

GLEICHUNGSSYSTEME

3.

$$\begin{array}{ccc|c} 3 & -1 & 3c & 3c-1 \\ -9 & 4 & -c & 7-9c \\ -3 & 2 & c^2 & 3-2c \end{array} \begin{array}{l} \\ \left. \begin{array}{l} \text{II} + 3 \cdot \text{I} \\ \text{III} + \text{I} \end{array} \right\} \end{array}$$

$$\begin{array}{ccc|c} 3 & -1 & c & 3c-1 \\ 0 & 1 & 2c & 4 \\ 0 & 1 & c^2 & c+2 \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{III} - \text{II}$$

$$\begin{array}{ccc|c} 3 & -1 & c & 3c-1 \\ 0 & 1 & 2c & 4 \\ 0 & 0 & c^2-2c & c-2 \end{array} \Leftrightarrow c(c-2)x^3 = c-2$$

1. Fall: $c=0$: $0x_3 = -2$ (f) $L = \{\}$

2. Fall: $c=2$ $0x_3 = 0$ (w) $\Rightarrow \alpha$ viele Lsgen

Setze $x_3 = \alpha$

II $x_2 + 4\alpha = 4 \Leftrightarrow x_2 = 4 - 4\alpha$; $L = \{(3-2\alpha; 4-4\alpha; \alpha)\}$

I $3x_1 - (4-4\alpha) + 2\alpha = 5 \Leftrightarrow x_1 = 3 - 2\alpha$

3. Fall: $c \in \mathbb{R} \setminus \{0; 2\}$: Eine Lsg

$$x_3 = \frac{1}{c}$$

II $x_2 + 2c \cdot \frac{1}{c} = 4 \Leftrightarrow x_2 = 2$

I $3x_1 - 2 + c \cdot \frac{1}{c} = 3c - 1 \Leftrightarrow x_1 = c$

$L = \{(c; 2; \frac{1}{c})\}$