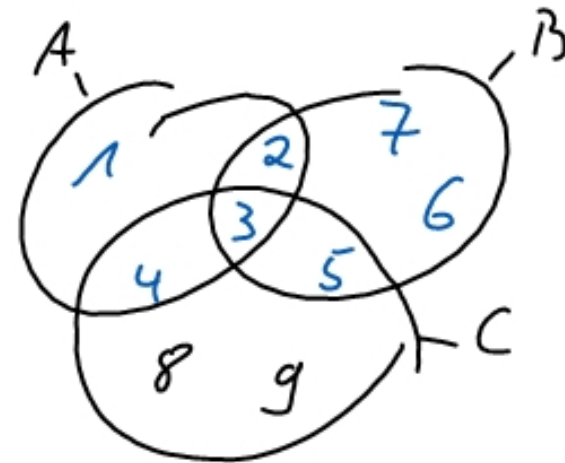


$A \cap B$



$$(A \cap B) \setminus C = \{2\}$$

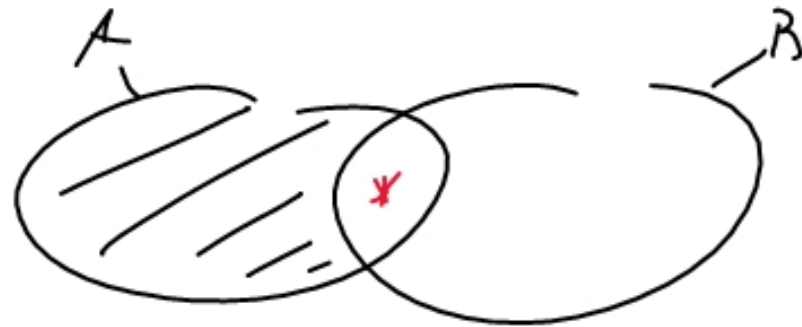


$A \cup B$



$$C \setminus (A \cup B) = \{8, 9\}$$

$A \setminus B$



$$C \setminus (A \cup B)$$

$$\{5, 8, 9\} \cup \{2, 3, 5, 6, 7\}$$

$B \setminus A$



$$\{2, 3, 5, 6, 7, 8, 9\}$$

$$A = \{ 8; \underline{9}; 10; 12; 14; \underline{15}; 16; 18; 20; \underline{21}; 22 \}$$

$$B = \{ 7; \underline{9}; 11; 13; \underline{15}; 17; 19; \underline{21}; 23 \}$$

$$a) A \cap B = \underline{\{ 9; 15; 21 \}} = \{ x \in [9; 21]_{\mathbb{N}} \mid x \bmod 3 = 0 \wedge x \bmod 6 \neq 0 \} \\ \{ x \in [9; 21]_{\mathbb{N}} \setminus \{ 12; 18 \} \mid x \bmod 3 = 0 \}$$

$$b) A \cup B = \{ 7; 8; \dots; 22; 23 \} = x \in [7; 23]_{\mathbb{N}}$$

$$c) A \setminus B^* = \{ 8; 10; 12; 14; 16; 18; 20; 22 \}$$

$$\{ x \in [8; 22]_{\mathbb{N}} \mid x \bmod 2 = 0 \}$$

$$d) B \setminus A^* = \{ 7; 11; 13; 17; 19; 23 \}$$

$$\{ x \in [7; 23]_{\mathbb{N}} \mid x \bmod 2 \neq 0 \wedge x \bmod 3 \neq 0 \}$$

neutrale Objekt der Addition $\hat{=} 0$; der Multiplikation $\hat{=} 1$

$$4 \cdot x - 7 = 5 \quad | +7$$

$$4 \cdot x - 7 + 7 = 5 + 7$$

$$4 \cdot x + 0 = 12 \quad | : 4$$

$$4 \cdot 4 \cdot x + 0 = 12 \cdot 4$$

$$\boxed{1} \cdot x \boxed{+ 0} = 3$$

$$x = 3$$

$$\overline{50 - 8} = \overline{42}$$

$$\hookrightarrow \overline{50} + \overline{8}$$

$$\begin{array}{c} \downarrow \quad \downarrow \\ 40 + 2 = 42 \end{array}$$

neutrale Elemente

$$A \cap (A \cup B) = A$$

$$(A \cap A) \cup (A \cap B)$$

$$A \cup (A \cap B)$$

$$(A \cup A) \cap (A \cup B)$$

$$A \cap (A \cup B)$$

dist.

idemp.

dist.

idemp.

$$(A \cup \{\}) \cap (A \cup B)$$

$$A \cup (\{\} \cap B)$$

$$A \cup \{\}$$

$$A$$

✓

$$* (A \cup B) \cap (A \cup \bar{B})$$

$$A \cup (B \cap \bar{B})$$

$$A \cup \{\}$$

$$\boxed{A}$$

Komplem.

neutral

$$\overline{A \cup B} \cup \overline{A \cup \bar{B}}$$

$$\overline{A \cup B} \cap \overline{A \cup \bar{B}}$$

de Morgan

$$* (A \cup B) \cap (A \cup \bar{B})$$

doppelt Negation