

Lösungen zu Übungen zu linearen Gleichungen 2

$2 \cdot (x + 3) = 12$	$2x + 6 = 12 / -6$ $\Leftrightarrow 2x = 6 / :2 \Leftrightarrow x = 3$
$x + 4 = 8 \cdot (x - 3)$	$x + 4 = 8x - 24 / -x$ $\Leftrightarrow 4 = 7x - 24 / +24$ $\Leftrightarrow 28 = 7x / :7 \Leftrightarrow x = 4$
$3 \cdot (4x - 6) = 18$	$12x - 18 = 18 / +18$ $\Leftrightarrow 12x = 36 / :12 \Leftrightarrow x = 3$
$-4 \cdot (-2x + 8) = -8$	$8x - 32 = -8 / +32$ $\Leftrightarrow 8x = 24 / :8 \Leftrightarrow x = 3$
$5 \cdot (x + 8) = -3 \cdot (4x - 2)$	$5x + 40 = -12x + 6 / -40$ $\Leftrightarrow 5x = -12x - 34 / +12x$ $\Leftrightarrow 17x = -34 / :17 \Leftrightarrow x = -2$
$10 \cdot (2x + 4) = -6 \cdot (-2 + 5x) - 6x$	$20x + 40 = 12 - 30x - 6x$ $\Leftrightarrow 20x + 40 = -36x + 12 / -40$ $\Leftrightarrow 20x = -36x - 28 / +36x$ $\Leftrightarrow 56x = -28 / :56 \Leftrightarrow x = \frac{1}{2}$
$-8 \cdot (-x - 6) = -8x$	$8x + 48 = -8x / +8x$ $\Leftrightarrow 16x + 48 = 0 / -48$ $\Leftrightarrow 16x = -48 / :16 \Leftrightarrow x = -3$
$4 + 3 \cdot (2x - 6) = 4x - 14$	$4 + 6x - 18 = 4x - 14$ $\Leftrightarrow 6x - 14 = 4x - 14 / +14$ $\Leftrightarrow 6x = 4x / -4x$ $\Leftrightarrow 2x = 0 / :2 \Leftrightarrow x = 0$
$4 \cdot (-4 - 5x) = -2 \cdot (10x - 8)$	$-16 - 20x = -20x + 16 / +20x$ $\Leftrightarrow -16 = 16 \quad \text{IL} = \{ \}$
$2 \cdot (4 - 10x) = -20 \cdot (-x + 1) - 3 \cdot (4x - 8)$	$8 - 20x = 20x - 20 - 12x + 24$ $\Leftrightarrow 8 - 20x = 8x + 4 / +20x$ $\Leftrightarrow 8 = 28x + 4 / -4$ $\Leftrightarrow 4 = 28x / :28 \Leftrightarrow x = \frac{1}{7}$
$3 \cdot (-12 + 8x) - 8x = -8 \cdot (-2x + 6) + 12$	$-36 + 24x - 8x = 16x - 48 + 12$ $\Leftrightarrow -36 + 16x = 16x - 36 / +36$ $\Leftrightarrow 16x = 16x / -16x$ $\Leftrightarrow 0 = 0 \quad \text{IL} = \text{IR}$
$\frac{2}{3} \cdot (-x + 4) = \frac{5}{6}x - 2 \cdot (2x - 8)$	$\frac{2}{3} \cdot (-x + 4) = \frac{5}{6}x - 2 \cdot (2x - 8) / \cdot 6$ $\Leftrightarrow 4 \cdot (-x + 4) = 5x - 12 \cdot (2x - 8)$ $\Leftrightarrow -4x + 16 = 5x - 24x + 96$ $\Leftrightarrow -4x + 16 = -19x + 96 / -16$ $\Leftrightarrow -4x = -19x + 80 / +19$ $\Leftrightarrow 15x = 80 / :15 \Leftrightarrow x = \frac{16}{3}$