

# LÖSUNGEN

## Lösen von Gleichungen

Löse die Gleichung mit Hilfe von Äquivalenzumformungen. Schreibe alle Umformungsschritte auf! Gib die Lösungsmenge an. Mache eine Probe.

### Level 1

<p>a. <math>x - 9 = 22</math> <math>+9</math></p> $\underline{x = 31}$ $L = \{31\}$ <p>Probe:</p> $\begin{array}{r} 31 - 9 = 22 \\ \hline 22 = 22 \end{array} \checkmark \text{w.A.}$	<p>b. <math>x + 12 = 87</math> <math>-12</math></p> $\underline{x = 75}$ $L = \{75\}$ <p>Probe:</p> $\begin{array}{r} 75 + 12 = 87 \\ \hline 87 = 87 \end{array} \checkmark \text{w.A.}$	<p>c. <math>12 \cdot x = 24</math> <math>1:12</math></p> $\underline{x = 2}$ $L = \{2\}$ <p>Probe:</p> $\begin{array}{r} 12 \cdot 2 = 24 \\ \hline 24 = 24 \end{array} \checkmark \text{w.A.}$	<p>d. <math>\frac{x}{7} = 8</math> <math>1 \cdot 7</math></p> $\underline{x = 56}$ $L = \{56\}$ <p>Probe:</p> $\begin{array}{r} \frac{56}{7} = 8 \\ \hline 8 = 8 \end{array} \checkmark \text{w.A.}$
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### Level 2

<p>a. <math>6 \cdot x - 14 = 22</math> <math>+14</math></p> $6x = 36$ $1:6$ $\underline{x = 6}$ $L = \{6\}$ <p>Probe:</p> $\begin{array}{r} 6 \cdot 6 - 14 = 22 \\ \hline 36 - 14 = 22 \\ \hline 22 = 22 \end{array} \checkmark \text{w.A.}$	<p>b. <math>\frac{x}{9} - 2 = 3</math> <math>+2</math></p> $\frac{x}{9} = 5$ $1 \cdot 9$ $\underline{x = 45}$ $L = \{45\}$ <p>Probe:</p> $\begin{array}{r} \frac{45}{9} - 2 = 3 \\ \hline 5 - 2 = 3 \\ \hline 3 = 3 \end{array} \checkmark \text{w.A.}$	<p>c. <math>5 \cdot x - 100 = 50</math> <math>+100</math></p> $5x = 150$ $1:5$ $\underline{x = 30}$ $L = \{30\}$ <p>Probe:</p> $\begin{array}{r} 5 \cdot 30 - 100 = 50 \\ \hline 150 - 100 = 50 \\ \hline 50 = 50 \end{array} \checkmark \text{w.A.}$	<p>d. <math>\frac{x}{4} + 8 = 18</math> <math>-8</math></p> $\frac{x}{4} = 10$ $1 \cdot 4$ $\underline{x = 40}$ $L = \{40\}$ <p>Probe:</p> $\begin{array}{r} \frac{40}{4} + 8 = 18 \\ \hline 10 + 8 = 18 \\ \hline 18 = 18 \end{array} \checkmark \text{w.A.}$
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### Level 3

<p>a. <math>6x - 20 = 25 - 3x</math> <math>+3x</math></p> $9x - 20 = 25$ $1 + 20$ $9x = 45$ $1:9$ $\underline{x = 5}$ $L = \{5\}$ <p>Probe:</p> $\begin{array}{r} 6 \cdot 5 - 20 = 25 - 3 \cdot 5 \\ \hline 30 - 20 = 25 - 15 \\ \hline 10 = 10 \end{array} \checkmark \text{w.A.}$	<p>b. <math>11x + 6 = 30 + 7x</math> <math>-7x</math></p> $4x + 6 = 30$ $1 - 6$ $4x = 24$ $1:4$ $\underline{x = 6}$ $L = \{6\}$ <p>Probe:</p> $\begin{array}{r} 11 \cdot 6 + 6 = 30 + 7 \cdot 6 \\ \hline 66 + 6 = 30 + 42 \\ \hline 72 = 72 \end{array} \checkmark \text{w.A.}$	<p>c. <math>13x - 6 \cdot 2 = 13 - 12 \cdot x</math></p> $13x - 12 = 13 - 12x$ $1 + 12x$ $25x - 12 = 13$ $1 + 12$ $25x = 25$ $1:25$ $\underline{x = 1}$ <p>Probe:</p> $\begin{array}{r} 13 \cdot 1 - 6 \cdot 2 = 13 - 12 \cdot 1 \\ \hline 13 - 12 = 13 - 12 \\ \hline 1 = 1 \end{array} \checkmark \text{w.A.}$
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