

Lösungen lineare Gleichungen

1. Aufgabe

$$\begin{array}{lcl} \text{a)} & 14x - 3 = 9x + 12 & | +3 \\ & 14x = 9x + 15 & | -9x \\ & 5x = 15 & | :5 \\ & x = 3 & \\ & & L = \{3\} \end{array}$$

$$\begin{array}{lcl} \text{b)} & -3x - 6 + x = 15 - 5x + 9 & | T \\ & -2x - 6 = -5x + 24 & | +6 \\ & -2x = -5x + 30 & | +5x \\ & 3x = 30 & | :3 \\ & x = 10 & \\ & & L = \{10\} \end{array}$$

$$\begin{array}{lcl} \text{c)} & -6x - 8 + 3x + 5 = -9x - 3 + 4x + 2 & | T \\ & -3x - 3 = -5x - 1 & | +5x \\ & 2x - 3 = -1 & | +3 \\ & 2x = 2 & | :2 \\ & x = 1 & \\ & & L = \{1\} \end{array}$$

$$\begin{array}{lcl} \text{d)} & -6x + 14 = 4(2x + 7) & | T \\ & -6x + 14 = 8x + 28 & | -8x \\ & -14x + 14 = 28 & | -14 \\ & -14x = 14 & | :(-14) \\ & x = -1 & \\ & & L = \{-1\} \end{array}$$

$$\begin{array}{lcl} \text{e)} & 19 - (6x + 6) = -2(2x - 5) - 3x & | T \\ & 19 - 6x - 6 = -4x + 10 - 3x & | T \\ & -6x + 13 = -7x + 10 & | +7x \\ & x + 13 = 10 & | -13 \\ & x = -3 & \\ & & L = \{-3\} \end{array}$$

$$\begin{array}{rcl}
\text{f)} & 3(x+1)+x+5 & = -(x-10)+2x+4 & |T \\
& 3x+3+x+5 & = -x+10+2x+4 & |T \\
& 4x+8 & = x+14 & |-x \\
& 3x+8 & = 14 & |-8 \\
& 3x & = 6 & |:3 \\
& x & = 2 & \\
& & & L = \{2\}
\end{array}$$

$$\begin{array}{rcl}
\text{g)} & 3(x+1)-(18-4x) & = 24-(2x-15) & |T \\
& 3x+3-18+4x & = 24-2x+15 & |T \\
& 7x-15 & = -2x+39 & |+2x \\
& 9x-15 & = 39 & |+15 \\
& 9x & = 54 & |:9 \\
& x & = 6 & \\
& & & L = \{6\}
\end{array}$$