatrix}$$

$$a^2 - 9 = a$$

$$a^2 + b = b$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & \boxed{a} \\ a^2 + b & \boxed{b + 9} & 2 \end{bmatrix}$$

$$a^2 - 9 = a$$

$$a^2 + b = b$$

$$b + 9 = a$$

b) $\boxed{\text{simetrična matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\}$$

b) $\boxed{\text{simetrična matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow a^2 = 0$$

b) $\boxed{\text{simetrična matrica}}$

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2 &= 0 \\ a &= 0 \end{aligned}$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2 &= 0 \\ &\boxed{a = 0} \end{aligned}$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow a^2 = 0, \quad \boxed{a = 0}$$

$$-9 = 0$$

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow a^2 = 0 \quad \boxed{a = 0}$$

$$-9 = 0$$

nema rješenja

b) simetrična matrica

$$B = \begin{bmatrix} 1 & a & b \\ a^2 - 9 & 3 & a \\ a^2 + b & b + 9 & 2 \end{bmatrix}$$

$$\left.\begin{aligned} a^2 - 9 &= a \\ a^2 + b &= b \\ b + 9 &= a \end{aligned}\right\} \rightsquigarrow \begin{aligned} a^2 &= 0 \\ \boxed{a = 0} \end{aligned} \qquad -9 = 0$$

nema rješenja

Ne postoje $a, b \in \mathbb{R}$ za koje bi matrica B bila simetrična matrica.

peti zadatak

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T =$$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} \quad \end{bmatrix}$$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & & \\ 2 & & \end{bmatrix}$$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & \\ 2 & -3 & \end{bmatrix}$$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)
$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) BA

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)
$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) BA

$(2, 4)$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) BA

$(2, 4)\ (3, 2)$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) BA

$(2, \boxed{4)\ (3}, 2)$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) BA

$(2,\boxed{4)\ (3},2)$

$\neq$

Zadatak 5

Zadane su matrice

$$A = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}.$$

Odredite:

a) A^T,

b) BA,

c) AB.

Rješenje

a)

$$A^T = \begin{bmatrix} 1 & 0 & 5 \\ 2 & -3 & 4 \end{bmatrix}$$

b) $BA \longleftarrow$ nije definirano

$$(2, \boxed{4)\ (3}, 2)$$

$$\neq$$

c)

$$AB =$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} .$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}$$

$(3, 2)$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}$$

$(3,2)\,(2,4)$

c)

$$AB = \begin{bmatrix}1 & 2\\ 0 & -3\\ 5 & 4\end{bmatrix} \cdot \begin{bmatrix}1 & 0 & -2 & 5\\ 8 & 4 & -1 & 3\end{bmatrix}$$

$(3,2)\,(2,4)$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix}$$

$$(3,\boxed{2)\,(2},4)$$

$$=$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} & & & \\ & & & \\ & & & \end{bmatrix}$$

$$(3,\underbrace{\boxed{2)\,(2}}_{=},4)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ & & & \\ & & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ & & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

c)

$$\underset{(3,\boxed{2)\,(2},4)}{AB} = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$=$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\;(2}},4)$$

$$AB = \begin{bmatrix} \quad & \quad & \quad & \quad \\ \quad & & & \\ \quad & & & \end{bmatrix}$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 1 \\ 8 \end{matrix}} & \begin{matrix} 0 \\ 4 \end{matrix} & \begin{matrix} -2 \\ -1 \end{matrix} & \begin{matrix} 5 \\ 3 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underbrace{\boxed{2)\ (2}}_{=}, 4)$$

$$AB = \begin{bmatrix} \\ \\ \\ \end{bmatrix}$$

$$c_{11} =$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix}1\\8\end{matrix}} & \begin{matrix}0\\4\end{matrix} & \begin{matrix}-2\\-1\end{matrix} & \begin{matrix}5\\3\end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, \boxed{2) \ (2}, 4)$

$=$

$$AB = \begin{bmatrix} \quad \\ \quad \\ \quad \end{bmatrix}$$

$$c_{11} = (1, 2) \cdot (1, 8)$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix}1\\8\end{matrix}} & \begin{matrix}0\\4\end{matrix} & \begin{matrix}-2\\-1\end{matrix} & \begin{matrix}5\\3\end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \boxed{2)\,(2}, 4)$$

$$=$$

$$AB = \begin{bmatrix} \\ \\ \\ \end{bmatrix}$$

$$c_{11} = (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix}1\\8\end{matrix}} & \begin{matrix}0\\4\end{matrix} & \begin{matrix}-2\\-1\end{matrix} & \begin{matrix}5\\3\end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \boxed{2)\,(2}, 4)$$

$$AB = \begin{bmatrix} 17 & & & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1, 2) \cdot (1, 8) = 1 \cdot 1 + 2 \cdot 8 = 17$$

c)

$$\begin{array}{c} AB = \\ (3,\boxed{2)\ (2},4) \\ = \end{array} \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{0} & -2 & 5 \\ 8 & \boxed{4} & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & & & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17$$

$$c_{12} =$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{0} & -2 & 5 \\ 8 & \boxed{4} & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, \underset{=}{\boxed{2)\,(2}}, 4)$

$$AB = \begin{bmatrix} 17 & & & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1, 2) \cdot (1, 8) = 1 \cdot 1 + 2 \cdot 8 = 17$$
$$c_{12} = (1, 2) \cdot (0, 4)$$

c)

$(3, 2)\,(2, 4)$

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & & & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1, 2) \cdot (1, 8) = 1 \cdot 1 + 2 \cdot 8 = 17$$
$$c_{12} = (1, 2) \cdot (0, 4) = 1 \cdot 0 + 2 \cdot 4$$

c)

$$
AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}
$$

$$
(3,\underset{=}{\boxed{2)\,(2}},4)
$$

$$
AB = \begin{bmatrix} 17 & 8 & & \\ & & & \\ & & & \end{bmatrix}
$$

$$
\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8
\end{aligned}
$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underbrace{\boxed{2)\,(2}}_{=}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & & \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\ c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\ c_{13} &= \end{aligned}$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & \boxed{\begin{matrix} -2 \\ -1 \end{matrix}} & 5 \\ 8 & 4 & & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{2)\,(2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & & \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\ c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\ c_{13} &= (1,2)\cdot(-2,-1) \end{aligned}$$

c)

$$\underset{\underset{=}{(3,\boxed{2)\ (2},4)}}{AB} = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & & \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\ c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\ c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) \end{aligned}$$

c)

$$(3,\boxed{2)\,(2},4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$=$

$$AB = \begin{bmatrix} 17 & 8 & -4 & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17$$
$$c_{12} = (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8$$
$$c_{13} = (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{2)\,(2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\
c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4 \\
c_{14} &=
\end{aligned}$$

c)

$$AB = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{5} \\ 8 & 4 & -1 & \boxed{3} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underbrace{\boxed{2)\ (2}}_{=}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17 \\ c_{12} &= (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8 \\ c_{13} &= (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4 \\ c_{14} &= (1,2) \cdot (5,3) \end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17$$
$$c_{12} = (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8$$
$$c_{13} = (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4$$
$$c_{14} = (1,2) \cdot (5,3) = 1 \cdot 5 + 2 \cdot 3$$

c)

$$\underset{(3,\boxed{2)\;(2},4)}{AB} = \begin{bmatrix} \boxed{1 \quad 2} \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{\begin{matrix} 5 \\ 3 \end{matrix}} \\ 8 & 4 & -1 & \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$=$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17 \\ c_{12} &= (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8 \\ c_{13} &= (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4 \\ c_{14} &= (1,2) \cdot (5,3) = 1 \cdot 5 + 2 \cdot 3 = 11 \end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 1 \\ 8 \end{matrix}} & \begin{matrix} 0 \\ 4 \end{matrix} & \begin{matrix} -2 \\ -1 \end{matrix} & \begin{matrix} 5 \\ 3 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underbrace{\boxed{2)\,(2}}_{=},4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\
c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4 \\
c_{14} &= (1,2)\cdot(5,3) = 1\cdot 5 + 2\cdot 3 = 11 \\
c_{21} &=
\end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix}1\\8\end{matrix}} & \begin{matrix}0\\4\end{matrix} & \begin{matrix}-2\\-1\end{matrix} & \begin{matrix}5\\3\end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{2) \; (2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ & & & \\ & & & \end{bmatrix}$$

$$c_{11} = (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17$$
$$c_{12} = (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8$$
$$c_{13} = (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4$$
$$c_{14} = (1,2) \cdot (5,3) = 1 \cdot 5 + 2 \cdot 3 = 11$$
$$c_{21} = (0,-3) \cdot (1,8)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\
c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4 \\
c_{14} &= (1,2)\cdot(5,3) = 1\cdot 5 + 2\cdot 3 = 11 \\
c_{21} &= (0,-3)\cdot(1,8) = 0\cdot 1 + (-3)\cdot 8
\end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{2)\,(2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\
c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4 \\
c_{14} &= (1,2)\cdot(5,3) = 1\cdot 5 + 2\cdot 3 = 11 \\
c_{21} &= (0,-3)\cdot(1,8) = 0\cdot 1 + (-3)\cdot 8 = -24
\end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, \underset{=}{\boxed{2)\,(2}}, 4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17 \\
c_{12} &= (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8 \\
c_{13} &= (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4 \\
c_{14} &= (1,2) \cdot (5,3) = 1 \cdot 5 + 2 \cdot 3 = 11 \\
c_{21} &= (0,-3) \cdot (1,8) = 0 \cdot 1 + (-3) \cdot 8 = -24 \\
c_{22} &=
\end{aligned}$$

c)

$$\underset{\underset{=}{(3,\boxed{2)\,(2},4)}}{AB} = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{\begin{matrix} 0 \\ 4 \end{matrix}} & -2 & 5 \\ 8 & & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2) \cdot (1,8) = 1 \cdot 1 + 2 \cdot 8 = 17 \\
c_{12} &= (1,2) \cdot (0,4) = 1 \cdot 0 + 2 \cdot 4 = 8 \\
c_{13} &= (1,2) \cdot (-2,-1) = 1 \cdot (-2) + 2 \cdot (-1) = -4 \\
c_{14} &= (1,2) \cdot (5,3) = 1 \cdot 5 + 2 \cdot 3 = 11 \\
c_{21} &= (0,-3) \cdot (1,8) = 0 \cdot 1 + (-3) \cdot 8 = -24 \\
c_{22} &= (0,-3) \cdot (0,4)
\end{aligned}$$

c)

$$(3,\underset{=}{\boxed{2)\ (2}},4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1,2)\cdot(1,8) = 1\cdot 1 + 2\cdot 8 = 17 \\
c_{12} &= (1,2)\cdot(0,4) = 1\cdot 0 + 2\cdot 4 = 8 \\
c_{13} &= (1,2)\cdot(-2,-1) = 1\cdot(-2) + 2\cdot(-1) = -4 \\
c_{14} &= (1,2)\cdot(5,3) = 1\cdot 5 + 2\cdot 3 = 11 \\
c_{21} &= (0,-3)\cdot(1,8) = 0\cdot 1 + (-3)\cdot 8 = -24 \\
c_{22} &= (0,-3)\cdot(0,4) = 0\cdot 0 + (-3)\cdot 4
\end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{\begin{matrix} 0 \\ 4 \end{matrix}} & -2 & 5 \\ 8 & & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{2)\,(2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & & \\ & & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (1, 2) \cdot (1, 8) = 1 \cdot 1 + 2 \cdot 8 = 17 \\
c_{12} &= (1, 2) \cdot (0, 4) = 1 \cdot 0 + 2 \cdot 4 = 8 \\
c_{13} &= (1, 2) \cdot (-2, -1) = 1 \cdot (-2) + 2 \cdot (-1) = -4 \\
c_{14} &= (1, 2) \cdot (5, 3) = 1 \cdot 5 + 2 \cdot 3 = 11 \\
c_{21} &= (0, -3) \cdot (1, 8) = 0 \cdot 1 + (-3) \cdot 8 = -24 \\
c_{22} &= (0, -3) \cdot (0, 4) = 0 \cdot 0 + (-3) \cdot 4 = -12
\end{aligned}$$

c)

$(3, 2)\ (2, 4)$

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & & \\ & & & \end{bmatrix}$$

$$c_{23} =$$

c)

$$(3,2)\,(2,4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & & \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3,\underset{=}{\boxed{2)\,(2}},4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & & \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1)$$

c)

$(3,2)\;(2,4)$

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & \\ & & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$

c)

$$(3,\underset{=}{\boxed{2)\,(2}},4) \qquad AB = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{5} \\ 8 & 4 & -1 & \boxed{3} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$

$$c_{24} =$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, 2)\ (2, 4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$

$$c_{24} = (0, -3) \cdot (5, 3)$$

c)

$$\underset{(3,\boxed{2)\,(2},4)}{AB} = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{5} \\ 8 & 4 & -1 & \boxed{3} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & \\ & & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$
$$c_{24} = (0,-3)\cdot(5,3) = 0\cdot 5 + (-3)\cdot 3$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ \boxed{0 \quad -3} \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{5} \\ 8 & 4 & -1 & \boxed{3} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,2)\,(2,4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ & & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$
$$c_{24} = (0,-3)\cdot(5,3) = 0\cdot 5 + (-3)\cdot 3 = -9$$

c)

$$(3,\underset{=}{\boxed{2)\,(2}},4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ & & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$

$$c_{24} = (0,-3)\cdot(5,3) = 0\cdot 5 + (-3)\cdot 3 = -9$$

$$c_{31} =$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, \boxed{2)\ (2}, 4)$
$=$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$
$$c_{24} = (0, -3) \cdot (5, 3) = 0 \cdot 5 + (-3) \cdot 3 = -9$$
$$c_{31} = (5, 4) \cdot (1, 8)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, 2)\ (2, 4)$

$=$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$
$$c_{24} = (0, -3) \cdot (5, 3) = 0 \cdot 5 + (-3) \cdot 3 = -9$$
$$c_{31} = (5, 4) \cdot (1, 8) = 5 \cdot 1 + 4 \cdot 8$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, 2)\,(2, 4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$
$$c_{24} = (0, -3) \cdot (5, 3) = 0 \cdot 5 + (-3) \cdot 3 = -9$$
$$c_{31} = (5, 4) \cdot (1, 8) = 5 \cdot 1 + 4 \cdot 8 = 37$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{0} & -2 & 5 \\ 8 & \boxed{4} & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3,\underset{=}{\boxed{2)\,(2}},4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$

$$c_{24} = (0,-3)\cdot(5,3) = 0\cdot 5 + (-3)\cdot 3 = -9$$

$$c_{31} = (5,4)\cdot(1,8) = 5\cdot 1 + 4\cdot 8 = 37$$

$$c_{32} =$$

c)

$$(3,2)\,(2,4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & & & \end{bmatrix}$$

$$\begin{aligned}
c_{23} &= (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3 \\
c_{24} &= (0,-3)\cdot(5,3) = 0\cdot 5 + (-3)\cdot 3 = -9 \\
c_{31} &= (5,4)\cdot(1,8) = 5\cdot 1 + 4\cdot 8 = 37 \\
c_{32} &= (5,4)\cdot(0,4)
\end{aligned}$$

c)

$$(3, \underset{=}{\boxed{2)\ (2}}, 4) \qquad AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & \boxed{\begin{matrix} 0 \\ 4 \end{matrix}} & -2 & 5 \\ 8 & & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & & & \end{bmatrix}$$

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$$c_{32} = (5, 4) \cdot (0, 4) = 5 \cdot 0 + 4 \cdot 4$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, 2)\ (2, 4)$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$
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c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underbrace{\boxed{2)\,(2}}_{=}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & & \end{bmatrix}$$

$$c_{23} = (0,-3)\cdot(-2,-1) = 0\cdot(-2) + (-3)\cdot(-1) = 3$$
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$$c_{33} =$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & \boxed{\begin{matrix} -2 \\ -1 \end{matrix}} & \begin{matrix} 5 \\ 3 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$(3, \boxed{2)\ (2}, 4)$ $=$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & & \end{bmatrix}$$

$$c_{23} = (0, -3) \cdot (-2, -1) = 0 \cdot (-2) + (-3) \cdot (-1) = 3$$
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$$c_{33} = (5, 4) \cdot (-2, -1)$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & \boxed{\begin{matrix}-2 \\ -1\end{matrix}} & 5 \\ 8 & 4 & & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & & \end{bmatrix}$$

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c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3, \underbrace{\boxed{2)\,(2}}_{=}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & -14 & \end{bmatrix}$$

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c)

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$$(3, \underset{=}{\boxed{2)\,(2}}, 4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & -14 & \end{bmatrix}$$

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c_{33} &= (5, 4) \cdot (-2, -1) = 5 \cdot (-2) + 4 \cdot (-1) = -14 \\
c_{34} &=
\end{aligned}$$

c)

$$\underset{(3,\boxed{2)\,(2},4)}{AB} = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

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c_{34} &= (5, 4) \cdot (5, 3)
\end{aligned}$$

c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ \boxed{5 \quad 4} \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & \boxed{\begin{matrix} 5 \\ 3 \end{matrix}} \\ 8 & 4 & -1 & \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

$$AB = \begin{bmatrix} 17 & 8 & -4 & 11 \\ -24 & -12 & 3 & -9 \\ 37 & 16 & -14 & \end{bmatrix}$$

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c)

$$AB = \begin{bmatrix} 1 & 2 \\ 0 & -3 \\ 5 & 4 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 & -2 & 5 \\ 8 & 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} & c_{14} \\ c_{21} & c_{22} & c_{23} & c_{24} \\ c_{31} & c_{32} & c_{33} & c_{34} \end{bmatrix}$$

$$(3,\underbrace{2)\,(2}_{=},4)$$

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c)

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$$(3,\underset{=}{\boxed{2)\,(2}},4)$$

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$$c_{34} = (5,4)\cdot(5,3) = 5\cdot 5 + 4\cdot 3 = 37$$

šesti zadatak

Zadatak 6

Odredite matricu $3AB - 7BA$ ako je

$$A = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}.$$

Zadatak 6

Odredite matricu $3AB - 7BA$ ako je

$$A = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}.$$

Rješenje

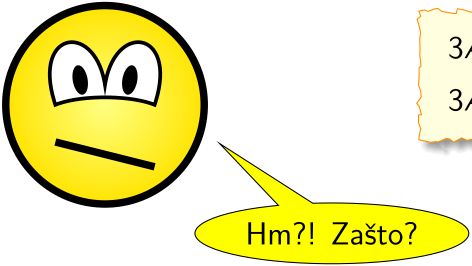
$$3AB - 7BA \neq -4AB$$
$$3AB - 7BA \neq -4BA$$

Zadatak 6

Odredite matricu $3AB - 7BA$ *ako je*

$$A = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \quad i \quad B = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}.$$

Rješenje



$$3AB - 7BA \neq -4AB$$

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Zadatak 6

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Rješenje

$$3AB - 7BA \neq -4AB$$

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$AB =$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

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$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

$(3, 3)$

$$\underset{(3,3)}{A}\,\underset{(3,3)}{B} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

$(3, \boxed{3)\ (3}, 3)$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

$$(3, \boxed{3)\ (3}, 3)$$

$$=$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$\underset{(3,\boxed{3)\,(3},3)}{AB} \underset{}{=} \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ & & \\ & & \end{bmatrix}$$

$=$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ & & \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\,(3}}_{=}, 3)$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$\underset{(3,\underbrace{\boxed{3)\,(3}}_{=},3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} \quad & \quad & \quad \\ & & \\ & & \end{bmatrix}$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ 2 \\ -5 \end{matrix}} & \begin{matrix} 7 \\ 1 \\ 3 \end{matrix} & \begin{matrix} -4 \\ 0 \\ 2 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \boxed{3)\ (3}, 3)$$

$$=$$

$$AB = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$c_{11} =$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underbrace{\boxed{3)\,(3}}_{=},3)$$

$$AB = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5)$$

$$\underset{(3,\,\underset{=}{\boxed{3)\,(3}},\,3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5)$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{7} & -4 \\ 2 & \boxed{1} & 0 \\ -5 & \boxed{3} & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \boxed{3)\,(3}, 3) \quad \underset{=}{}$$

$$AB = \begin{bmatrix} 31 & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$

$$c_{12} =$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$

$$c_{12} = (3, 1, -4) \cdot (7, 1, 3)$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\ (3}}_{=}, 3)$$

$$AB = \begin{bmatrix} 31 & & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$
$$c_{12} = (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{7} & -4 \\ 2 & \boxed{1} & 0 \\ -5 & \boxed{3} & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31$$
$$c_{12} = (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10$$

$$\underset{(3,\underset{=}{\boxed{3)\,(3}},3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31 \\ c_{12} &= (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10 \\ c_{13} &= \end{aligned}$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & \boxed{-4} \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned} c_{11} &= (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31 \\ c_{12} &= (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10 \\ c_{13} &= (3, 1, -4) \cdot (-4, 0, 2) \end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31 \\
c_{12} &= (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10 \\
c_{13} &= (3,1,-4)\cdot(-4,0,2) = 3\cdot(-4) + 1\cdot 0 + (-4)\cdot 2
\end{aligned}$$

$$AB = \begin{bmatrix} \boxed{3 \quad 1 \quad -4} \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & \boxed{-4} \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$(3, \boxed{3)\,(3}, 3)$

$=$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$
$$c_{12} = (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10$$
$$c_{13} = (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$
$$c_{12} = (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10$$
$$c_{13} = (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20$$
$$c_{21} =$$

$$(3,\underset{=}{\boxed{3)\,(3}},3) \qquad AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31 \\
c_{12} &= (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10 \\
c_{13} &= (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20 \\
c_{21} &= (-4, 6, -2) \cdot (3, 2, -5)
\end{aligned}$$

$$\underset{(3,\boxed{3)\,(3},3)}{} \quad AB = \begin{bmatrix} 3 & 1 & -4 \\ \boxed{-4 \quad 6 \quad -2} \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ 2 \\ -5 \end{matrix}} & \begin{matrix} 7 \\ 1 \\ 3 \end{matrix} & \begin{matrix} -4 \\ 0 \\ 2 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$=$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ & & \\ & & \end{bmatrix}$$

$$c_{11} = (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31$$

$$c_{12} = (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10$$

$$c_{13} = (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20$$

$$c_{21} = (-4, 6, -2) \cdot (3, 2, -5) = -4 \cdot 3 + 6 \cdot 2 + (-2) \cdot (-5)$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & & \\ & & \end{bmatrix}$$

$$c_{11} = (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31$$

$$c_{12} = (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10$$

$$c_{13} = (3,1,-4)\cdot(-4,0,2) = 3\cdot(-4) + 1\cdot 0 + (-4)\cdot 2 = -20$$

$$c_{21} = (-4,6,-2)\cdot(3,2,-5) = -4\cdot 3 + 6\cdot 2 + (-2)\cdot(-5) = 10$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\ (3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31 \\
c_{12} &= (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10 \\
c_{13} &= (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20 \\
c_{21} &= (-4, 6, -2) \cdot (3, 2, -5) = -4 \cdot 3 + 6 \cdot 2 + (-2) \cdot (-5) = 10 \\
c_{22} &=
\end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \boxed{3)\,(3}, 3)$$
$$=$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31 \\
c_{12} &= (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10 \\
c_{13} &= (3,1,-4)\cdot(-4,0,2) = 3\cdot(-4) + 1\cdot 0 + (-4)\cdot 2 = -20 \\
c_{21} &= (-4,6,-2)\cdot(3,2,-5) = -4\cdot 3 + 6\cdot 2 + (-2)\cdot(-5) = 10 \\
c_{22} &= (-4,6,-2)\cdot(7,1,3)
\end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\ (3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3,1,-4)\cdot(3,2,-5) = 3\cdot 3 + 1\cdot 2 + (-4)\cdot(-5) = 31 \\
c_{12} &= (3,1,-4)\cdot(7,1,3) = 3\cdot 7 + 1\cdot 1 + (-4)\cdot 3 = 10 \\
c_{13} &= (3,1,-4)\cdot(-4,0,2) = 3\cdot(-4) + 1\cdot 0 + (-4)\cdot 2 = -20 \\
c_{21} &= (-4,6,-2)\cdot(3,2,-5) = -4\cdot 3 + 6\cdot 2 + (-2)\cdot(-5) = 10 \\
c_{22} &= (-4,6,-2)\cdot(7,1,3) = -4\cdot 7 + 6\cdot 1 + (-2)\cdot 3
\end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\ (3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & \\ & & \end{bmatrix}$$

$$\begin{aligned}
c_{11} &= (3, 1, -4) \cdot (3, 2, -5) = 3 \cdot 3 + 1 \cdot 2 + (-4) \cdot (-5) = 31 \\
c_{12} &= (3, 1, -4) \cdot (7, 1, 3) = 3 \cdot 7 + 1 \cdot 1 + (-4) \cdot 3 = 10 \\
c_{13} &= (3, 1, -4) \cdot (-4, 0, 2) = 3 \cdot (-4) + 1 \cdot 0 + (-4) \cdot 2 = -20 \\
c_{21} &= (-4, 6, -2) \cdot (3, 2, -5) = -4 \cdot 3 + 6 \cdot 2 + (-2) \cdot (-5) = 10 \\
c_{22} &= (-4, 6, -2) \cdot (7, 1, 3) = -4 \cdot 7 + 6 \cdot 1 + (-2) \cdot 3 = -28
\end{aligned}$$

$$\underset{(3,\underset{=}{\boxed{3)\,(3}},3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & \\ & & \end{bmatrix}$$

$c_{23} =$

$$(3,\underset{=}{\boxed{3)\,(3}},3) \quad AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2)$$

$$(3,\boxed{3})\,(\boxed{3},3) \quad AB = \begin{bmatrix} 3 & 1 & -4 \\ \boxed{-4 \quad 6 \quad -2} \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$=$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2$$

$$\underset{(3,\underset{=}{\boxed{3)\,(3}},3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ \boxed{-4 \quad 6 \quad -2} \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$(3,\underset{=}{\boxed{3)\,(3}},3) \quad AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} =$$

$$(3,\underset{=}{\boxed{3)\,(3}},3) \qquad AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ \boxed{5 \quad 8 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ 2 \\ -5 \end{matrix}} & \begin{matrix} 7 \\ 1 \\ 3 \end{matrix} & \begin{matrix} -4 \\ 0 \\ 2 \end{matrix} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5)$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,3)\,(3,3)$$

$$=$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5)$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$

$$c_{32} =$$

$$(3,\underset{=}{\boxed{3)\,(3}},3) \qquad AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$

$$c_{32} = (5, 8, 5) \cdot (7, 1, 3)$$

$$
\begin{array}{c} AB = \\ (3, \underset{=}{\boxed{3)\,(3}}, 3) \end{array}
\begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}
$$

$$
AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & & \end{bmatrix}
$$

$$
\begin{aligned}
c_{23} &= (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12 \\
c_{31} &= (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6 \\
c_{32} &= (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3
\end{aligned}
$$

$$
\underset{(3,\boxed{3)\,(3},3)}{AB} = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}
$$

$$
AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & \end{bmatrix}
$$

$$
\begin{aligned}
c_{23} &= (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12 \\
c_{31} &= (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6 \\
c_{32} &= (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3 = 58
\end{aligned}
$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ \boxed{5 \quad 8 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$

$$c_{32} = (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3 = 58$$

$$c_{33} =$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ \boxed{5 \quad 8 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & \end{bmatrix}$$

$$\begin{aligned}
c_{23} &= (-4,6,-2)\cdot(-4,0,2) = -4\cdot(-4)+6\cdot 0+(-2)\cdot 2 = 12 \\
c_{31} &= (5,8,5)\cdot(3,2,-5) = 5\cdot 3+8\cdot 2+5\cdot(-5) = 6 \\
c_{32} &= (5,8,5)\cdot(7,1,3) = 5\cdot 7+8\cdot 1+5\cdot 3 = 58 \\
c_{33} &= (5,8,5)\cdot(-4,0,2)
\end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & \end{bmatrix}$$

$$\begin{aligned}
c_{23} &= (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12 \\
c_{31} &= (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6 \\
c_{32} &= (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3 = 58 \\
c_{33} &= (5, 8, 5) \cdot (-4, 0, 2) = 5 \cdot (-4) + 8 \cdot 0 + 5 \cdot 2
\end{aligned}$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$
$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$
$$c_{32} = (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3 = 58$$
$$c_{33} = (5, 8, 5) \cdot (-4, 0, 2) = 5 \cdot (-4) + 8 \cdot 0 + 5 \cdot 2 = -10$$

$$AB = \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$AB = \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix}$$

$$c_{23} = (-4, 6, -2) \cdot (-4, 0, 2) = -4 \cdot (-4) + 6 \cdot 0 + (-2) \cdot 2 = 12$$

$$c_{31} = (5, 8, 5) \cdot (3, 2, -5) = 5 \cdot 3 + 8 \cdot 2 + 5 \cdot (-5) = 6$$

$$c_{32} = (5, 8, 5) \cdot (7, 1, 3) = 5 \cdot 7 + 8 \cdot 1 + 5 \cdot 3 = 58$$

$$c_{33} = (5, 8, 5) \cdot (-4, 0, 2) = 5 \cdot (-4) + 8 \cdot 0 + 5 \cdot 2 = -10$$

$BA =$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix}$$

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$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

$(3, 3)$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

$$(3,3)\,(3,3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

$$(3, 3)\ (3, 3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$(3,\boxed{3)\,(3},3)$$
$$=$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ & & \\ & & \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\ (3}}_{=}, 3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\ (3}},3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\;(3}},3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} \quad & \quad & \quad \\ \quad & \quad & \quad \\ \quad & \quad & \quad \end{bmatrix}$$

$d_{11} =$

$$BA = \begin{bmatrix} \boxed{3 \quad 7 \quad -4} \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -4 \\ 5 \end{matrix}} & \begin{matrix} 1 \\ 6 \\ 8 \end{matrix} & \begin{matrix} -4 \\ -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\ (3}}, 3)$$

$$BA = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5)$$

$$BA = \begin{bmatrix} \boxed{3 \quad 7 \quad -4} \\ 2 \quad 1 \quad 0 \\ -5 \quad 3 \quad 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3,7,-4) \cdot (3,-4,5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$BA = \begin{bmatrix} -39 & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39$$

$$d_{12} =$$

$$BA = \begin{bmatrix} \boxed{3 \quad 7 \quad -4} \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{1} & -4 \\ -4 & \boxed{6} & -2 \\ 5 & \boxed{8} & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\,(3}}_{=}, 3)$$

$$BA = \begin{bmatrix} -39 & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39$$
$$d_{12} = (3, 7, -4) \cdot (1, 6, 8)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39$$
$$d_{12} = (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8$$

$$
BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}
$$

$$
(3, \underset{=}{3)\,(3}, 3)
$$

$$
BA = \begin{bmatrix} -39 & 13 & \\ & & \\ & & \end{bmatrix}
$$

$$
d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39
$$

$$
d_{12} = (3, 7, -4) \cdot (1, 6, 8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13
$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & \\ & & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39$$
$$d_{12} = (3, 7, -4) \cdot (1, 6, 8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13$$
$$d_{13} =$$

$$
\begin{array}{c} BA = \\ (3,\underbrace{\boxed{3)\,(3}}_{=},3) \end{array}
\begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}
$$

$$
BA = \begin{bmatrix} -39 & 13 & \\ & & \\ & & \end{bmatrix}
$$

$$
\begin{aligned}
d_{11} &= (3,7,-4) \cdot (3,-4,5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39 \\
d_{12} &= (3,7,-4) \cdot (1,6,8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13 \\
d_{13} &= (3,7,-4) \cdot (-4,-2,5)
\end{aligned}
$$

$$\underset{(3,\underset{=}{\boxed{3)\,(3}},3)}{BA} = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned} d_{11} &= (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39 \\ d_{12} &= (3, 7, -4) \cdot (1, 6, 8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13 \\ d_{13} &= (3, 7, -4) \cdot (-4, -2, 5) = 3 \cdot (-4) + 7 \cdot (-2) + (-4) \cdot 5 \end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39 \\
d_{12} &= (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13 \\
d_{13} &= (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underbrace{\boxed{3)\,(3}}_{=},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39 \\
d_{12} &= (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13 \\
d_{13} &= (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46 \\
d_{21} &=
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39 \\
d_{12} &= (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13 \\
d_{13} &= (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46 \\
d_{21} &= (2,1,0)\cdot(3,-4,5)
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ \boxed{2 \quad 1 \quad 0} \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39 \\
d_{12} &= (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13 \\
d_{13} &= (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46 \\
d_{21} &= (2,1,0)\cdot(3,-4,5) = 2\cdot 3 + 1\cdot(-4) + 0\cdot 5
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & & \\ & & \end{bmatrix}$$

$$d_{11} = (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39$$
$$d_{12} = (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13$$
$$d_{13} = (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46$$
$$d_{21} = (2,1,0)\cdot(3,-4,5) = 2\cdot 3 + 1\cdot(-4) + 0\cdot 5 = 2$$

$$\underset{(3,\boxed{3)\,(3},3)}{BA} = \begin{bmatrix} 3 & 7 & -4 \\ \boxed{2 \quad 1 \quad 0} \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{1} & -4 \\ -4 & \boxed{6} & -2 \\ 5 & \boxed{8} & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4) \cdot (3,-4,5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39 \\
d_{12} &= (3,7,-4) \cdot (1,6,8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13 \\
d_{13} &= (3,7,-4) \cdot (-4,-2,5) = 3 \cdot (-4) + 7 \cdot (-2) + (-4) \cdot 5 = -46 \\
d_{21} &= (2,1,0) \cdot (3,-4,5) = 2 \cdot 3 + 1 \cdot (-4) + 0 \cdot 5 = 2 \\
d_{22} &=
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\ (3}}_{=}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39 \\
d_{12} &= (3, 7, -4) \cdot (1, 6, 8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13 \\
d_{13} &= (3, 7, -4) \cdot (-4, -2, 5) = 3 \cdot (-4) + 7 \cdot (-2) + (-4) \cdot 5 = -46 \\
d_{21} &= (2, 1, 0) \cdot (3, -4, 5) = 2 \cdot 3 + 1 \cdot (-4) + 0 \cdot 5 = 2 \\
d_{22} &= (2, 1, 0) \cdot (1, 6, 8)
\end{aligned}$$

$$\underset{(3,\boxed{3)\,(3},3)}{BA} = \begin{bmatrix} 3 & 7 & -4 \\ \boxed{2 \quad 1 \quad 0} \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{1} & -4 \\ -4 & \boxed{6} & -2 \\ 5 & \boxed{8} & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & & \\ & & \end{bmatrix}$$

$$\begin{aligned}
d_{11} &= (3,7,-4)\cdot(3,-4,5) = 3\cdot 3 + 7\cdot(-4) + (-4)\cdot 5 = -39 \\
d_{12} &= (3,7,-4)\cdot(1,6,8) = 3\cdot 1 + 7\cdot 6 + (-4)\cdot 8 = 13 \\
d_{13} &= (3,7,-4)\cdot(-4,-2,5) = 3\cdot(-4) + 7\cdot(-2) + (-4)\cdot 5 = -46 \\
d_{21} &= (2,1,0)\cdot(3,-4,5) = 2\cdot 3 + 1\cdot(-4) + 0\cdot 5 = 2 \\
d_{22} &= (2,1,0)\cdot(1,6,8) = 2\cdot 1 + 1\cdot 6 + 0\cdot 8
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ \boxed{2 \quad 1 \quad 0} \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{1} & -4 \\ -4 & \boxed{6} & -2 \\ 5 & \boxed{8} & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underbrace{\boxed{3)\,(3}}_{=},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & \\ & & \end{bmatrix}$$

$$d_{11} = (3, 7, -4) \cdot (3, -4, 5) = 3 \cdot 3 + 7 \cdot (-4) + (-4) \cdot 5 = -39$$
$$d_{12} = (3, 7, -4) \cdot (1, 6, 8) = 3 \cdot 1 + 7 \cdot 6 + (-4) \cdot 8 = 13$$
$$d_{13} = (3, 7, -4) \cdot (-4, -2, 5) = 3 \cdot (-4) + 7 \cdot (-2) + (-4) \cdot 5 = -46$$
$$d_{21} = (2, 1, 0) \cdot (3, -4, 5) = 2 \cdot 3 + 1 \cdot (-4) + 0 \cdot 5 = 2$$
$$d_{22} = (2, 1, 0) \cdot (1, 6, 8) = 2 \cdot 1 + 1 \cdot 6 + 0 \cdot 8 = 8$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underbrace{\boxed{3)\,(3}}_{=},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & \\ & & \end{bmatrix}$$

$d_{23} =$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & \\ & & \end{bmatrix}$$

$$d_{23} = (2, 1, 0) \cdot (-4, -2, 5)$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & \\ & & \end{bmatrix}$$

$$d_{23} = (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5$$

$$\underset{(3,\underset{=}{\boxed{3)\,(3}},3)}{BA} = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ & & \end{bmatrix}$$

$$d_{23} = (2,1,0) \cdot (-4,-2,5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ & & \end{bmatrix}$$

$$d_{23} = (2,1,0) \cdot (-4,-2,5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10$$

$$d_{31} =$$

$$
\underset{(3,\underbrace{3)\,(3}_{=},3)}{BA} = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}
$$

$$
BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ & & \end{bmatrix}
$$

$$
\begin{aligned}
d_{23} &= (2, 1, 0) \cdot (-4, -2, 5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10 \\
d_{31} &= (-5, 3, 2) \cdot (3, -4, 5)
\end{aligned}
$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ \boxed{-5 \quad 3 \quad 2} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -4 \\ 5 \end{matrix}} & \begin{matrix} 1 \\ 6 \\ 8 \end{matrix} & \begin{matrix} -4 \\ -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ & & \end{bmatrix}$$

$$d_{23} = (2, 1, 0) \cdot (-4, -2, 5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10$$
$$d_{31} = (-5, 3, 2) \cdot (3, -4, 5) = -5 \cdot 3 + 3 \cdot (-4) + 2 \cdot 5$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ \boxed{-5 \quad 3 \quad 2} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -4 \\ 5 \end{matrix}} & \begin{matrix} 1 \\ 6 \\ 8 \end{matrix} & \begin{matrix} -4 \\ -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\,(3}}_{=}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & & \end{bmatrix}$$

$$d_{23} = (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10$$

$$d_{31} = (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17$$

$$(3,\underbrace{\boxed{3)\,(3}}_{=},3) \quad BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & & \end{bmatrix}$$

$$\begin{aligned} d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10 \\ d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17 \\ d_{32} &= \end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & & \end{bmatrix}$$

$$\begin{aligned} d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10 \\ d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17 \\ d_{32} &= (-5,3,2)\cdot(1,6,8) \end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underset{=}{\boxed{3)\,(3}}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & & \end{bmatrix}$$

$$\begin{aligned} d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10 \\ d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17 \\ d_{32} &= (-5,3,2)\cdot(1,6,8) = -5\cdot 1 + 3\cdot 6 + 2\cdot 8 \end{aligned}$$

$$\underset{\underset{=}{\boxed{3)\,(3}}}{(3,\,3)\,(3,\,3)}\quad BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ \boxed{-5 \quad 3 \quad 2} \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{1} & -4 \\ -4 & \boxed{6} & -2 \\ 5 & \boxed{8} & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & \end{bmatrix}$$

$$\begin{aligned} d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10 \\ d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17 \\ d_{32} &= (-5,3,2)\cdot(1,6,8) = -5\cdot 1 + 3\cdot 6 + 2\cdot 8 = 29 \end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ \boxed{-5 \quad 3 \quad 2} \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3, \underbrace{\boxed{3)\,(3}}_{=}, 3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & \end{bmatrix}$$

$$\begin{aligned}
d_{23} &= (2, 1, 0) \cdot (-4, -2, 5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10 \\
d_{31} &= (-5, 3, 2) \cdot (3, -4, 5) = -5 \cdot 3 + 3 \cdot (-4) + 2 \cdot 5 = -17 \\
d_{32} &= (-5, 3, 2) \cdot (1, 6, 8) = -5 \cdot 1 + 3 \cdot 6 + 2 \cdot 8 = 29 \\
d_{33} &=
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\;(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & \end{bmatrix}$$

$$\begin{aligned}
d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4) + 1\cdot(-2) + 0\cdot 5 = -10 \\
d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3 + 3\cdot(-4) + 2\cdot 5 = -17 \\
d_{32} &= (-5,3,2)\cdot(1,6,8) = -5\cdot 1 + 3\cdot 6 + 2\cdot 8 = 29 \\
d_{33} &= (-5,3,2)\cdot(-4,-2,5)
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & \end{bmatrix}$$

$$\begin{aligned}
d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4)+1\cdot(-2)+0\cdot 5 = -10 \\
d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3+3\cdot(-4)+2\cdot 5 = -17 \\
d_{32} &= (-5,3,2)\cdot(1,6,8) = -5\cdot 1+3\cdot 6+2\cdot 8 = 29 \\
d_{33} &= (-5,3,2)\cdot(-4,-2,5) = -5\cdot(-4)+3\cdot(-2)+2\cdot 5
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ \boxed{-5 \quad 3 \quad 2} \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$$(3,\underset{=}{\boxed{3)\,(3}},3)$$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix}$$

$$\begin{aligned}
d_{23} &= (2,1,0)\cdot(-4,-2,5) = 2\cdot(-4)+1\cdot(-2)+0\cdot 5 = -10 \\
d_{31} &= (-5,3,2)\cdot(3,-4,5) = -5\cdot 3+3\cdot(-4)+2\cdot 5 = -17 \\
d_{32} &= (-5,3,2)\cdot(1,6,8) = -5\cdot 1+3\cdot 6+2\cdot 8 = 29 \\
d_{33} &= (-5,3,2)\cdot(-4,-2,5) = -5\cdot(-4)+3\cdot(-2)+2\cdot 5 = 24
\end{aligned}$$

$$BA = \begin{bmatrix} 3 & 7 & -4 \\ 2 & 1 & 0 \\ -5 & 3 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 & -4 \\ -4 & 6 & -2 \\ 5 & 8 & 5 \end{bmatrix} = \begin{bmatrix} d_{11} & d_{12} & d_{13} \\ d_{21} & d_{22} & d_{23} \\ d_{31} & d_{32} & d_{33} \end{bmatrix}$$

$(3,\boxed{3)\,(3},3)$

$=$

$$BA = \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix}$$

$$\begin{aligned} d_{23} &= (2,1,0) \cdot (-4,-2,5) = 2 \cdot (-4) + 1 \cdot (-2) + 0 \cdot 5 = -10 \\ d_{31} &= (-5,3,2) \cdot (3,-4,5) = -5 \cdot 3 + 3 \cdot (-4) + 2 \cdot 5 = -17 \\ d_{32} &= (-5,3,2) \cdot (1,6,8) = -5 \cdot 1 + 3 \cdot 6 + 2 \cdot 8 = 29 \\ d_{33} &= (-5,3,2) \cdot (-4,-2,5) = -5 \cdot (-4) + 3 \cdot (-2) + 2 \cdot 5 = 24 \end{aligned}$$

$3AB - 7BA =$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} -$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} -$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} \quad & \quad & \quad \\ \quad & \quad & \quad \\ \quad & \quad & \quad \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & & \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & -140 & \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & -140 & 106 \\ & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & -140 & 106 \\ 137 & & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & -140 & 106 \\ 137 & -29 & \end{bmatrix}$$

$$3AB - 7BA = 3 \cdot \begin{bmatrix} 31 & 10 & -20 \\ 10 & -28 & 12 \\ 6 & 58 & -10 \end{bmatrix} - 7 \cdot \begin{bmatrix} -39 & 13 & -46 \\ 2 & 8 & -10 \\ -17 & 29 & 24 \end{bmatrix} =$$

$$= \begin{bmatrix} 93 & 30 & -60 \\ 30 & -84 & 36 \\ 18 & 174 & -30 \end{bmatrix} - \begin{bmatrix} -273 & 91 & -322 \\ 14 & 56 & -70 \\ -119 & 203 & 168 \end{bmatrix} =$$

$$= \begin{bmatrix} 366 & -61 & 262 \\ 16 & -140 & 106 \\ 137 & -29 & -198 \end{bmatrix}$$

sedmi zadatak

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$*.*

Rješenje

$$f(A) = A^3$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$\underset{(2,2)}{A^2} = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = \underset{(2,2)}{A} \cdot \underset{(2,2)}{A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

$(2, 2)\ (2, 2)$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{2)\;(2}},2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$$(2,\underbrace{\boxed{2)\ (2}}_{=},2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$(3, -2) \cdot (3, -1) =$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$(2, \boxed{2) \, (2}, 2)$

$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A).$

$$(3, -2) \cdot (3, -1) = 3 \cdot 3 + (-2) \cdot (-1)$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$$(2, \underbrace{\boxed{2)\ (2}}_{=}, 2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

$$(3, -2) \cdot (3, -1) = 3 \cdot 3 + (-2) \cdot (-1) = 11$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} 11 & \\ & \end{bmatrix}$$

$$(2, 2)\ (2, 2)$$

$$=$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$(3, -2) \cdot (-2, 5) =$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 11 & \\ & \end{bmatrix}$$

$(2, \boxed{2)\ (2}, 2)$

$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$$(3,-2)\cdot(-2,5) = 3\cdot(-2) + (-2)\cdot 5$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 11 & \\ & \end{bmatrix}$$

$$(2,\boxed{2)\ (2}, 2)$$

$$=$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$(3,-2)\cdot(-2,5) = 3\cdot(-2) + (-2)\cdot 5 = -16$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} \boxed{3 \quad -2} \\ -1 \quad 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ & \end{bmatrix}$$

$(2,\boxed{2)\,(2},2)$

$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

$$(-1, 5) \cdot (3, -1) =$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ & \end{bmatrix}$$

$$(2, 2)\ (2, 2)$$

$$=$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

$$(-1, 5) \cdot (3, -1) = -1 \cdot 3 + 5 \cdot (-1)$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ \boxed{-1 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ & \end{bmatrix}$$

$$(2, \underbrace{\boxed{2) \; (2}}_{=}, 2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

$$(-1, 5) \cdot (3, -1) = -1 \cdot 3 + 5 \cdot (-1) = -8$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ \boxed{-1 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & \end{bmatrix}$$

$$(2, \boxed{2) \; (2}, 2)$$

$$=$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$(-1, 5) \cdot (-2, 5) =$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ \boxed{-1 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & \end{bmatrix}$$

$(2, \boxed{2) \; (2}, 2)$
$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

$$(-1,5)\cdot(-2,5) = -1\cdot(-2) + 5\cdot 5$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A\cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & \end{bmatrix}$$

$(2,\boxed{2)\ (2},2)$

$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

$$(-1, 5) \cdot (-2, 5) = -1 \cdot (-2) + 5 \cdot 5 = 27$$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ \boxed{-1 \quad 5} \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2, \boxed{2)\ (2}, 2)$$
$$=$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\underbrace{\boxed{2)\;(2}}_{=},2)$$

$$A^3 =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A).$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{2)\ (2}},2)$$

$$A^3 = A^2 \cdot A$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$(2, \boxed{2)\ (2}, 2)$

$=$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = \underset{(2,\underset{=}{\boxed{2)\;(2}},2)}{A \cdot A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{2)\,(2}},2)$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

$$(2,2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\boxed{2)\,(2},2)$$

$$=$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

$$(2,2)\,(2,2)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = \underset{\underset{=}{(2,\boxed{2)\;(2},2)}}{A \cdot A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$A^3 = \underset{(2,\boxed{2)\;(2},2)}{A^2 \cdot A} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = \underset{\underset{=}{(2,\boxed{2)\,(2},2)}}{A \cdot A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$A^3 = \underset{\underset{=}{(2,\boxed{2)\,(2},2)}}{A^2 \cdot A} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$(2,\boxed{2)\ (2},2)$

$=$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$(2,\boxed{2)\ (2},2)$

$=$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$\underset{(2,\boxed{2)\ (2},\ 2)}{A^2} = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$=$$

$$\underset{(2,\boxed{2)\ (2},\ 2)}{A^3} = A^2 \cdot A = \begin{bmatrix} \boxed{11 \quad -16} \\ -8 \quad 27 \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$$=$$

$$(11, -16) \cdot (3, -1) =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$(2, 2)\ (2, 2)$

$=$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} & \\ & \end{bmatrix}$$

$(2, 2)\ (2, 2)$

$=$

$$(11, -16) \cdot (3, -1) = 11 \cdot 3 + (-16) \cdot (-1)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\boxed{2)\,(2},2)$$

$$=$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & \\ & \end{bmatrix}$$

$$(2,\boxed{2)\,(2},2)$$

$$=$$

$$(11, -16) \cdot (3, -1) = 11 \cdot 3 + (-16) \cdot (-1) = 49$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$\underset{(2,\boxed{2)\ (2},2)}{A^2 = A \cdot A =} \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$=$$

$$\underset{(2,\boxed{2)\ (2},2)}{A^3 = A^2 \cdot A =} \begin{bmatrix} \boxed{11 \quad -16} \\ -8 \quad 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 49 & \\ & \end{bmatrix}$$

$$=$$

$$(11, -16) \cdot (-2, 5) =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2, 2)\ (2, 2)$$

$$=$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & \\ & \end{bmatrix}$$

$$(2, 2)\ (2, 2)$$

$$=$$

$$(11, -16) \cdot (-2, 5) = 11 \cdot (-2) + (-16) \cdot 5$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2, \boxed{2)\ (2}, 2)$$

$$=$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} \boxed{11 \quad -16} \\ -8 \quad 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{\begin{matrix} -2 \\ 5 \end{matrix}} \\ -1 & \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ & \end{bmatrix}$$

$$(2, \boxed{2)\ (2}, 2)$$

$$=$$

$$(11, -16) \cdot (-2, 5) = 11 \cdot (-2) + (-16) \cdot 5 = -102$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$\underset{(2,\boxed{2)\,(2},2)}{A^2} = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$=$$

$$\underset{(2,\boxed{2)\,(2},2)}{A^3} = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ \boxed{-8 \quad 27} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ & \end{bmatrix}$$

$$=$$

$$(-8, 27) \cdot (3, -1) =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$\underset{\underset{=}{(2,\boxed{2)\,(2},2)}}{A^2 = A \cdot A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$\underset{\underset{=}{(2,\boxed{2)\,(2},2)}}{A^3 = A^2 \cdot A} = \begin{bmatrix} 11 & -16 \\ \boxed{-8 \quad 27} \end{bmatrix} \cdot \begin{bmatrix} \boxed{\begin{matrix} 3 \\ -1 \end{matrix}} & \begin{matrix} -2 \\ 5 \end{matrix} \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ & \end{bmatrix}$$

$$(-8, 27) \cdot (3, -1) = -8 \cdot 3 + 27 \cdot (-1)$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = \underset{\substack{(2,\boxed{2)\ (2},2) \\ =}}{A \cdot A} = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$A^3 = \underset{\substack{(2,\boxed{2)\ (2},2) \\ =}}{A^2 \cdot A} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ -51 & \end{bmatrix}$$

$$(-8, 27) \cdot (3, -1) = -8 \cdot 3 + 27 \cdot (-1) = -51$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,2)\,(2,2)$$

$$=$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ -51 & \end{bmatrix}$$

$$(2,2)\,(2,2)$$

$$=$$

$$(-8, 27) \cdot (-2, 5) =$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$(2,\boxed{2)\ (2},2)$

$=$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ \boxed{-8 \quad 27} \end{bmatrix} \cdot \begin{bmatrix} 3 & \boxed{-2} \\ -1 & \boxed{5} \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ -51 & \end{bmatrix}$$

$(2,\boxed{2)\ (2},2)$

$=$

$(-8, 27) \cdot (-2, 5) = -8 \cdot (-2) + 27 \cdot 5$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3.$

Odredite $f(A).$

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$\underset{=}{(2,\boxed{2)\ (2},2)}$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix}$$

$$\underset{=}{(2,\boxed{2)\ (2},2)}$$

$$(-8, 27) \cdot (-2, 5) = -8 \cdot (-2) + 27 \cdot 5 = 151$$

Zadatak 7

Zadana je matrica $A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix}$ *i polinom* $f(x) = x^3 + 2x^2 + 3$.

Odredite $f(A)$.

Rješenje

$$f(A) = A^3 + 2A^2 + 3I$$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{2)\;(2}},2)$$

$$A^3 = A^2 \cdot A = \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -1 & 5 \end{bmatrix} = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{2)\;(2}},2)$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) =$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) =$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} +$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} +$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} \quad & \quad \\ \quad & \quad \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 74 & \\ & \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 74 & -134 \\ & \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 74 & -134 \\ -67 & \end{bmatrix}$$

$$f(A) = A^3 + 2A^2 + 3I$$

$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + 2 \cdot \begin{bmatrix} 11 & -16 \\ -8 & 27 \end{bmatrix} + 3 \cdot \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

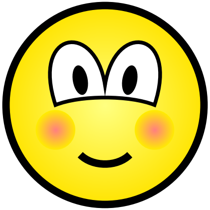
$$f(A) = \begin{bmatrix} 49 & -102 \\ -51 & 151 \end{bmatrix} + \begin{bmatrix} 22 & -32 \\ -16 & 54 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

$$f(A) = \begin{bmatrix} 74 & -134 \\ -67 & 208 \end{bmatrix}$$


Može li se A^n izračunati za svaku matricu A pri čemu je $n \in \mathbb{N}$?


Može li se A^n izračunati za svaku matricu A pri čemu je $n \in \mathbb{N}$?

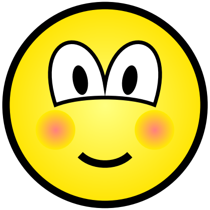
$$A \cdot A$$



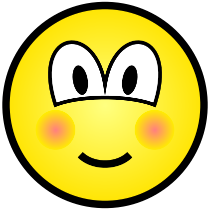

Može li se A^n izračunati za svaku matricu A pri čemu je $n \in \mathbb{N}$?

$$A \cdot A$$

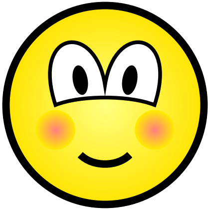
$$(m, n)$$



$$\underset{(m,n)}{A} \cdot \underset{(m,n)}{A}$$



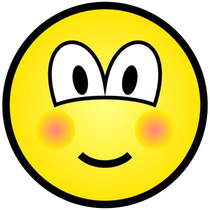
$$A \cdot A$$
$$(m, \boxed{n)\,(m}, n)$$



$$A \cdot A$$

$$\color{red}{(m,\boxed{n)\,(m},n)}$$

$$\color{blue}{n = m}$$



Može li se A^n izračunati za svaku matricu A pri čemu je $n \in \mathbb{N}$?

Potencirati se mogu samo kvadratne matrice.

$$A \cdot A$$

$$(m, \boxed{n)\,(m}, n)$$

$$n = m$$

osmi zadatak

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} =$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\underset{(2,3)}{\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix}} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} =$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\underset{(2,3)}{\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix}} \underset{(3,1)}{\begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}} =$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} =$$

$$(2,\boxed{3)\,(3},1)$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} =$$

$$(2,\boxed{3)\,(3},1)$$

$$=$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} \quad \\ \quad \end{bmatrix}$$

$$(2,\boxed{3)\,(3},1)$$

$$=$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} \boxed{2 \quad -2 \quad 0} \\ 1 \quad -2 \quad 1 \end{bmatrix} \begin{bmatrix} \boxed{\begin{matrix} 2 \\ 1 \\ 3 \end{matrix}} \end{bmatrix} = \begin{bmatrix} \quad \end{bmatrix}$$

$$(2, 3)\,(3, 1)$$

$$=$$

$$(2, -2, 0) \cdot (2, 1, 3) =$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} \boxed{2 \quad -2 \quad 0} \\ 1 \quad -2 \quad 1 \end{bmatrix} \begin{bmatrix} \boxed{\begin{matrix} 2 \\ 1 \\ 3 \end{matrix}} \end{bmatrix} = \begin{bmatrix} \\ \end{bmatrix}$$

$$(2, \boxed{3)\,(3}, 1)$$

$$=$$

$$(2, -2, 0) \cdot (2, 1, 3) = 2 \cdot 2 + (-2) \cdot 1 + 0 \cdot 3$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ \end{bmatrix}$$

$$(2,\underset{=}{\boxed{3)\,(3}},1)$$

$$(2,-2,0)\cdot(2,1,3) = 2\cdot 2 + (-2)\cdot 1 + 0\cdot 3 = 2$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ \end{bmatrix}$$

$$(2, \boxed{3)\,(3}, 1)$$

$$=$$

$$(2, -2, 0) \cdot (2, 1, 3) = 2 \cdot 2 + (-2) \cdot 1 + 0 \cdot 3 = 2$$

$$(1, -2, 1) \cdot (2, 1, 3) =$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ \end{bmatrix}$$

$$\underset{=}{(2,\boxed{3)\,(3},1)}$$

$$(2, -2, 0) \cdot (2, 1, 3) = 2 \cdot 2 + (-2) \cdot 1 + 0 \cdot 3 = 2$$

$$(1, -2, 1) \cdot (2, 1, 3) = 1 \cdot 2 + (-2) \cdot 1 + 1 \cdot 3$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$(2,\underbrace{\boxed{3)\,(3}}_{=},1)$$

$$(2,-2,0)\cdot(2,1,3) = 2\cdot 2 + (-2)\cdot 1 + 0\cdot 3 = 2$$

$$(1,-2,1)\cdot(2,1,3) = 1\cdot 2 + (-2)\cdot 1 + 1\cdot 3 = 3$$

Zadatak 8

Izračunajte

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

Rješenje

$$\begin{bmatrix} 2 & -2 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$(2,\underset{=}{\boxed{3)\,(3}},1)$$

$$(2,-2,0)\cdot(2,1,3) = 2\cdot 2 + (-2)\cdot 1 + 0\cdot 3 = 2$$

$$(1,-2,1)\cdot(2,1,3) = 1\cdot 2 + (-2)\cdot 1 + 1\cdot 3 = 3$$

deveti zadatak

Zadatak 9

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Zadatak 9

Izračunajte AB *ako je*

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5} \begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$AB =$

Zadatak 9

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5} \begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$$

Zadatak 9

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\,.$$

Zadatak 9

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

Zadatak 9

$\boxed{k(AB) = (kA)B = A(kB)}$

$\boxed{\text{kvaziasocijativnost}}$

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}$$

Zadatak 9

$\boxed{k(AB) = (kA)B = A(kB)}$

kvaziasocijativnost

Izračunajte AB ako je

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Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

Zadatak 9

$$\boxed{k(AB) = (kA)B = A(kB)}$$

kvaziasocijativnost

Izračunajte AB *ako je*

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$(2,2)$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

$$\boxed{k(AB) = (kA)B = A(kB)}$$

$\boxed{\text{kvaziasocijativnost}}$

Zadatak 9

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\overset{(2,2)}{\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}}\overset{(2,3)}{\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}} =$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\;(2}, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2,\boxed{2)\,(2},3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} =$$

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$$k(AB) = (kA)B = A(kB)$$

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Rješenje

$$(2,\boxed{2)\,(2},3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

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Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\overset{=}{(2,\boxed{2)\,(2},3)}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} & & \\ & & \end{bmatrix}$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$=$$

$$(2, 2)\,(2, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} \quad \end{bmatrix}$$

$$(2, 3) \cdot (1, 3) =$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\underset{=}{(2,\boxed{2)\,(2},3)}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} \boxed{2 \quad 3} \\ 1 \quad 5 \end{bmatrix}\begin{bmatrix} \boxed{1} & 0 & 4 \\ \boxed{3} & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} & \\ & \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\,(2}, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} \boxed{2 \quad 3} \\ 1 \quad 5 \end{bmatrix}\begin{bmatrix} \boxed{\begin{matrix} 1 \\ 3 \end{matrix}} & \begin{matrix} 0 \\ 6 \end{matrix} & \begin{matrix} 4 \\ 8 \end{matrix} \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & & \\ & & \end{bmatrix}$$

$$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$$

Zadatak 9

$k(AB) = (kA)B = A(kB)$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$=$$

$$(2,\boxed{2)\,(2},3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} \boxed{2 \quad 3} \\ 1 \quad 5 \end{bmatrix}\begin{bmatrix} 1 & \boxed{0} & 4 \\ 3 & \boxed{6} & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & & \\ & & \end{bmatrix}$$

$(2,3) \cdot (1,3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2,3) \cdot (0,6) =$

Zadatak 9

$k(AB) = (kA)B = A(kB)$

kvaziasocijativnost

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Rješenje

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$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2, 3) \cdot (0, 6) = 2 \cdot 0 + 3 \cdot 6$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\,(2}, 3)$$

$$=$$

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$$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$$

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Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB *ako je*

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

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$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$

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$(2,3)\cdot(4,8) =$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\overset{=}{(2,\boxed{2)\,(2},3)}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & \\ & & \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$$

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Zadatak 9

$$\boxed{k(AB) = (kA)B = A(kB)}$$

$\boxed{\text{kvaziasocijativnost}}$

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\overset{=}{(2,\boxed{2)\,(2},3)}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} \boxed{2 \quad 3} \\ 1 \quad 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & \boxed{4} \\ 3 & 6 & \boxed{8} \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ & & \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$$

$$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18$$

$$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, 2)\,(2, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ & & \end{bmatrix}$$

$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2, 3) \cdot (0, 6) = 2 \cdot 0 + 3 \cdot 6 = 18$

$(2, 3) \cdot (4, 8) = 2 \cdot 4 + 3 \cdot 8 = 32$

$(1, 5) \cdot (1, 3) =$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} \boxed{\begin{matrix}1 \\ 3\end{matrix}} & \begin{matrix}0 \\ 6\end{matrix} & \begin{matrix}4 \\ 8\end{matrix} \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ & & \end{bmatrix}$$

$$\underset{(2, \boxed{2)\,(2}, 3)}{=}$$

$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2, 3) \cdot (0, 6) = 2 \cdot 0 + 3 \cdot 6 = 18$

$(2, 3) \cdot (4, 8) = 2 \cdot 4 + 3 \cdot 8 = 32$

$(1, 5) \cdot (1, 3) = 1 \cdot 1 + 5 \cdot 3$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\,(2}, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} \boxed{1} & 0 & 4 \\ \boxed{3} & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & & \end{bmatrix}$$

$(2, 3) \cdot (1, 3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2, 3) \cdot (0, 6) = 2 \cdot 0 + 3 \cdot 6 = 18$

$(2, 3) \cdot (4, 8) = 2 \cdot 4 + 3 \cdot 8 = 32$

$(1, 5) \cdot (1, 3) = 1 \cdot 1 + 5 \cdot 3 = 16$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & & \end{bmatrix}$$

$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$ $\qquad$ $(1,5)\cdot(1,3) = 1\cdot 1 + 5\cdot 3 = 16$

$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18$ $\qquad$ $(1,5)\cdot(0,6) =$

$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\overset{=}{(2,\boxed{2)\,(2},3)}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} 1 & \boxed{0} & 4 \\ 3 & \boxed{6} & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & & \end{bmatrix}$$

$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$

$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18$

$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32$

$(1,5)\cdot(1,3) = 1\cdot 1 + 5\cdot 3 = 16$

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Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\;(2}, 3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} 1 & \boxed{0} & 4 \\ 3 & \boxed{6} & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & 30 & \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$$
$$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18$$
$$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32$$
$$(1,5)\cdot(1,3) = 1\cdot 1 + 5\cdot 3 = 16$$
$$(1,5)\cdot(0,6) = 1\cdot 0 + 5\cdot 6 = 30$$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} 1 & 0 & \boxed{4} \\ 3 & 6 & \boxed{8} \end{bmatrix} \overset{=}{\underset{(2,\boxed{2)\,(2},3)}{=}} \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & 30 & \end{bmatrix}$$

$(2,3) \cdot (1,3) = 2 \cdot 1 + 3 \cdot 3 = 11$

$(2,3) \cdot (0,6) = 2 \cdot 0 + 3 \cdot 6 = 18$

$(2,3) \cdot (4,8) = 2 \cdot 4 + 3 \cdot 8 = 32$

$(1,5) \cdot (1,3) = 1 \cdot 1 + 5 \cdot 3 = 16$

$(1,5) \cdot (0,6) = 1 \cdot 0 + 5 \cdot 6 = 30$

$(1,5) \cdot (4,8) =$

Zadatak 9

$$k(AB) = (kA)B = A(kB)$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$(2, \boxed{2)\,(2}, 3)$$

$$=$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & 30 & \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11 \qquad (1,5)\cdot(1,3) = 1\cdot 1 + 5\cdot 3 = 16$$

$$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18 \qquad (1,5)\cdot(0,6) = 1\cdot 0 + 5\cdot 6 = 30$$

$$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32 \qquad (1,5)\cdot(4,8) = 1\cdot 4 + 5\cdot 8$$

Zadatak 9

$$\boxed{k(AB) = (kA)B = A(kB)}$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$=$$

$$(2,\boxed{2)\,(2},3)$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ \boxed{1 \quad 5} \end{bmatrix}\begin{bmatrix} 1 & 0 & \boxed{\begin{matrix} 4 \\ 8 \end{matrix}} \\ 3 & 6 & \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & 30 & 44 \end{bmatrix}$$

$$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11 \qquad (1,5)\cdot(1,3) = 1\cdot 1 + 5\cdot 3 = 16$$

$$(2,3)\cdot(0,6) = 2\cdot 0 + 3\cdot 6 = 18 \qquad (1,5)\cdot(0,6) = 1\cdot 0 + 5\cdot 6 = 30$$

$$(2,3)\cdot(4,8) = 2\cdot 4 + 3\cdot 8 = 32 \qquad (1,5)\cdot(4,8) = 1\cdot 4 + 5\cdot 8 = 44$$

Zadatak 9

$$\boxed{k(AB) = (kA)B = A(kB)}$$

kvaziasocijativnost

Izračunajte AB ako je

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \quad i \quad B = \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix}.$$

Rješenje

$$\underset{(2,\boxed{2)\,(2},3)}{=}$$

$$AB = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \cdot \frac{9}{5}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}\begin{bmatrix} 1 & 0 & 4 \\ 3 & 6 & 8 \end{bmatrix} = \frac{9}{5}\begin{bmatrix} 11 & 18 & 32 \\ 16 & 30 & 44 \end{bmatrix}$$

$(2,3)\cdot(1,3) = 2\cdot 1 + 3\cdot 3 = 11$

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$(1,5)\cdot(0,6) = 1\cdot 0 + 5\cdot 6 = 30$

$(1,5)\cdot(4,8) = 1\cdot 4 + 5\cdot 8 = 44$

deseti zadatak

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY =$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

$(1, 3)$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

$(1,3)\,(3,1)$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

$(1, \boxed{3)\,(3}, 1)$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} \quad \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) =$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} \quad \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \underbrace{\boxed{3)\,(3}}_{=}, 1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX =$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$
$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \boxed{3)\ (3}, 1)$$
$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

$$(3, 1)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

$$(3, 1)\,(1, 3)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \boxed{3)\,(3}, 1)$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

$$(3, \boxed{1)\,(1}, 3)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY \underset{(1,\boxed{3)\,(3},1)}{\overset{}{=}} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX \underset{(3,\boxed{1)\,(1},3)}{=} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} \quad & \quad & \quad \\ \quad & \quad & \quad \\ \quad & \quad & \quad \end{bmatrix}$$

$$=$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \underset{=}{\boxed{3)\,(3}}, 1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & & \\ & & \\ & & \end{bmatrix}$$

$$(3, \underset{=}{\boxed{1)\,(1}}, 3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\boxed{3)\,(3},1)$$
$$=$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & \\ & & \\ & & \end{bmatrix}$$

$$(3,\boxed{1)\,(1},3)$$
$$=$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1,2,-5)\cdot(3,0,4) = 1\cdot 3 + 2\cdot 0 + (-5)\cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ & & \\ & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

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$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & \\ & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underbrace{\boxed{3)\,(3}}_{=},1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ & & \end{bmatrix}$$

$$(3,\underbrace{\boxed{1)\,(1}}_{=},3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1,2,-5)\cdot(3,0,4) = 1\cdot 3 + 2\cdot 0 + (-5)\cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ 4 & & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ *ako je*

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1,2,-5)\cdot(3,0,4) = 1\cdot 3 + 2\cdot 0 + (-5)\cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ 4 & 8 & \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ 4 & 8 & -20 \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1, \underset{=}{\boxed{3)\,(3}}, 1)$$

$$(1, 2, -5) \cdot (3, 0, 4) = 1 \cdot 3 + 2 \cdot 0 + (-5) \cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ 4 & 8 & -20 \end{bmatrix}$$

$$(3, \underset{=}{\boxed{1)\,(1}}, 3)$$

- $XY + YX$

Zadatak 10

Izračunajte $XY + YX$ ako je

$$X = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \quad i \quad Y = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix}.$$

Rješenje

$$XY = \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} = \begin{bmatrix} -17 \end{bmatrix}$$

$$(1,\underset{=}{\boxed{3)\,(3}},1)$$

$$(1,2,-5)\cdot(3,0,4) = 1\cdot 3 + 2\cdot 0 + (-5)\cdot 4 = -17$$

$$YX = \begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \begin{bmatrix} 1 & 2 & -5 \end{bmatrix} = \begin{bmatrix} 3 & 6 & -15 \\ 0 & 0 & 0 \\ 4 & 8 & -20 \end{bmatrix}$$

$$(3,\underset{=}{\boxed{1)\,(1}},3)$$

- $XY + YX$ nije definirano jer matrice XY i YX nisu istog tipa.