

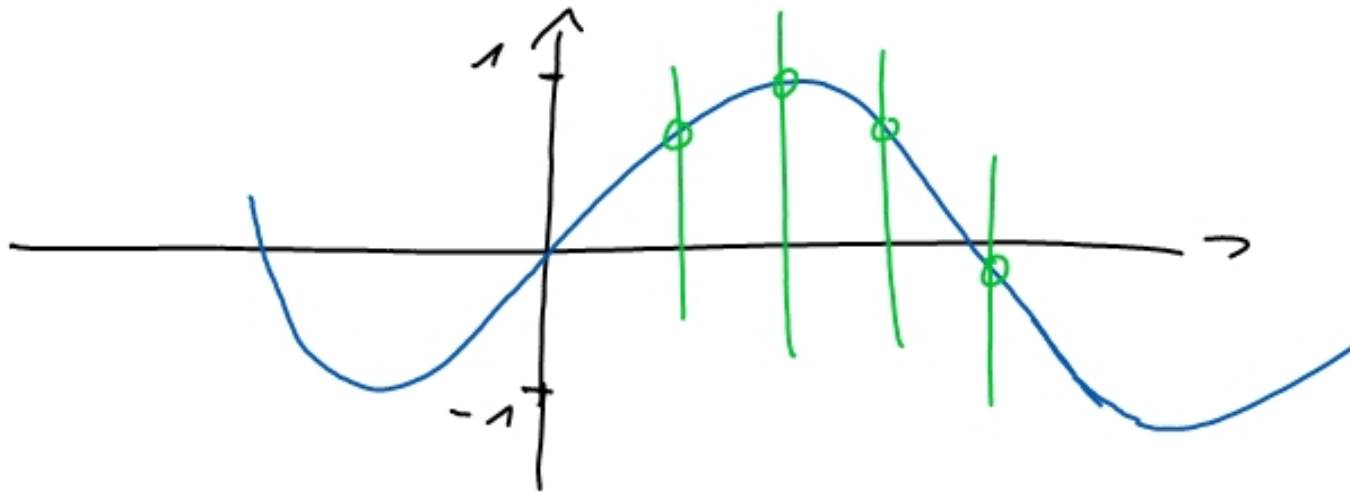
Platzhalter = $\{ \text{Welt} \mid \text{variable / mathematische} \}$
Bedingung

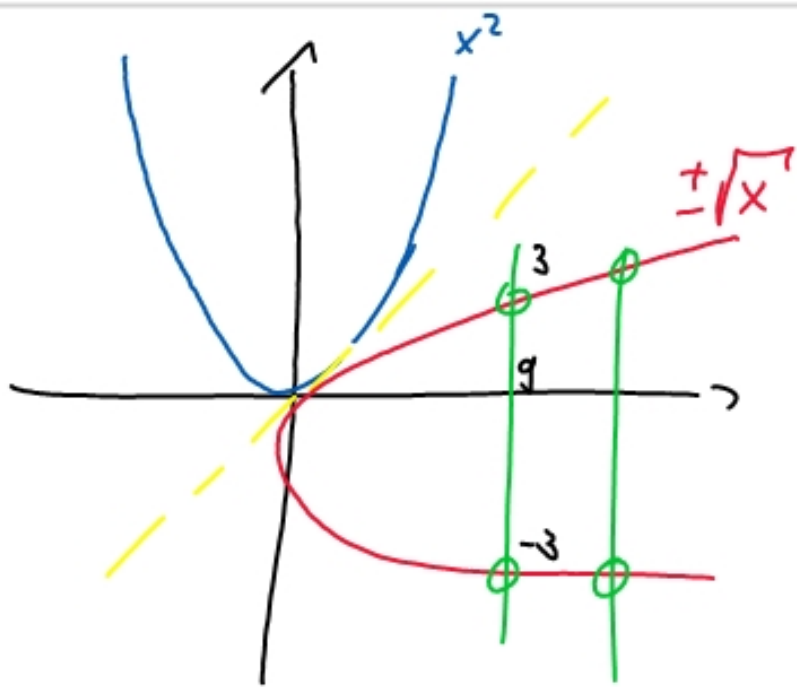
$$\heartsuit = \{ (\underline{x}; \underline{y}) \in \underline{\mathbb{R}} \times \underline{[-1; 1]} \mid y = \sin(x) \}$$



Kartesisches Produkt

Funktion





$$f(x) = a \cdot c \cdot \sin(x)$$

$$\mathcal{M} = \{ \text{Zerostelle einer Stelle} \}$$

$$\mathcal{H} = \{ (x, y) \in \mathcal{M} \times \mathcal{M} \mid \text{Sportart}(x) = \text{Sportart}(y) \}$$

$$\mathcal{L} = \{ \vec{x} \in \mathbb{R}^3 \mid |\vec{x}| = 1 \}$$

variable Bedingung

$$\begin{aligned}
 S \ 24 \ 1) \ M &= \{ x \in (-100; 100)_{\mathbb{Z}} \mid x \bmod 15 = 0 \} \\
 &= \{ x \in \mathbb{Z} \mid (x > -100 \wedge x < 100) \wedge x \bmod 3 = 0 \\
 &\quad \wedge x \bmod 5 = 0 \} \\
 x &\in \mathbb{Z} \quad -100 < x < 100
 \end{aligned}$$

$$\begin{aligned}
 2) \ M &= \{ x \in \mathbb{N}^{\geq 10} \setminus \{42\} \mid x \bmod 4 = 0 \wedge \\
 &\quad x \bmod 6 < 0 \} \\
 &= \{ x \in \mathbb{N}^{\geq 10} \mid x < 42 \wedge \dots
 \end{aligned}$$

$$3) \quad S = \{ \text{Menge der Studenten} \}$$

$$\# = \{ (x; y) \in S \times S \mid \text{Ges-Jahr}(x) = \text{Ges-Jahr}(y) \}$$

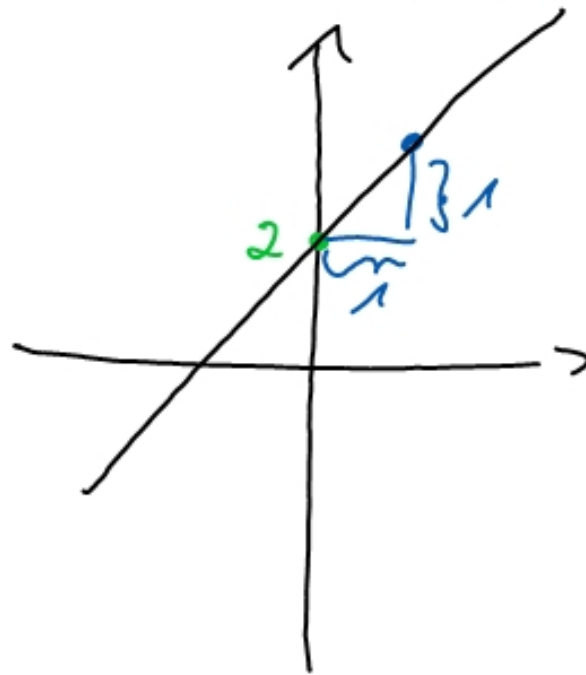
$$4) \quad \sim = \{ (x; y) \in \mathbb{N} \times \mathbb{N} \mid y = \frac{1}{5}x + \underline{2} \}$$

$$P_1 (6; 8)$$

$$P_2 (9; 11)$$

$$P_3 (7; 9)$$

$$P_4 (20; 22)$$



$$y = m \cdot x + b$$

↓ ↓ ↓
a 5 5
→ → ↓
5 5 5

Teilmenge / Element

\in : Format & Wert müssen übereinstimmen

Alphabet = $\{a, b, c, d, \dots\}$

$5 \notin \text{Alphabet}$

Wert!

$\{a\} \notin \text{Alphabet}$

Format

$x, y \in \text{Alphabet}$

\subset : echte Teilmenge (keine Gleichheit)

$\mathbb{N} \not\subset \mathbb{Z}^+$

\subseteq : unechte Teilmenge (Gleichheit zulassen)

$\mathbb{N} \subseteq \mathbb{Z}^+$