

BVKT1

1. Stufenförmige Aufgabe am 15.10.2010

$$\begin{aligned} 1) \quad & x - (x - 2(2(x-1) \cdot 3 + 4)) = 12x \\ \Leftrightarrow & x - (x - 2(6x - 6 + 4)) = 12 \\ \Leftrightarrow & x - (x - 2(6x - 2)) = 12x \\ \Leftrightarrow & x - (x - 12x + 4) = 12x \\ \Leftrightarrow & x - (-11x + 4) = 12x \\ \Leftrightarrow & x + 11x - 4 = 12x \\ \Leftrightarrow & 12x - 4 = 12x \quad | -12x \\ \Leftrightarrow & -4 = 0 \quad (F) \end{aligned}$$

$$\underline{L = \{\}} \quad \underline{\underline{\quad}}$$

$$2) \quad \frac{\frac{4}{7}(3x-1)}{6} + 1 = x \quad | \cdot 6$$

$$\begin{aligned} \Leftrightarrow & \frac{4}{7}(3x-1) + 6 = 6x \\ \Leftrightarrow & \frac{12}{7}x - \frac{4}{7} + 6 = 6x \\ \Leftrightarrow & \frac{12}{7}x + \frac{38}{7} = 6x \quad | -\frac{12}{7}x \\ \Leftrightarrow & \frac{38}{7} = \frac{30}{7}x \quad | \cdot \frac{7}{30} \\ \Leftrightarrow & x = \frac{38 \cdot \frac{7}{30}}{7} = \frac{19}{15} \quad ; \quad L = \left\{ \frac{19}{15} \right\} \end{aligned}$$

Alternativ: $| \cdot 7$

$$\begin{aligned} & 4(3x-1) + 42 = 42x \\ \Leftrightarrow & 12x - 4 + 42 = 42x \quad | -12x \\ \Leftrightarrow & 38 = 30x \quad | : 30 \\ \Leftrightarrow & x = \frac{38}{30} = \frac{19}{15} \quad ; \quad \underline{L = \left\{ \frac{19}{15} \right\}} \end{aligned}$$

$$3) \quad \frac{x-a}{2} = \frac{3}{b} \quad | \cdot 2b$$

$$\begin{aligned} \Leftrightarrow & b(x-a) = 6 \\ \Leftrightarrow & bx - ab = 6 \quad | +ab \\ \Leftrightarrow & bx = 6 + ab \quad | : b \\ \Leftrightarrow & x = \frac{6+ab}{b} \quad ; \quad \underline{L = \left\{ \frac{6+ab}{b} \right\}} \end{aligned}$$

$$4) \quad \frac{1}{a} = \frac{1}{2b} - \frac{1}{x} \quad | +\frac{1}{x} - \frac{1}{a}$$

$$\begin{aligned} \Leftrightarrow & \frac{1}{x} = \frac{1}{2b} - \frac{1}{a} \\ \Leftrightarrow & \frac{1}{x} = \frac{a - 2b}{2ab} \quad | \text{kw} \\ \Leftrightarrow & x = \frac{2ab}{a-2b} \quad ; \quad \underline{L = \left\{ \frac{2ab}{a-2b} \right\}} \end{aligned}$$

$$5) \quad \frac{x-a}{x} = \frac{2}{7} \quad | \cdot 7x$$

$$\begin{aligned} \Leftrightarrow & 7(x-a) = 2x \\ \Leftrightarrow & 7x - 7a = 2x \quad | -7x \\ \Leftrightarrow & -7a = -5x \quad | : (-5) \\ \Leftrightarrow & x = \frac{7}{5}a \quad \underline{L = \left\{ \frac{7}{5}a \right\}} \end{aligned}$$