

Lösungen zu den Übungen zu lineare Gleichungen

$2x = 6$	$2x = 6 \quad /:2$ $\Leftrightarrow x = 3$
$x + 4 = 8$	$x + 4 = 8 \quad /-4$ $\Leftrightarrow x = 4$
$3x - 6 = 9$	$3x - 6 = 9 \quad /+6$ $\Leftrightarrow 3x = 15 \quad /:3$ $\Leftrightarrow x = 5$
$-4x + 8 = 12$	$-4x + 8 = 12 \quad /-8$ $\Leftrightarrow -4x = 4 \quad /:(-4)$ $\Leftrightarrow x = -1$
$5x + 7 = -3$	$5x + 7 = -3 \quad /-7$ $\Leftrightarrow 5x = -10 \quad /:5$ $\Leftrightarrow x = -2$
$-8x + 6 = -10$	$-8x + 6 = -10 \quad /-6$ $\Leftrightarrow -8x = -16 \quad /:(-8)$ $\Leftrightarrow x = 2$
$-4 - 5x = -20$	$-4 - 5x = -20 \quad /+4$ $\Leftrightarrow -5x = -16 \quad /:(-5)$ $\Leftrightarrow x = \frac{16}{5} = 3,2$
$-3x - 12 = 15$	$-3x - 12 = 15 \quad /+12$ $\Leftrightarrow -3x = 27 \quad /:(-3)$ $\Leftrightarrow x = -9$
$\frac{2}{3}x + 4 = \frac{4}{9}$	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> $\frac{2}{3}x + 4 = \frac{4}{9} \quad /-4$ $\Leftrightarrow \frac{2}{3}x = \frac{4}{9} - 4$ $\Leftrightarrow \frac{2}{3}x = \frac{4}{9} - \frac{36}{9} = -\frac{32}{9} \quad / \cdot \frac{3}{2}$ $\Leftrightarrow x = -\frac{32}{9} \cdot \frac{3}{2} = -\frac{16}{3}$ </div> <div style="width: 35%; color: blue;"> <p>Man kann auch einfach erst die Brüche eliminieren:</p> $\frac{2}{3}x + 4 = \frac{4}{9} \quad / \cdot 9$ $\Leftrightarrow 6x + 36 = 4 \quad /-36$ $\Leftrightarrow 6x = -32 \quad /:6$ $\Leftrightarrow x = -\frac{32}{6} = -\frac{16}{3}$ </div> </div>
$\frac{5}{8}x - \frac{7}{12} = \frac{2}{4}$	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> $\frac{5}{8}x - \frac{7}{12} = \frac{2}{4} \quad /+\frac{7}{12}$ $\Leftrightarrow \frac{5}{8}x = \frac{2}{4} + \frac{7}{12} = \frac{6}{12} + \frac{7}{12} = \frac{13}{12} \quad / \cdot \frac{8}{5}$ $\Leftrightarrow x = \frac{13}{12} \cdot \frac{8}{5} = \frac{26}{15}$ </div> <div style="width: 35%; color: blue;"> $\frac{5}{8}x - \frac{7}{12} = \frac{2}{4} \quad / \cdot 24$ $\Leftrightarrow 15x - 14 = 12 \quad /+14$ $\Leftrightarrow 15x = 26 \quad /:15$ $\Leftrightarrow x = \frac{26}{15}$ </div> </div>
$-\frac{3}{16}x - \frac{5}{8} = -\frac{1}{4}$	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> $-\frac{3}{16}x - \frac{5}{8} = -\frac{1}{4} \quad /+\frac{5}{8}$ $\Leftrightarrow -\frac{3}{16}x = -\frac{1}{4} + \frac{5}{8} = -\frac{2}{8} + \frac{5}{8} = \frac{3}{8} \quad / \cdot (-\frac{16}{3})$ $\Leftrightarrow x = \frac{3}{8} \cdot (-\frac{16}{3}) = -2$ </div> <div style="width: 35%; color: blue;"> $-\frac{3}{16}x - \frac{5}{8} = -\frac{1}{4} \quad / \cdot 16$ $\Leftrightarrow -3x - 10 = -4 \quad /+10$ $\Leftrightarrow -3x = 6 \quad /:(-3)$ $\Leftrightarrow x = -2$ </div> </div>