

1. a)

$$\begin{array}{rcll}
 I & y & = & -4x + 2 \\
 II & 5x + 3y & = & -8 \\
 \hline
 I \text{ in } II & 5x + 3 \cdot (-4x + 2) & = & -8 & |T \\
 & 5x - 12x + 6 & = & -8 & | -6 \\
 & -7x & = & -14 & | : (-7) \\
 & x & = & 2 \\
 \hline
 x \text{ in } I & y & = & -4 \cdot 2 + 2 \\
 & y & = & -8 + 2 \\
 & y & = & -6
 \end{array}$$

Probe in II :

$$\begin{array}{l}
 \text{l. S.: } 5 \cdot 2 + 3 \cdot (-6) = 10 - 18 = -8 \\
 \text{r. S.: } -8
 \end{array} \bigg\} \checkmark$$

Lösungsmenge:

$$L = \{(2/-6)\}$$

b)

$$\begin{array}{rcll}
 I & x & = & 2y - 10 \\
 II & 7x + 40 & = & 4y \\
 \hline
 I \text{ in } II & 7 \cdot (2y - 10) + 40 & = & 4y & |T \\
 & 14y - 70 + 40 & = & 4y & | -14y \\
 & -30 & = & -10y & | : (-10) \\
 & 3 & = & y \\
 \hline
 y \text{ in } I & x & = & 2 \cdot 3 - 10 \\
 & x & = & 6 - 10 \\
 & x & = & -4
 \end{array}$$

Probe in II :

$$\begin{array}{l}
 \text{l. S.: } 7 \cdot (-4) + 40 = -28 + 40 = 12 \\
 \text{r. S.: } 4 \cdot 3 = 12
 \end{array} \bigg\} \checkmark$$

Lösungsmenge:

$$L = \{(-4/3)\}$$

c)

$$\begin{array}{rcll}
 I & 5y & = & 7x + 7 \\
 II & 2x + 5y & = & 43 \\
 \hline
 I \text{ in } II & 2x + 7x + 7 & = & 43 & | -7 \\
 & 9x & = & 36 & | : 9 \\
 & x & = & 4 \\
 \hline
 x \text{ in } I & 5y & = & 7 \cdot 4 + 7 \\
 & 5y & = & 35 & | : 5 \\
 & y & = & 7
 \end{array}$$

Probe in II :

$$\begin{array}{l}
 \text{l. S.: } 2 \cdot 4 + 5 \cdot 7 = 8 + 35 = 43 \\
 \text{r. S.: } 43
 \end{array} \bigg\} \checkmark$$

Lösungsmenge:

$$L = \{(4/7)\}$$

d)

$$\begin{array}{rclcl}
 I & 2y & = & 8x - 6 & | : 2 \\
 II & 12x - 3y & = & 9 & \\
 \hline
 I & y & = & 4x - 3 & \\
 II & 12x - 3y & = & 9 & \\
 \hline
 I \text{ in } II & 12x - 3(4x - 3) & = & 9 & | T \\
 & 12x - 12x + 9 & = & 9 & | T \\
 & 9 & = & 9 & \\
 \hline
 \end{array}$$

Unendlich viele Lösungen

e)

$$\begin{array}{rclcl}
 I & x + 2,5y & = & 1 & \\
 II & y & = & 3x & \\
 \hline
 II \text{ in } I & x + 2,5 \cdot 3x & = & 1 & \\
 & 8,5x & = & 1 & | : 8,5 \\
 & x & = & \frac{2}{17} & \\
 \hline
 x \text{ in } II & y & = & 3 \cdot \frac{2}{17} & \\
 & y & = & \frac{6}{17} & \\
 \hline
 \end{array}$$

Probe in I:

$$\begin{array}{l}
 \text{l. S.: } \frac{2}{17} + 2,5 \cdot \frac{6}{17} = \frac{2+15}{17} = \frac{17}{17} = 1 \\
 \text{r. S.: } 1
 \end{array} \left. \vphantom{\begin{array}{l} \text{l. S.:} \\ \text{r. S.:} \end{array}} \right\} \checkmark$$

Lösungsmenge:

$$L = \left\{ \left(\frac{2}{17} / \frac{6}{17} \right) \right\}$$

f)

$$\begin{array}{rclcl}
 I & 2x + 4y & = & 6 & \\
 II & y & = & 2x - 1 & \\
 \hline
 II \text{ in } I & 2x + 4 \cdot (2x - 1) & = & 6 & | T \\
 & 2x + 8x - 4 & = & 6 & | T \\
 & 10x - 4 & = & 6 & | + 4 \\
 & 10x & = & 10 & | : 10 \\
 & x & = & 1 & \\
 \hline
 x \text{ in } II & y & = & 2 \cdot 1 - 1 & \\
 & y & = & 1 & \\
 \hline
 \end{array}$$

Probe in I:

$$\begin{array}{l}
 \text{l. S.: } 2 \cdot 1 + 4 \cdot 1 = 2 + 4 = 6 \\
 \text{r. S.: } 6
 \end{array} \left. \vphantom{\begin{array}{l} \text{l. S.:} \\ \text{r. S.:} \end{array}} \right\} \checkmark$$

Lösungsmenge:

$$L = \{(1/1)\}$$