

## Inverzna matrica

Odredimo inverz matrice A ako je  $A = \begin{bmatrix} 1 & 1 & 2 \\ 2 & 3 & 10 \\ 4 & 0 & 9 \end{bmatrix}$ .

$$A^{-1} = \frac{1}{\det A} \cdot A^*$$

**KORAK 1.** Odrediti ćemo det A (ako je det A=0 nema inverzne matrice):

$$\det A = \begin{vmatrix} 1 & 1 & 2 \\ 2 & 3 & 10 \\ 4 & 0 & 9 \end{vmatrix} = 27 + 40 + 0 - 24 - 0 - 18 = 25$$

**KORAK 2.** Odrediti ćemo matricu kofaktora:

isključimo 1. red i 1. stupac

$$a_{11} = \begin{vmatrix} 3 & 10 \\ 0 & 9 \end{vmatrix} = 27 - 0 = 27$$

$$a_{21} = - \begin{vmatrix} 1 & 2 \\ 0 & 9 \end{vmatrix} = -(9 - 0) = -9$$

$$a_{31} = \begin{vmatrix} 1 & 2 \\ 3 & 10 \end{vmatrix} = 10 - 6 = 4$$

kad je neparan zbroj (1+2=3) ide predznak -

$$a_{12} = - \begin{vmatrix} 2 & 10 \\ 4 & 9 \end{vmatrix} = -(18 - 40) = 22$$

$$a_{22} = \begin{vmatrix} 1 & 2 \\ 4 & 9 \end{vmatrix} = 9 - 8 = 1$$

$$a_{32} = - \begin{vmatrix} 1 & 2 \\ 2 & 10 \end{vmatrix} = -(10 - 4) = -6$$

$$a_{13} = \begin{vmatrix} 2 & 3 \\ 4 & 0 \end{vmatrix} = 0 - 12 = -12$$

$$a_{23} = - \begin{vmatrix} 1 & 1 \\ 4 & 0 \end{vmatrix} = -(0 - 4) = 4$$

$$a_{33} = \begin{vmatrix} 1 & 1 \\ 2 & 3 \end{vmatrix} = 3 - 2 = 1$$

**KORAK 3.** U formulu za inverznu matricu  $A^{-1} = \frac{1}{\det A} \cdot A^*$  uvrstimo sve poznato:

$$A^{-1} = \frac{1}{\det A} \cdot A^* = \frac{1}{25} \cdot \begin{bmatrix} 27 & -9 & 4 \\ 22 & 1 & -6 \\ -12 & 4 & 1 \end{bmatrix} = \begin{bmatrix} 27/25 & -9/25 & 4/25 \\ 22/25 & 1/25 & -6/25 \\ -12/25 & 4/25 & 1/25 \end{bmatrix}$$