

4.2. f) (Transzponáljuk az egyenlet mindkét oldalát:)

$$\begin{pmatrix} 1 & -1 & 2 \\ -1 & 2 & 1 \\ 0 & 1 & 2 \end{pmatrix} \cdot X^T = \begin{pmatrix} 1 & 2 & 1 \\ -2 & 1 & 1 \\ 1 & 3 & 1 \end{pmatrix}$$

1. Gauss-eljárás:

$$+\hookrightarrow \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 1 & 2 & 1 \\ -1 & 2 & 1 & -2 & 1 & 1 \\ 0 & 1 & 2 & 1 & 3 & 1 \end{array} \right) \rightarrow \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 1 & 2 & 1 \\ 0 & 1 & 3 & -1 & 3 & 2 \\ 0 & 1 & 2 & 1 & 3 & 1 \end{array} \right) \begin{array}{l} \xrightarrow{+} \\ \xrightarrow{(-1)} \\ \xrightarrow{+} \end{array} \rightarrow$$

$$\rightarrow \left(\begin{array}{ccc|ccc} 1 & 0 & 5 & 0 & 5 & 3 \\ 0 & 1 & 3 & -1 & 3 & 2 \\ 0 & 0 & -1 & 2 & 0 & -1 \end{array} \right) \xrightarrow{+} \left(\begin{array}{ccc|ccc} 1 & 0 & 5 & 0 & 5 & 3 \\ 0 & 1 & 3 & -1 & 3 & 2 \\ 0 & 0 & 1 & -2 & 0 & 1 \end{array} \right) \begin{array}{l} \xrightarrow{+} \\ \xrightarrow{(-5)} \\ \xrightarrow{(-3)} \end{array}$$

$$\rightarrow \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & 10 & 5 & -2 \\ 0 & 1 & 0 & 5 & 3 & -1 \\ 0 & 0 & 1 & -2 & 0 & 1 \end{array} \right)$$

$$X^T = \begin{pmatrix} 10 & 5 & -2 \\ 5 & 3 & -1 \\ -2 & 0 & 1 \end{pmatrix}$$

$$X = \begin{pmatrix} 10 & 5 & -2 \\ 5 & 3 & 0 \\ -2 & -1 & 1 \end{pmatrix}$$

(4.2) f)

$$\begin{pmatrix} 1 & -1 & 2 \\ -1 & 2 & 1 \\ 0 & 1 & 2 \end{pmatrix} \cdot X^T = \begin{pmatrix} 1 & 2 & 1 \\ -2 & 1 & 1 \\ 1 & 3 & 1 \end{pmatrix}$$

2. EBT-val:

	x_1	x_2	x_3	b_1	b_2	b_3
e_1	1	-1	2	1	2	1
e_2	-1	2	1	-2	1	1
e_3	0	1*	2	1	3	1

	x_1	x_3	b_1	b_2	b_3
e_1	1*	4	2	5	2
e_2	-1	-3	-4	-5	-1
x_2	0	2	1	3	1

	x_3	b_1	b_2	b_3
x_1	4	2	5	2
e_2	1*	-2	0	1
x_2	2	1	3	1

	b_1	b_2	b_3
x_1	10	5	-2
x_3	-2	0	1
x_2	5	3	-1

	b_1	b_2	b_3
x_1	10	5	-2
x_2	5	3	-1
x_3	-2	0	1

$$X^T = \begin{pmatrix} 10 & 5 & -2 \\ 5 & 3 & -1 \\ -2 & 0 & 1 \end{pmatrix}$$

$$X = \begin{pmatrix} 10 & 5 & -2 \\ 5 & 3 & 0 \\ -2 & -1 & 1 \end{pmatrix}$$