

9. Übungsblatt

Kurzlösungen

Voraussetzungen:
Kapitel 9 - Vorkurs für Ingenieure

Aufgabe 1 (Beträge und Betragsungleichungen)

$$\text{a) i) } |x - 3| = \begin{cases} x - 3, & \text{falls } x - 3 \geq 0 \\ -(x - 3), & \text{falls } x - 3 < 0 \end{cases} = \begin{cases} x - 3, & \text{falls } x \geq 3 \\ -x + 3, & \text{falls } x < 3 \end{cases}$$

$$\text{ii) } |-6 + x| = \begin{cases} -6 + x, & \text{falls } x \geq 6 \\ 6 - x, & \text{falls } x < 6 \end{cases}$$

$$\text{iii) } |3x - 7| = \begin{cases} 3x - 7, & \text{falls } x \geq \frac{7}{3} \\ -3x + 7, & \text{falls } x < \frac{7}{3} \end{cases}$$

$$\text{iv) } |x^2 + 4x + 3| = \begin{cases} x^2 + 4x + 3, & x \in (-\infty, -3] \cup [-1, \infty) \\ -(x^2 + 4x + 3), & x \in (-3, -1) \end{cases}$$

$$\text{b) i) } \mathbb{L} = \{4; 6\}$$

$$\text{ii) } \mathbb{L} = \{2\}$$

$$\text{iii) } \mathbb{L} = \{\}$$

$$\text{iv) } \mathbb{L} = \{-6; 1\}$$

$$\text{v) } \mathbb{L} = \{2\}$$

$$\text{vi) } \mathbb{L} = \{x \in \mathbb{R} \mid x \leq -2\} = (-\infty, -2]$$

$$\text{vii) } \mathbb{L} = \{-8; 1\}$$