

Fișa de lucru – inversa unei matrici

I. Să se verifice dacă următoarele matrici sunt inversabile:

$$\text{a) } A = \begin{pmatrix} 2 & 7 \\ 3 & 1 \end{pmatrix} \quad \text{b) } A = \begin{pmatrix} 3 & 2 \\ 6 & 4 \end{pmatrix} \quad \text{c) } A = \begin{pmatrix} 2 & 8 \\ 0 & 3 \end{pmatrix} \quad \text{d) } A = \begin{pmatrix} 8 & 6 \\ 4 & 3 \end{pmatrix}$$

$$\text{e) } A = \begin{pmatrix} 2 & 3 & 1 \\ 0 & 1 & 2 \\ 2 & 5 & 5 \end{pmatrix} \quad \text{e) } A = \begin{pmatrix} 3 & 1 & 1 \\ 2 & 1 & 0 \\ 1 & 1 & 2 \end{pmatrix} \quad \text{f) } A = \begin{pmatrix} 0 & 2 & 4 \\ 1 & 1 & 0 \\ 1 & 3 & 3 \end{pmatrix} \quad \text{g) } A = \begin{pmatrix} 5 & 1 & 3 \\ 2 & 3 & -4 \\ 7 & 3 & 1 \end{pmatrix}$$

II. Să se găsească $x \in \mathbb{R}$, astfel încât următoarele matrici să fie inversabile:

$$\text{a) } A = \begin{pmatrix} 2 & 4 \\ 1 & x \end{pmatrix} \quad \text{b) } A = \begin{pmatrix} 3 & 5 \\ 2 & x \end{pmatrix} \quad \text{c) } A = \begin{pmatrix} 2 & x \\ 4 & 8 \end{pmatrix} \quad \text{d) } A = \begin{pmatrix} 0 & 3 \\ x & 9 \end{pmatrix}$$

$$\text{e) } A = \begin{pmatrix} x & 4 \\ 3 & 6 \end{pmatrix} \quad \text{f) } A = \begin{pmatrix} 2x & 3 \\ x & 4 \end{pmatrix} \quad \text{g) } A = \begin{pmatrix} 3 & x \\ 6 & 5 \end{pmatrix} \quad \text{h) } A = \begin{pmatrix} 2x-1 & 4 \\ 1-x & 3 \end{pmatrix}$$

$$\text{i) } A = \begin{pmatrix} 2 & 3 & x \\ 1 & 2 & 2 \\ 3 & 3 & x \end{pmatrix} \quad \text{j) } A = \begin{pmatrix} x & 2 & 1 \\ x & 1 & 3 \\ 2 & 1 & 0 \end{pmatrix} \quad \text{k) } A = \begin{pmatrix} 2 & x & x \\ 1 & 3 & 1 \\ 0 & 2 & 4 \end{pmatrix} \quad \text{l) } A = \begin{pmatrix} x & 2 & 3 \\ 3 & x & 1 \\ 4 & 2 & 1 \end{pmatrix}$$

$$\text{m) } A = \begin{pmatrix} x+1 & 2x & 3 \\ 2 & x-2 & 3 \\ 1 & 1 & 1 \end{pmatrix} \quad \text{n) } A = \begin{pmatrix} x+2 & 3 & 4 \\ 2x-1 & x+6 & 2 \\ 0 & 5 & 0 \end{pmatrix} \quad \text{o) } A = \begin{pmatrix} 2x & 3x & 1 \\ 0 & x & 2 \\ 2 & 5 & 5 \end{pmatrix}$$

III. Calculați inversa următoarelor matrici:

$$\text{a) } A = \begin{pmatrix} 2 & 3 \\ 3 & 5 \end{pmatrix} \quad \text{b) } A = \begin{pmatrix} 3 & 2 \\ 8 & 5 \end{pmatrix} \quad \text{c) } A = \begin{pmatrix} 1 & 2 & 3 \\ 1 & 1 & 2 \\ 3 & 3 & 5 \end{pmatrix}$$