

Lösungen Stufe C

C 1/2

$$1) \quad -\frac{1}{2} + \frac{1}{3}y = \frac{2}{5} \quad | +\frac{1}{2}$$

$$\frac{1}{3}y = \frac{4}{10} + \frac{5}{10}$$

$$\frac{1}{3}y = \frac{9}{10} \quad | \cdot 3$$

$$y = \frac{27}{10} = 2,7$$

$$\mathbb{L} = \left\{ \frac{27}{10} \right\}$$

$$2) \quad \frac{4}{3}x - \frac{2}{3} = 1 - \frac{1}{2} + \frac{1}{8}x$$

$$\frac{4}{3}x - \frac{2}{3} = \frac{1}{2} + \frac{1}{8}x \quad | -\frac{1}{8}x \quad | +\frac{2}{3}$$

$$\frac{4}{3}x - \frac{1}{8}x = \frac{1}{2} + \frac{2}{3}$$

$$\frac{32}{24}x - \frac{3}{24}x = \frac{3}{6} + \frac{4}{6}$$

$$\frac{29}{24}x = \frac{7}{6} \quad | \cdot \frac{24}{29}$$

$$x = \frac{7}{6} \cdot \frac{24}{29} = \frac{7 \cdot 4}{1 \cdot 29} = \frac{28}{29}$$

$$\mathbb{L} = \left\{ \frac{28}{29} \right\}$$

$$3) \quad \frac{1}{2} - \frac{1}{3}x + x = \frac{5}{3} - \frac{1}{2}x \quad | \cdot 6$$

$$3 - 2x + 6x = 10 - 3x$$

$$3 + 4x = 10 - 3x$$

$$7x = 7 \quad | :7$$

$$x = 1$$

$$| +3x \quad | -3$$

$$\mathbb{L} = \{1\}$$

$$4) \quad \frac{1}{8}x + \frac{1}{6}x + \frac{1}{3}x + \frac{1}{12}x + 21 = x$$

$$\frac{1}{48}x + \frac{8}{48}x + \frac{16}{48}x + \frac{4}{48}x + 21 = x$$

$$\frac{34}{48}x + 21 = \frac{48}{48}x$$

$$21 = \frac{14}{48}x$$

$$x = 21 \cdot \frac{48}{14}$$

$$x = 72$$

$$\mathbb{L} = \{72\}$$

$$5) -\frac{1}{2}x - \frac{5}{2} + \frac{1}{2}x + \frac{35}{14} = 0$$

$$0 - \frac{5}{2} + \frac{5}{2} = 0$$

$$0 = 0 \quad \mathbb{L} = \mathbb{Q}$$

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

$$\frac{2}{3}x - \frac{3}{4}x - \frac{1}{2} = \frac{1}{2}x + \frac{2}{3} \quad | \cdot 12$$

$$8x - 9x - 6 = 6x + 8$$

$$-x - 6 = 6x + 8 \quad | +x \quad | -8$$

$$-14 = 7x \quad | :7$$

$$-2 = x \quad \mathbb{L} = \{-2\}$$

$$7) \left(\frac{1}{4}a^2 - \frac{1}{12}a + \frac{2}{3}a - \frac{2}{9} \right) \cdot 12 = 3a^2 - \frac{51}{9}$$

$$3a^2 - 1a + 8a - \frac{24}{9} = 3a^2 - \frac{51}{9} \quad | -3a^2$$

$$7a - \frac{24}{9} = -\frac{51}{9} \quad | + \frac{24}{9}$$

$$7a = -\frac{27}{9}$$

$$7a = -3 \quad | :7$$

$$a = -\frac{3}{7}$$

$$\mathbb{L} = \left\{ -\frac{3}{7} \right\}$$

$$8) y^2 + \frac{1}{2}y + \frac{1}{16} - \left(y^2 - \frac{1}{4} \right) = \frac{3}{8}$$

$$\cancel{y^2} + \frac{1}{2}y + \frac{1}{16} - \cancel{y^2} + \frac{1}{4} = \frac{3}{8}$$

$$\frac{1}{2}y + \frac{5}{16} = \frac{3}{8} \quad | -\frac{5}{16}$$

$$\frac{1}{2}y = \frac{1}{16} \quad | \cdot 2 \quad \left| y = \frac{1}{8} \right. \quad \mathbb{L} = \left\{ \frac{1}{8} \right\}$$