

Arithmetik – Lineare Gleichungen mit drei Variablen

Lösungswege - Arbeitsblatt

Lösen Sie folgende Gleichungen über die Grundmenge $G = \mathbb{R}$!

$$\begin{array}{l} \text{I: } 6x - 3y + 5z = 55 \\ \text{II: } 5x + y - 3z = 13 \\ \text{III: } 3x - 2y + z = 12 \end{array}$$

$$\begin{array}{l} \text{I: } 6x - 3y + 5z = 55 \\ \text{II: } 5x + y - 3z = 13 \quad | \cdot 3 \\ \text{I: } 6x - 3y + 5z = 55 \\ \text{II: } 15x + 3y - 9z = 39 \\ \text{I: } 21x - 4z = 94 \end{array}$$

$$\begin{array}{l} \text{II: } 5x + y - 3z = 13 \quad | \cdot 2 \\ \text{III: } 3x - 2y + z = 12 \\ \text{II: } 10x + 2y - 6z = 26 \\ \text{III: } 3x - 2y + z = 12 \\ \text{II: } 13x - 5z = 38 \end{array}$$

$$\begin{array}{l} \text{I: } 21x - 4z = 94 \quad | \cdot (-5) \\ \text{II: } 13x - 5z = 38 \quad | \cdot 4 \\ \text{I: } -105x - 20z = -470 \\ \text{II: } 52x - 20z = +152 \\ \hline -53x = -318 \quad | : (-53) \\ \underline{x = +6} \end{array}$$

$$\begin{array}{l} \text{II: } 13x - 5z = 38 \\ 13 \cdot 6 - 5z = 38 \\ 78 - 5z = 38 \quad | -78 \\ -5z = -40 \quad | : (-5) \\ \underline{z = +8} \end{array}$$

$$\begin{array}{l} \text{I: } 6x - 3y + 5z = 55 \\ 6 \cdot 6 - 3y + 5 \cdot 8 = 55 \\ 36 - 3y + 40 = 55 \quad | -76 \\ -3y = -21 \quad | : (-3) \\ \underline{y = +7} \\ \underline{L = \{+6, +7, +8\}} \end{array}$$

$$\begin{array}{l} \text{I: } 3x - 2y + 5z = 28 \\ \text{II: } 2x + 4y - 3z = 2 \\ \text{III: } 6x - 3y + 6z = 36 \end{array}$$

$$\begin{array}{l} \text{I: } 3x - 2y + 5z = 28 \\ \text{II: } 2x + 4y - 3z = 2 \\ \text{I: } \\ \text{II: } \\ \text{I: } 8x + 7z = 58 \end{array}$$

$$\begin{array}{l} \text{II: } 2x + 4y - 3z = 2 \\ \text{III: } 6x - 3y + 6z = 36 \\ \text{II: } \\ \text{III: } \\ \text{II: } 30x + 15z = 150 \end{array}$$

$$\begin{array}{l} \text{I: } 8x + 7z = 58 \\ \text{II: } 30x + 15z = 150 \\ \text{I: } \\ \text{II: } \end{array}$$

$$\text{I: } 8x + 7z = 58$$

$$\text{I: } 3x - 2y + 5z = 28$$

$$\underline{L = \{+2, +4, +6\}}$$