

## TEST- Matrice i determinate

• Napisati jediničnu matricu formata  $3 \times 3$ ,  $I =$

i nula matricu formata  $2 \times 3$ ,  $\mathbb{O} =$

$$\bullet \begin{vmatrix} 3 & 2 & 1 \\ 0 & 4 & 1 \\ 0 & 0 & -1 \end{vmatrix} =$$

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

$$\begin{vmatrix} 2 & 2 \\ 1 & 2 \end{vmatrix} =$$

$$\bullet \begin{vmatrix} 1 & 2 & -1 \\ 2 & 1 & -1 \\ -3 & 4 & 1 \end{vmatrix} =$$

$$\bullet 2 \cdot \begin{vmatrix} -1 & 2 & 0 \\ 0 & 1 & -1 \\ 5 & 2 & 1 \end{vmatrix} =$$

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

$$\begin{bmatrix} 2 & 1 \\ -1 & 2 \\ 1 & -2 \end{bmatrix} \cdot \begin{bmatrix} 4 \\ -1 \end{bmatrix} =$$

$$\begin{bmatrix} 4 & -3 \\ 1 & -2 \end{bmatrix}^{-1} =$$

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

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

$$\bullet \begin{bmatrix} 0 \\ 3 \end{bmatrix} \cdot \begin{bmatrix} -1 & 2 \end{bmatrix} =$$

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

$$\bullet \begin{bmatrix} -1 & 4 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 \\ 1 \\ 2 \end{bmatrix} =$$

$$\begin{bmatrix} 0 \\ 1 \\ 2 \end{bmatrix} \cdot \begin{bmatrix} -1 & 4 & 0 \end{bmatrix} =$$

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

$$\bullet \det \left( \begin{bmatrix} 3 & 1 \\ 3 & 2 \end{bmatrix}^{-1} \right) =$$

- Za proizvoljne regularne matrice  $A, B$  i  $C$  dimenzije  $3 \times 3$  i jediničnu matricu  $I$  važi:

$$\begin{array}{llll}
 \mathbf{1)} & (A - B)^2 = (B - A)^2 & \mathbf{2)} & |AB| = |B||A| & \mathbf{3)} & A \cdot B = B \cdot A & \mathbf{4)} & A \cdot A^{-1} = I \\
 \mathbf{5)} & \alpha(A + B) = A + \alpha B & \mathbf{6)} & A \cdot (B \cdot C) = (C \cdot B) \cdot A & \mathbf{7)} & |A^{-1}| = |A| & \mathbf{8)} & A \cdot I = I \\
 \mathbf{9)} & (A \cdot B)^T = B^T \cdot A^T & \mathbf{10)} & A + B = B + A & \mathbf{11)} & (A \cdot \alpha B)^2 = \alpha(A \cdot B)^2 & \mathbf{12)} & (A \cdot B)^{-1} = A^{-1} \cdot B^{-1}
 \end{array}$$

- Rešiti matričnu jednačinu  $AX = 3B$ , gde je  $A = \begin{bmatrix} 2 & 1 \\ 0 & -3 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 \\ -1 \end{bmatrix}$ .

- Rešiti matričnu jednačinu  $(A - 4I)X = B$ , gde je  $A = \begin{bmatrix} 2 & 1 \\ 0 & 1 \end{bmatrix}$ ,  $B = \begin{bmatrix} 12 \\ 6 \end{bmatrix}$ .