

## Aufgabe 8

a)

$$\begin{array}{rcl} 7x - 2 = 12 & & | + 2 \\ 7x = 14 & & | : 7 \\ x = 2 & & \end{array}$$

Probe:

$$\begin{array}{r} 7 \cdot 2 - 2 = 12 \\ 14 - 2 = 12 \\ 12 = 12 \end{array}$$

b)

$$\begin{array}{rcl} 7x - 2x = 12 & & \\ 5x = 12 & & | : 5 \\ x = 2,4 & & \end{array}$$

Probe:

$$\begin{array}{r} 7 \cdot 2,4 - 2 \cdot 2,4 = 12 \\ 16,8 - 4,8 = 12 \\ 12 = 12 \end{array}$$

c)

$$\begin{array}{rcl} 7x - 2 = 12x & & | - 7x \\ -2 = 5x & & | : 5 \\ -0,4 = x & & \end{array}$$

Probe:

$$\begin{array}{r} 7 \cdot (-0,4) - 2 = 12 \cdot (-0,4) \\ -2,8 - 2 = -4,8 \\ -4,8 = -4,8 \end{array}$$

**d)**

$$\begin{array}{rcl} 3x + 10 = 4 + x & & | - x \\ 2x + 10 = 4 & & | - 10 \\ 2x = -6 & & | : (-2) \\ x = -3 & & \end{array}$$

Probe:

$$\begin{array}{r} 3 \cdot (-3) + 10 = 4 + (-3) \\ -9 + 10 = 1 \\ 1 = 1 \end{array}$$

**e)**

$$\begin{array}{rcl} 3x - 10 = 4 + x & & | - x \\ 2x - 10 = 4 & & | + 10 \\ 2x = 14 & & | : 2 \\ x = 7 & & \end{array}$$

Probe:

$$\begin{array}{r} 3 \cdot 7 - 10 = 4 + 7 \\ 21 - 10 = 11 \\ 11 = 11 \end{array}$$

**e)**

$$\begin{array}{rcl} 3x - 10 = 4 - x & & | + x \\ 4x - 10 = 4 & & | + 10 \\ 4x = 14 & & | : 4 \\ x = 3,5 & & \end{array}$$

Probe:

$$3 \cdot 3,5 - 10 = 4 - 3,57$$

$$10,5 - 10 = 0,5$$

$$0,5 = 0,5$$

f)

$$3x - 10 = 4 + x \quad | -x$$

$$2x - 10 = 4 \quad | +10$$

$$2x = 14 \quad | :2$$

$$x = 7$$

Probe:

$$3 \cdot 7 - 10 = 4 + 7$$

$$21 - 10 = 11$$

$$11 = 11$$

g)

$$5x + 4 = 16 - 7x \quad | +7x$$

$$12x + 4 = 16 \quad | -4$$

$$12x = 12 \quad | :12$$

$$x = 1$$

Probe:

$$5 \cdot 1 + 4 = 16 - 7 \cdot 1$$

$$5 + 4 = 16 - 7$$

$$9 = 9$$

**h)**

$$\begin{array}{rcl} 5x - 4 = 16 + 7x & & | - 7x \\ -2x - 4 = 16 & & | + 4 \\ -2x = 20 & & | : (-2) \\ x = -10 & & \end{array}$$

Probe:

$$\begin{array}{r} 5 \cdot (-10) - 4 = 16 + 7 \cdot (-10) \\ -50 - 4 = 16 - 70 \\ -54 = -54 \end{array}$$

**i)**

$$\begin{array}{rcl} 5x + 16 = 4 - 7x & & | + 7x \\ 12x + 16 = 4 & & | - 16 \\ 12x = -12 & & | : 12 \\ x = -1 & & \end{array}$$

Probe:

$$\begin{array}{r} 5 \cdot (-1) + 16 = 4 - 7 \cdot (-1) \\ -5 + 16 = 4 + 7 \\ 11 = 11 \end{array}$$

**j)**

$$\begin{array}{rcl} \frac{1}{2}x + 8 = 5 - x & & | + x \\ 1,5x + 8 = 5 & & | - 8 \\ 1,5x = -3 & & | : 1,5 \\ x = -2 & & \end{array}$$

Probe:

$$\begin{aligned}\frac{1}{2} \cdot (-2) + 8 &= 5 - (-2) \\ -1 + 8 &= 7 \\ 7 &= 7\end{aligned}$$

k)

$$\begin{aligned}2x - \frac{3}{4} &= \frac{1}{2} - x && | + x \\ 3x - \frac{3}{4} &= \frac{1}{2} && | + \frac{3}{4} \\ 3x &= 1\frac{1}{4} && | : 3 \\ x &= \frac{5}{12} \approx 0,42\end{aligned}$$

Probe:

$$\begin{aligned}2 \cdot \frac{5}{12} - \frac{3}{4} &= \frac{1}{2} - \frac{5}{12} \\ \frac{1}{12} &= \frac{1}{12}\end{aligned}$$

l)

$$\begin{aligned}-\frac{2}{3}x + \frac{1}{4} &= \frac{5}{4}x + \frac{1}{3} && | - \frac{5}{4}x \\ -\frac{23}{12}x + \frac{1}{4} &= \frac{1}{3} && | - \frac{1}{4} \\ -\frac{23}{12}x &= \frac{1}{12} && | : \left(-\frac{23}{12}\right) \\ x &= -\frac{1}{23}\end{aligned}$$

Probe:

$$\begin{aligned} -\frac{2}{3} \cdot \left(-\frac{1}{23}\right) + \frac{1}{4} &= \frac{5}{4} \cdot \left(-\frac{1}{23}\right) + \frac{1}{3} \\ \frac{2}{69} + \frac{1}{4} &= -\frac{5}{92} + \frac{1}{3} \\ \frac{77}{276} &= \frac{77}{276} \end{aligned}$$