

Mathematik 7. Klasse		Übungsblatt 4
		Lösungen

1. Löse die Klammern auf und vereinfache so weit wie möglich:

$$\begin{aligned} \text{a)} \quad & 0,3a \cdot [4,6z - (6x + 1,2z) \cdot 3] = \\ & 0,3a \cdot [4,6z - 18x - 3,6z] = \\ & 0,3a \cdot [z - 18x] = \\ & 0,3az - 5,4ax \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & (4,5x + 1,8) : 9 = \\ & (4,5x + 1,8) \cdot \frac{1}{9} = \\ & 4,5x \cdot \frac{1}{9} + 1,8 \cdot \frac{1}{9} = \\ & 0,5x + 0,2 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & ab \cdot (6ab + 3a + 7b) - 3a^2 \cdot (b^2 - b) = \\ & 6a^2b^2 + 3a^2b + 7ab^2 - 3a^2b^2 + 3a^2b = \\ & 3a^2b^2 + 6a^2b + 7ab^2 \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & 14a^3b : (-2ab) - 8(ab)^4 : (-2a^2b^4) = \\ & -7a^2 - 8a^4b^4 : (-2a^2b^4) = \\ & -7a^2 + 4a^2 = \\ & -3a^2 \end{aligned}$$

$$\begin{aligned} \text{e)} \quad & -8b - [(-7b + 7c) + 6a] + [3b - (2c - 22a)] - [7a - (18b - c)] - (-10c + 9a + 8b) = \\ & -8b - [-7b + 7c + 6a] + [3b - 2c + 22a] - [7a - 18b + c] + 10c - 9a - 8b = \\ & -8b + 7b - 7c - 6a + 3b - 2c + 22a - 7a + 18b - c + 10c - 9a - 8b = \\ & 12b \end{aligned}$$

2. Löse die Gleichungen (gegebenenfalls Rückseite verwenden):

$$\begin{aligned} \text{a)} \quad & 7x - 42 = 4x + 12 \quad | -4x \\ & 3x - 42 = 12 \quad | +42 \\ & 3x = 54 \quad | :3 \\ & x = 18 \\ & L = \{18\} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & \frac{3}{5}x - \frac{8}{15}x - 8 = -\frac{4}{5} \left( \frac{15}{2} - \frac{1}{12}x \right) \\ & \frac{9}{15}x - \frac{8}{15}x - 8 = -6 + \frac{1}{15}x \\ & \frac{1}{15}x - 8 = -6 + \frac{1}{15}x \quad | -\frac{1}{15}x \\ & -8 = -6 \quad \text{falsche Aussage!} \Rightarrow L = \{\} \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & 4x - (x - 2,5) = 27 - 2(12 - x) \\ & 4x - x + 2,5 = 27 - 24 + 2x \\ & 3x + 2,5 = 3 + 2x \quad | -2x \\ & x + 2,5 = 3 \quad | -2,5 \\ & x = 0,5 \quad | -2,5 \\ & G = \mathbb{N} \Rightarrow L = \{\} \\ & G = \mathbb{Q}^+ \Rightarrow L = \{0,5\} \\ & G = \mathbb{Q} \Rightarrow L = \{0,5\} \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & x - [6(3 - 2x) - 3(5 - x)] = 25 - 3(7 - x) \\ & x - [18 - 12x - 15 + 3x] = 25 - 21 + 3x \\ & x - [3 - 9x] = 4 + 3x \\ & x - 3 + 9x = 4 + 3x \\ & 10x - 3 = 4 + 3x \quad | -3x \\ & 7x - 3 = 4 \quad | +3 \\ & 7x = 7 \quad | :7 \\ & x = 1 \\ & L = \{1\} \end{aligned}$$