

Nr. 7

8) I  $x + 3y = 7y$

II  $x - 7y = 0 \quad | + 7y$

II'  $x = 7y$

II' einsetzen in I:

$$(7y) + 3y = 7y \quad | - 7y$$

$$\Leftrightarrow 3y = 0 \quad | : 3$$

$$\Leftrightarrow y = 0$$

einsetzen in II':

$$x = 7 \cdot 0 = 0$$

$$\text{also } \mathcal{L} = \{ (0/0) \}$$

9) I  $x^2 - y^2 = 0$

II  $(x+y) \cdot (x-y) = 11 \quad | \cdot$

$$\text{II}' \quad x^2 - y^2 = 11 \quad | + y^2$$
$$x^2 = 11 + y^2$$

II' einsetzen in I:

$$(11 + y^2) - y^2 = 0$$

$$\Leftrightarrow 11 = 0 \quad \{$$

unerfüllbar

$$\mathcal{L} = \{ \}$$

$$\text{h) I } 2x + 5 = 3y$$

$$\text{II } 3y - 10 = 4x$$

I einsetzen in II:

$$(2x + 5) - 10 = 4x \quad | \text{T}$$

$$\Leftrightarrow 2x - 5 = 4x \quad | -2$$

$$\Leftrightarrow -5 = 2x \quad | :2$$

$$\Leftrightarrow x = -2,5$$

einsetzen in I:

$$2 \cdot (-2,5) + 5 = 3y \quad | \text{T}$$

$$\Leftrightarrow -5 + 5 = 3y \quad | \text{T}$$

$$\Leftrightarrow 0 = 3y \quad | :3$$

$$\Leftrightarrow 0 = y$$

$$\text{also } \mathbb{L} = \{ (-2,5, 0) \}$$

$$\text{(c) I } (x + 3) \cdot 4 = (y + 3) \cdot 5 \quad | \text{T}$$

$$\text{II } (y + 3) \cdot 4 = (x + 3) \cdot 5 \quad | \text{T}$$

$$\text{I' } 4x + 12 = 5y + 15 \quad | -12$$

$$\Leftrightarrow 4x = 5y + 3 \quad | :4$$

$$\Leftrightarrow x = \frac{5}{4}y + \frac{3}{4}$$

einsetzen in II:

$$(y + 3) \cdot 4 = \left( \left( \frac{5}{4}y + \frac{3}{4} \right) + 3 \right) \cdot 5 \quad | \text{T}$$

$$\Leftrightarrow 4y + 12 = \left( \frac{5}{4}y + 3\frac{3}{4} \right) \cdot 5 \quad | \text{T}$$

$$\Leftrightarrow 4y + 12 = \frac{25}{4}y + \frac{75}{4} \quad | -12$$

$$\Leftrightarrow 4y = 6\frac{1}{4}y + 18\frac{3}{4} - 12 \quad | -6\frac{1}{4}y$$

$$\Leftrightarrow -2\frac{1}{4}y = 6\frac{3}{4} \quad | : \left( -2\frac{1}{4} \right)$$

$$\Leftrightarrow y = -3$$

$$\text{einsetzen in I': } x = \frac{5}{4} \cdot (-3) + \frac{3}{4} = -\frac{25}{4} + \frac{3}{4} = -\frac{22}{4} = -\frac{11}{2}$$

$$\text{also } \mathbb{L} = \{ \left( -\frac{11}{2}, -3 \right) \}$$

$$4) \text{ I } (2x+4) = 2y+2 \quad | -2$$

$$\text{II } 3(x+2) = 6+3y$$

$$\text{I}' \quad 2x+2 = 2y \quad | :2$$

$$\Leftrightarrow x+1 = y$$

einsetzen in II:

$$3(x+2) = 6+3 \cdot (x+1)$$

$$\Leftrightarrow 3x+6 = 6+3x+3 \quad | -6 -3x$$

$$\Leftrightarrow 0 = 3 \quad \downarrow$$

unlösbar

$$\mathcal{L} = \{ \}$$

$$2) \text{ I } x^2 + 2x+1 = 7+y \quad \Leftrightarrow (x+1)^2 = 7+y \quad \text{I}'$$

$$\text{II } 5y - 5(x+1)^2 = -31$$

I' einsetzen in II

$$5y - 5 \cdot (7+y) = -31$$

$$\Leftrightarrow 5y - 35 - 5y = -31$$

$$\Leftrightarrow -35 = -31 \quad \downarrow$$

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