

Verbesserung der Hausaufgabe

2. b)

$$\begin{array}{l|l} (1) & x + 2y - z = 1 \\ (2) & 2x + y - 2z = -1 \\ (3) & 3x - y + 4z = 10 \end{array}$$

$$\begin{array}{l|l} -2 \cdot (2) & -4x - 2y + 4z = 2 \quad (2*) \\ (1) + (2*) & -3x + 3z = 3 \\ & -x + z = 1 \quad (4) \end{array}$$

$$(2) + (3) \quad | \quad 5x + 2z = 9 \quad (5)$$

$$\begin{array}{l|l} 5 \cdot (4) & -5x + 5z = 5 \quad (4*) \\ (4*) + (5) & 7z = 14 \Rightarrow z = 2 \end{array}$$

$$\text{in (4)} \quad | \quad -x + 2 = 1 \Rightarrow x = 1$$

$$\text{in (1)} \quad | \quad 1 + 2y - 2 = 1 \Rightarrow y = 1 \text{ und damit } L = \left\{ (1 \mid 1 \mid 2) \right\}$$

2. c)

$$\begin{array}{l|l} (1) & 3x - 4y + z = -8 \\ (2) & -3x + 5y - 2z = 9 \\ (3) & 6x + 3y - 3z = 1 \end{array}$$

$$(1)+(2) \quad | \quad y - z = 1 \quad (4)$$

$$\begin{array}{l|l} 2 \cdot (1) & 6x - 8y + 2z = -16 \quad (1*) \\ (3) - (1*) & 11y - 5z = 17 \quad (5) \end{array}$$

$$\begin{array}{l|l} 5 \cdot (4) & 5y - 5z = 5 \quad (4*) \\ (5) - (1*) & 6y = 12 \Rightarrow y = 2 \end{array}$$

$$\text{in (2)} \quad | \quad 2 - z = 1 \Rightarrow z = 1$$

$$\text{in (1)} \quad | \quad 3x - 8 - 1 = -8 \Rightarrow x = \frac{1}{3} \text{ und damit } L = \left\{ \left(\frac{1}{3} \mid 2 \mid 1 \right) \right\}$$
