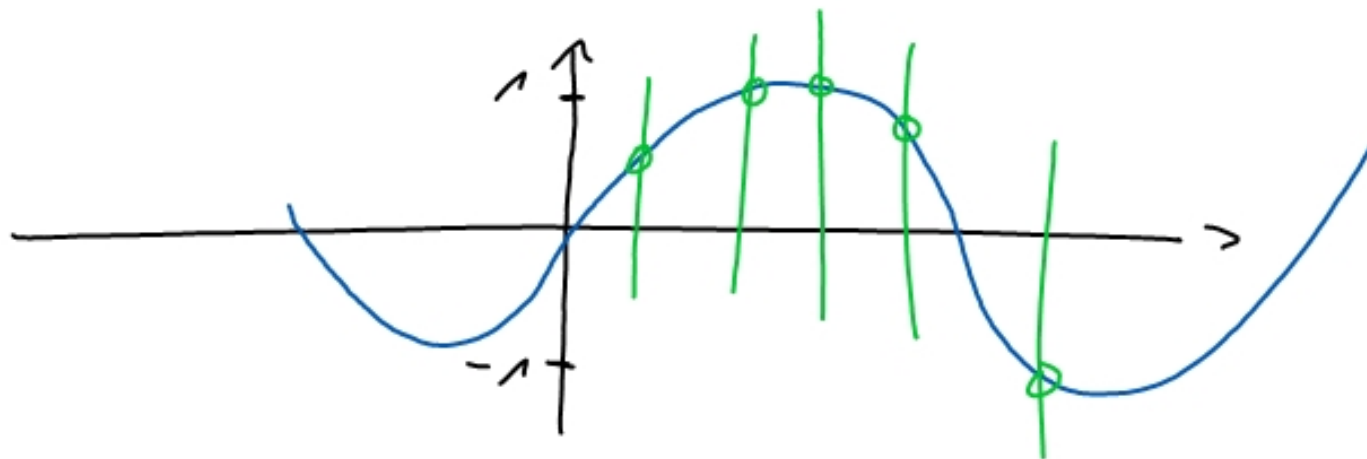
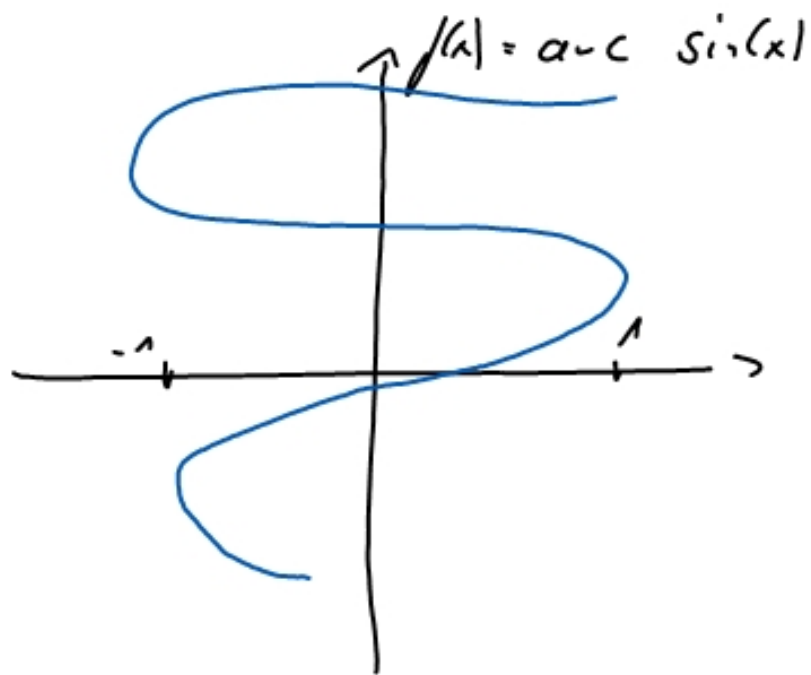
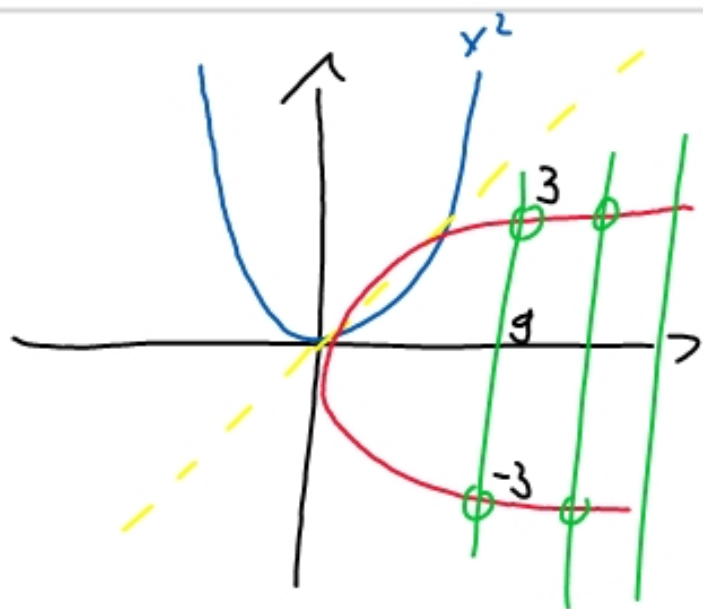


$M = \{ \text{Welt} \mid \text{mathematische / w. Sale Bedingung} \}$

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

*Kartesisches Produkt*





$M = \{ \text{Bewohner einer Stadt} \}$

$\# = \{ (x, y) \in M \times M \mid \text{Spoutant}(x) = \text{Spoutant}(y) \}$

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

zusätzliche  
Bedingung

$$S 24 \text{ Nr. 1) } x \in ]-100; 100[_{\mathbb{Z}}$$

$$M = \{ x \in (-100; 100)_{\mathbb{Z}} \mid x \bmod 15 = 0 \}$$

$$= \{ x \in \mathbb{Z} \mid (x > -100 \wedge x < 100) \wedge x \bmod 3 = 0 \wedge x \bmod 5 = 0 \}$$

$$x \in \mathbb{Z} \quad -100 < x < 100 \quad | \dots$$

Nr. 2

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

$$x \in [10; \infty[ \setminus \{42\}$$

... |  $x \neq 42$

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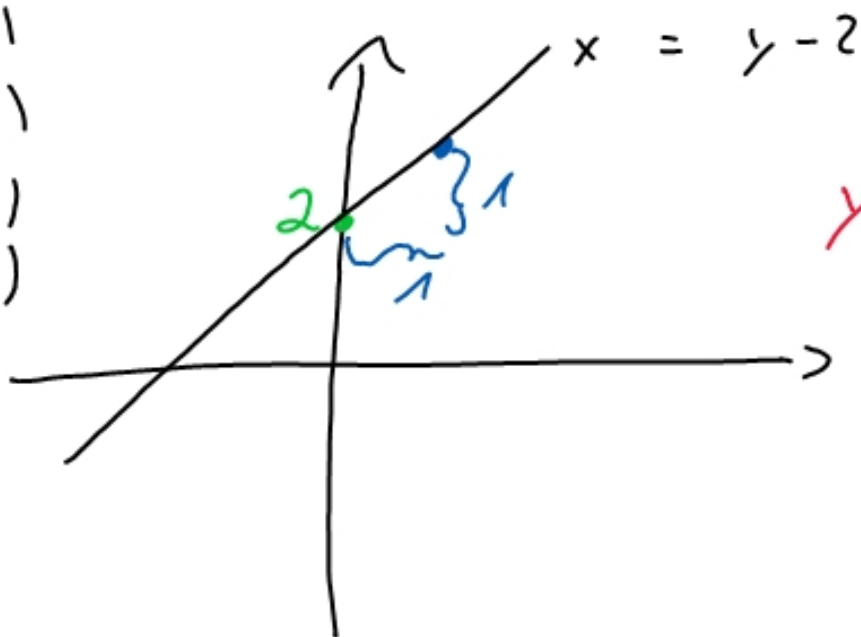
$$f(x) = \frac{2}{x-3}, \quad \mathbb{D} = \mathbb{R} \setminus \{3\}$$

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

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

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

$$\begin{array}{l} P_1 \quad (5; 7) \\ P_2 \quad (7; 9) \\ P_3 \quad (9; 11) \\ P_4 \quad (11; 13) \end{array}$$



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

$\downarrow$   $\downarrow$   
 $\frac{1}{1}$   $\rightarrow$   $\downarrow$   
 $b$   $\rightarrow$   $S_y$

## Teilmenge / Element

$\in$  : muss vom Wert und Format stimmen.

$\{5\} \notin \text{Alphaset}$

$\{a\} \notin \text{Alphaset}$

$xiy \in \text{Alphaset}$

$\subset$  : echte Teilmenge (Gleichheit ist verboten)

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

$\subseteq$  : unechte Teilmenge (Gleichheit erlaubt)