

Nr. 9

$$a) I \quad 3x + y = 19 \quad | -3x$$

$$II \quad 10y = 7x + 5$$

$$I' \quad y = 19 - 3x$$

einsetzen in II:

$$10 \cdot (19 - 3x) = 7x + 5$$

$$\Leftrightarrow 190 - 30x = 7x + 5 \quad | -5 + 30x$$

$$\Leftrightarrow 185 = 37x \quad | : 37$$

$$\Leftrightarrow 5 = x$$

einsetzen in I':

$$y = 19 - 3 \cdot 5 = 19 - 15 = 4$$

$$\text{also } \mathcal{L} = \{5/4\}$$

$$b) I \quad -8x + 7y = 62$$

$$II \quad 8x - 78 = 7y$$

II einsetzen in I:

$$-8x + (8x - 78) = 62$$

$$\Leftrightarrow -78 = 62 \quad \text{!}$$

$$\text{also } \mathcal{L} = \{ \}$$

$$c) I \quad 3y - 16 = 2x$$

$$II \quad 0,6x = 18 + y \quad | -18$$

$$\Leftrightarrow 0,6x - 18 = y \quad II'$$

einsetzen in I:

$$3 \cdot (0,6x - 18) - 16 = 2x$$

$$\Leftrightarrow 1,8x - 54 - 16 = 2x \quad | -1,8x$$

$$\Leftrightarrow -70 = 0,2x \quad | \cdot 5$$

$$\Leftrightarrow -350 = x$$

$$\text{einsetzen in II': } y = 0,6 \cdot (-350) - 18 = -228$$

also:

$$\mathcal{L} = \{ \uparrow \downarrow \}$$

(-350/-228)

$$\begin{aligned} \text{d1} \quad & \text{I} \quad 56 + 3y = 8x \\ & \text{II} \quad 20 \frac{1}{3} - 2x = 1 \frac{2}{3} y \quad | \cdot 4 \\ & \Leftrightarrow 81 \frac{1}{3} - 8x = 6 \frac{2}{3} y \quad \text{II}' \end{aligned}$$

I einsetzen in II'

$$81 \frac{1}{3} - (56 + 3y) = 6 \frac{2}{3} y$$

$$\Leftrightarrow 81 \frac{1}{3} - 56 - 3y = 6 \frac{2}{3} y \quad | + 3y$$

$$\Leftrightarrow 25 \frac{1}{3} = 9 \frac{2}{3} y \quad | : 9 \frac{2}{3}$$

$$\Leftrightarrow \frac{76}{3} : \frac{29}{3} = \frac{76}{3} \cdot \frac{3}{29} = \frac{76}{29} = 2 \frac{18}{29}$$

einsetzen in I:

$$56 + 3 \cdot 2 \frac{18}{29} = 8x \quad | \text{I}$$

$$\Leftrightarrow 56 + 6 + \frac{54}{29} = 8x \quad | \text{I}$$

$$\Leftrightarrow 62 + 1 \frac{25}{29} = 8x \quad | \text{I}$$

$$\Leftrightarrow 63 \frac{25}{29} = 8x \quad | : 8$$

$$\Leftrightarrow x = \frac{1852}{29} \cdot \frac{1}{8} = \frac{463}{58} = 7 \frac{57}{58}$$

$$\text{also } \mathcal{L} = \left\{ \left(7 \frac{57}{58} \mid 2 \frac{18}{29} \right) \right\}$$

$$\begin{array}{r} 63 \cdot 29 \\ \hline 1260 \\ 567 \\ \hline 1827 \\ 55 \\ \hline 1852 \end{array}$$

$$1852 : 4 = 463$$

$$\begin{array}{r} 76 \\ \hline 25 \\ \hline 25 \\ \hline 12 \\ \hline 12 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 58 \cdot 7 \\ \hline 706 \end{array}$$

$$\begin{array}{r} 463 \\ \hline 57 \\ \hline 52 \end{array}$$