**Lösungen**:

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|---|---|
| **1** | Bitte bestimmen Sie die Unbekannten |

      a)   4,9(b - 4,7) - 7,12(b - 8,66) - 10,82 = 11,7586         | L: b = 7,23;

      b)   11,15(v - 2,26) - 5,82(v - 4,51) + 1,96 = -33,8211     | L: v = -6,91;

      c)   7,4(w - 6,26) - 3,29(w + 4,71) + 6,45 = -20,887      | L: w = 8,39;

      d)  $\left(\frac{9}{10}p + 3\right) * \left(-\frac{5}{4}\right) + \frac{2}{3} = -\frac{101}{24}$        | L:    p = 1

      e)  $\left(\left(\left(\left(-\frac{10}{7}i + \frac{1}{3}\right) * 8 + 6\right) * \left(-\frac{9}{11}\right) + 2\right) * \frac{4}{3} - \frac{2}{7}\right) * \frac{6}{5} + 2 = -\frac{254}{55}$ | L:   $i = \frac{1}{8}$

      f)  $\left(\left(-7i + \frac{1}{6}\right) * \left(-\frac{3}{7}\right) + \frac{12}{7}\right) * \frac{7}{6} - \frac{1}{9} = \frac{569}{36}$     | L:   i = 4

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| **2** | Bitte bestimmen Sie die genannten Unbekannten |

a)

$$\frac{5be + 3}{3s - sx} - 9r = 3e \quad [e\,b\,s\,x]$$

            L :

$$e = \frac{27rs - 9rsx - 3}{-9s + 3sx + 5b}$$

$$b = \frac{9es - 3esx + 27rs - 9rsx - 3}{5e}$$

$$s = \frac{-5be - 3}{-9e + 3ex - 27r + 9rx}$$

$$x = \frac{9es + 27rs - 5be - 3}{3es + 9rs}$$

b)

$$\frac{-9y - 2fv}{2hn - h} + 4j = -9d \quad [y\,f\,n\,h]$$

            L :

$$y = \frac{-18dhn + 9dh - 8hjn + 4hj + 2fv}{-9}$$

$$f = \frac{-18dhn + 9dh - 8hjn + 4hj + 9y}{-2v}$$

$$n = \frac{9dh + 4hj + 9y + 2fv}{18dh + 8hj}$$

$$h = \frac{9y + 2fv}{18dn - 9d + 8jn - 4j}$$

c)

$$\frac{j - 5jt}{3ip + i} - 6r = 5w \quad [j\,t\,p\,i]$$

            L :

$$j = \frac{15ipw + 5iw + 18ipr + 6ir}{1 - 5t}$$

$$t = \frac{15ipw + 5iw + 18ipr + 6ir - j}{-5j}$$

$$p = \frac{5iw + 6ir - j + 5jt}{-15iw - 18ir}$$

$$i = \frac{-j + 5jt}{-15pw - 5w - 18pr - 6r}$$

| 3 | Bitte bestimmen Sie die Unbekannten |
|---|---|
| | a) $\dfrac{\frac{1}{3}}{-\frac{1}{2}y-\frac{1}{10}} - \dfrac{5}{3} = -\dfrac{160}{87}$    \|    L:   $y = \dfrac{11}{3}$ |
| | b) $\dfrac{-\frac{5}{2}}{\frac{3}{4}c+\frac{11}{3}} + 6 = \dfrac{909}{164}$    \|    L:   $c = \dfrac{12}{5}$ |
| | c) $\dfrac{-4s-2}{-\frac{1}{3}s-\frac{4}{9}} - \dfrac{5}{11} = -\dfrac{203}{11}$    \|    L:   $s = -1$ |
| | d) $\dfrac{-\frac{5}{8}f+\frac{2}{3}}{-9f-\frac{11}{4}} - 11 = -\dfrac{386}{35}$    \|    L:   $f = \dfrac{2}{3}$ |
| **4** | Bitte bestimmen Sie die Unbekannten |
| | a) |
| | $((((\frac{1}{2}m-\frac{2}{3})*(-\frac{7}{4})-5m)*\frac{9}{7}-\frac{10}{7}m)*\frac{5}{9}-\frac{9}{11}m)*(-\frac{3}{4})+\frac{1}{7}m=\frac{367}{363}$   \| L: $m=\frac{4}{11}$ |
| | b) |
| | $((\frac{11}{4}o+3)*\frac{6}{7}+\frac{1}{2}o)*(-\frac{2}{3})-9\,o=\frac{329}{18}$             \| L: $o=-\frac{11}{6}$ |
| | c) |
| | $(((-\frac{3}{5}u+\frac{6}{5})*(-\frac{11}{9})-\frac{11}{8}u)*\frac{1}{2}+\frac{1}{10}u)*(-4)+\frac{7}{6}u=\frac{407}{600}$   \| L: $u=-\frac{11}{10}$ |
| **5** | Bitte bestimmen Sie die Unbekannten des Gleichungssystems |
| | a)<br>`2f -  7d = 85`<br>` f + 11d = -88`<br><br>`L:`<br>**`f = 11;`**<br>**`d = -9;`**<br><br>b)<br>`9t + 5n = -44`<br>`7t - 3n = -48`<br><br>`L:`<br>**`t = -6;`**<br>**`n = 2;`** |