(4.2.) c) 1. Gauss-e.val:

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

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

X 1. oszlopa:

x_{31}, x_{41} szabad

$x_{11} + 5x_{31} + 2x_{41} = 0$

$x_{11} = -5x_{31} - 2x_{41}$

$x_{21} + 3x_{31} + x_{41} = -1$

$x_{21} = -3x_{31} - x_{41} - 1$

X 2. oszlopa:

x_{32}, x_{42} szabad

$x_{12} + 5x_{32} + 2x_{42} = 5$

$x_{12} = -5x_{32} - 2x_{42} + 5$

$x_{22} + 3x_{32} + x_{42} = 3$

$x_{22} = -3x_{32} - x_{42} + 3$

X 3. oszlopa:

x_{33}, x_{43} szabad

$x_{13} = -5x_{33} - 2x_{43} + 3$

$x_{23} = -3x_{33} - x_{43} + 2$

$$X = \begin{pmatrix} -5x_{31} - 2x_{41} & -5x_{32} - 2x_{42} + 5 & -5x_{33} - 2x_{43} + 3 \\ -3x_{31} - x_{41} - 1 & -3x_{32} - x_{42} + 3 & -3x_{33} - x_{43} + 2 \\ x_{31} & x_{32} & x_{33} \\ x_{41} & x_{42} & x_{43} \end{pmatrix}$$

2. EBT-val:

	x_1	x_2	x_3	x_4	b_1	b_2	b_3
e_1	1	−1	2	1	1	2	1
e_2	−1	2	1	0	−2	1	1
e_3	0	1	3	1*	−1	3	2

→

	x_1	x_2	x_3	b_1	b_2	b_3
e_1	1*	−2	−1	2	−1	−1
e_2	−1	2	1	−2	1	1
x_4	0	1	3	−1	3	2

→

	x_2	x_3	b_1	b_2	b_3
x_1	−2	−1	2	−1	−1
e_2	0	0	0	0	0
x_4	1	3	−1	3	2

X 1. oszlopa:

x_{21}, x_{31} szabad

$x_{11} - 2x_{21} - x_{31} = 2$

$x_{41} + x_{21} + 3x_{31} = -1$

$x_{11} = 2x_{21} + x_{31} + 2$

$x_{41} = -x_{21} - 3x_{31} - 1$

X 2. oszlopa:

x_{22}, x_{32} szabad

$x_{12} = 2x_{22} + x_{32} - 1$

$x_{42} = -x_{22} - 3x_{32} + 3$

X 3. oszlopa:

x_{23}, x_{33} szabad

$x_{13} = 2x_{23} + x_{33} - 1$

$x_{43} = -x_{23} - 3x_{33} + 2$

$$X = \begin{pmatrix} 2x_{21} + x_{31} + 2 & 2x_{22} + x_{32} - 1 & 2x_{23} + x_{33} - 1 \\ x_{21} & x_{22} & x_{23} \\ x_{31} & x_{32} & x_{33} \\ -x_{21} - 3x_{31} - 1 & -x_{22} - 3x_{32} + 3 & -x_{23} - 3x_{33} + 2 \end{pmatrix}$$