

$$1) \quad M = \{x \in \mathbb{R} \mid \frac{x}{k} \in \mathbb{N}; k \in \mathbb{N}\}$$

$$\mu = \{(x, y) \in \mathbb{R} \times \mathbb{R} \mid \frac{x}{y} \in \mathbb{N}\}$$

x = Variable

a = Parameter (auf Bereich
beschränkt)

$$1) \quad M = \left\{ x \in \mathbb{Z} \mid \begin{array}{l} -100 < x < 100 \\ x \bmod 3 = 0 \wedge \\ x \bmod 5 = 0 \end{array} \right\}$$

$$M = \{ x \in \mathbb{Z} \mid |x| < 100 \wedge x \bmod 15 = 0 \}$$

$$2) \quad M = \left\{ x \in \mathbb{N} \mid \begin{array}{l} x \geq 10 \wedge x < 42 \wedge x \bmod 4 = 0 \\ \wedge x \bmod 6 \neq 0 \end{array} \right\}$$

$$M = \{ x \in \mathbb{N}^{\geq 10} \setminus \{42\} \mid x \bmod 4 = 0 \wedge x \bmod 6 \neq 0 \}$$

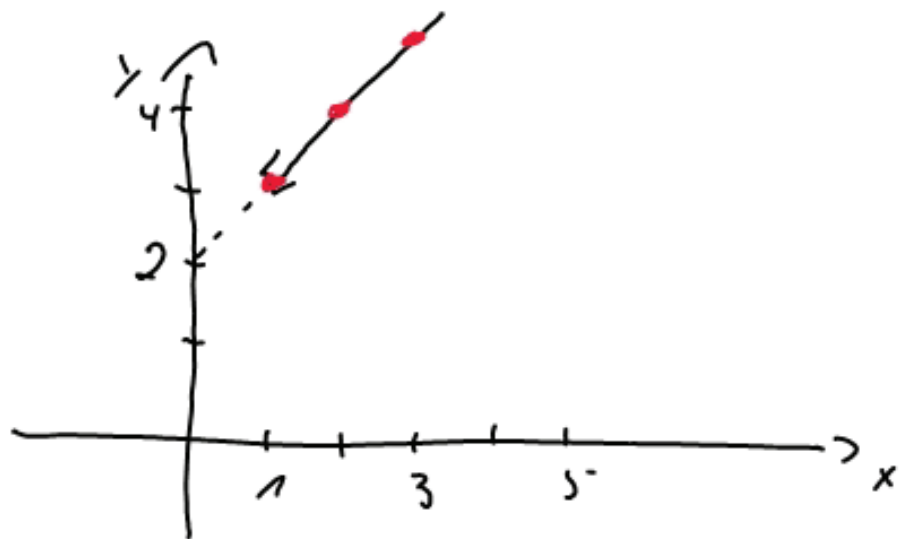
3) $M = \{ \text{Matrikelnummern aller Studierende} \}$

$\textcircled{14} = \{ (x; y) \in M \times M \mid \text{Geburtsjahr}(x) = \text{Geburtsjahr}(y) \}$

4) $\heartsuit = \{ (x; y) \in \mathbb{N} \times \mathbb{N} \mid y = x + 2 \}$

$(15; 17)$

$(22; 24)$



$$A = \{x \in [1; 10]_{\mathbb{N}}\}$$

$$B = \{x \in \mathbb{N} \mid x \bmod 2 = 0\}$$

$$A \setminus B = \{1, 3, 5, 7, 9\}$$

$$B \setminus A = \{12, 14, \dots\}$$

$$\left. \begin{array}{l} A \setminus B = \{1, 3, 5, 7, 9\} \\ B \setminus A = \{12, 14, \dots\} \end{array} \right\} \underline{A \cap B = \{2, 4, 6, 8, 10\}}$$

Definiert, was zu entfernen
ist

$$2) \quad A = \{-10; -5; 0; 5; 10\}$$

$$= \{x \in [-10; 10]_{\mathbb{Z}} \mid x \bmod 5 = 0\}$$

$$B = x \in \mathbb{Z}$$

$$A = \{x \in \mathbb{Z} \mid x \bmod 5 = 0\}$$

$$= \{\dots; -15; -10; -5; 0; 5; 10; 15; \dots\}$$

$$A \cap B = \{-10; -5; 0; 5; 10\}$$

$$= \{x \in [-10; 10]_{\mathbb{Z}} \mid x \bmod 5 = 0\}$$

$$A \cup B = \{x \in \mathbb{Z} \mid \underbrace{(x \geq -10 \wedge x \leq 10)}_{|x| \leq 10} \vee x \bmod 5 = 0\}$$

Negation: $A \cap B = \{ \pm 10; \pm 5; 0 \}$ muss
wg

$$A \setminus B = \{ x \in \mathbb{Z} \setminus \{ \pm 10; \pm 5; 0 \} \mid x \bmod 5 = 0 \}$$
$$\{ x \in \mathbb{Z} \mid |x| > 10 \wedge x \bmod 5 = 0 \}$$

$$B \setminus A = x \in]-10; 10[_{\mathbb{Z}} \setminus \{ \pm 5; 0 \}$$
$$= \{ x \in [-9; 9]_{\mathbb{Z}} \mid x \bmod 5 \neq 0 \}$$

Welche neuen Begriffe habe ich kennen gelernt?

Teilmenge (Inklusion) \rightarrow Funktion
 $\hookrightarrow \exists \subset A$ $\leq ; \geq$

\hookrightarrow reflexiv (Pasci)

\hookrightarrow transitiv (logische Schlussfolgerung)

\hookrightarrow antisymmetrie

\rightarrow (reflexiv + asymmetrie)

\downarrow

Symmetrie

Operatoren

