Nr. 4)

a)

$$\begin{array}{rcl|l|l} 2x_1 - 4x_2 + 5x_3 &=& 3 & \cdot 3 & \cdot 2 \\ 3x_1 + 3x_2 + 7x_3 &=& 13 & \cdot(-2) & \\ 4x_1 - 2x_2 - 3x_3 &=& -1 & & \cdot(-1) \end{array}$$

$$\begin{array}{rcl|l} 2x_1 - 4x_2 + 5x_3 &=& 3 & \\ -18x_2 + 1x_3 &=& -17 & \cdot(-1) \\ -6x_2 + 13x_3 &=& 7 & \cdot 3 \end{array}$$

$2x_1 - 4x_2 + 5x_3 = 3 \Rightarrow 2x_1 - 4\cdot 1 + 5\cdot 1 = 3 \Rightarrow 2x_1 = 2 \Rightarrow \underline{x_1 = 1}$

$-18x_2 + 1x_3 = -17 \Rightarrow -18x_2 + 1 = -17 \Rightarrow -18x_2 = -18 \Rightarrow \underline{x_2 = 1}$

$38x_3 = 38 \Rightarrow \underline{x_3 = 1}$

$\mathbb{L} = \{(1|1|1)\}$

b)

$$\begin{array}{rcl|l|l} -x_1 + 7x_2 - x_3 &=& 5 & \cdot 4 & \cdot 5 \\ 4x_1 - x_2 + x_3 &=& 1 & \cdot 1 & \\ 5x_1 - 3x_2 + x_3 &=& -1 & & \cdot 1 \end{array}$$

$$\begin{array}{rcl|l} -x_1 + 7x_2 - x_3 &=& 5 & \\ 27x_2 - 3x_3 &=& 21 & \cdot 4 \\ 32x_2 - 4x_3 &=& 24 & \cdot(-3) \end{array}$$

$-x_1 + 7x_2 - x_3 = 5 \Rightarrow -x_1 + 7\cdot 1 - 2 = 5 \Rightarrow -x_1 = 0 \Rightarrow \underline{x_1 = 0}$

$27x_2 - 3x_3 = 21 \Rightarrow 27\cdot 1 - 3x_3 = 21 \Rightarrow -3x_3 = -6 \Rightarrow \underline{x_3 = 2}$

$12x_2 = 12 \Rightarrow \underline{x_2 = 1}$

$\mathbb{L} = \{(0|1|2)\}$

c)

$$\begin{array}{rcl|l|l} 0{,}5x_2 + 0{,}2x_3 &=& 0 & \cdot 10 & \\ 0{,}4x_1 + 0{,}8x_2 + 1x_3 &=& -3 & \cdot 10 & \cdot 9 \\ 0{,}9x_1 + 0{,}3x_2 + 0{,}5x_3 &=& -1 & \cdot 10 & \cdot(-4) \end{array}$$

$$\begin{array}{rcl|l} 5x_2 + 2x_3 &=& 0 & \cdot 12 \\ 4x_1 + 8x_2 + 10x_3 &=& -30 & \\ 60x_2 + 70x_3 &=& -230 & \cdot(-1) \end{array}$$

$4x_1 + 8x_2 + 10x_3 = -30 \Rightarrow 4x_1 + 8\cdot 2 + 10\cdot(-5) = -30 \Rightarrow 4x_1 = 4 \Rightarrow \underline{x_1 = 1}$

$5x_2 + 2x_3 = 0 \Rightarrow 5x_2 + 2\cdot(-5) = 0 \Rightarrow 5x_2 = 10 \Rightarrow \underline{x_2 = 2}$

$-46x_3 = +230 \Rightarrow \underline{x_3 = -5}$

$\mathbb{L} = \{(1|2|-5)\}$

6. Fell