

AH – S.26 – Nr.1.1 Löse die Gleichungen

a) $\frac{1}{7}x + \frac{2}{1} = \frac{7}{1}$ | HN=7 $\frac{1}{7}x = \frac{x}{7}$

$$\begin{array}{rcl} \frac{x+2 \cdot 7}{7} & = & \frac{7 \cdot 7}{7} \\ x+14 & = & 49 \\ x & = & -35 \end{array} \quad \begin{array}{l} \text{Nenner weglassen, d.h. } \cdot 7 \\ |-14 \end{array}$$

b) $3\left(x - \frac{1}{5}\right) = 2$ | :3

$$\begin{array}{rcl} \frac{x}{1} - \frac{1}{5} & = & \frac{2}{3} \\ 15x - 3 & = & 10 \\ 15x & = & 13 \\ x & = & \frac{13}{15} \end{array} \quad \begin{array}{l} | \text{HN}=15 \\ | +3 \\ | :15 \end{array}$$

Von nun an lassen wir die Nenner nach dem gleichnamig machen direkt weg.

c) $\frac{3}{4} = \frac{5x+1}{7}$ | HN=28

$$\begin{array}{rcl} 3 \cdot 7 & = & 4 \cdot (5x+1) \\ 21 & = & 20x + 4 \\ 17 & = & 20x \\ \frac{17}{20} & = & x \end{array} \quad \begin{array}{l} | \text{TU} \\ | -4 \\ | :20 \end{array}$$

d) $\frac{3+2y}{6} = \frac{-3}{9}$ | HN=18 $\frac{-3}{9} = -\frac{3}{9}$

$$\begin{array}{rcl} 3(3+2y) & = & -3 \cdot 2 \\ 9+6y & = & -6 \\ 6y & = & -15 \\ y & = & -\frac{15}{6} = -\frac{5}{2} \end{array} \quad \begin{array}{l} | \text{TU} \\ | -9 \\ | :6 \end{array}$$

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e)
$$\begin{array}{rcl} -\frac{4}{7} & = & \frac{4-5x}{8} \\ -4 \cdot 8 & = & 7(4-5x) \end{array} \quad | \text{ HN}=56$$

$$-32 = 28 - 35x \quad | -28$$

$$-60 = -35x \quad | :(-35)$$

$$\frac{\cancel{-60}}{\cancel{-35}} = \frac{12}{7} = x$$

f)
$$\begin{array}{rcl} \frac{2y-3}{3} & = & \frac{y+5}{4} \\ 4(2y-3) & = & 3(y+5) \end{array} \quad | \text{ HN}=12$$

$$8y - 12 = 3y + 15 \quad | -3y$$

$$5y - 12 = 15 \quad | +12$$

$$5y = 27 \quad | :5$$

$$y = \frac{27}{5}$$

g)
$$\begin{array}{rcl} \frac{5x}{14} - \frac{3x-2}{8} & = & 0 \\ 4 \cdot 5x - 7(3x-2) & = & 0 \end{array} \quad | \text{ HN}=56, 14 \cdot 8 \text{ würde auch gehen}$$

$$20x - 21x + 14 = 0 \quad | \text{ TU}$$

$$-x + 14 = 0 \quad | +x$$

$$14 = x$$

h)
$$\begin{array}{rcl} \frac{5y}{24} - \frac{2}{1} & = & \frac{-y+7}{16} \\ 2 \cdot 5y - 2 \cdot 48 & = & 3(-y+7) \end{array} \quad | \text{ HN}=48$$

$$10y - 96 = -3y + 21 \quad | +3y$$

$$13y - 96 = 21 \quad | +96$$

$$13y = 117 \quad | :13$$

$$y = 9$$