

1)

$$A = \{-6; \underline{-4}; \underline{-2}; \underline{0}; \underline{2}; 6; 14; \underline{16}; 18; \underline{20}; 22; 26\}$$

$$B = \{x \in [-10; 33]_{\mathbb{Z}} \mid x \bmod 4 = 0 \vee x \bmod 10 = 0\}$$

$$= \{-10; -8; \underline{-4}; \underline{0}; 4; 8; 10; 12; \underline{16}; \underline{20}; 24; 28; 30; 32\}$$

$$A \cap B = \{\underline{-4}; \underline{0}; \underline{16}; \underline{20}\}$$

$$= \{x \in [-4; 20]_{\mathbb{Z}} \setminus \{4; 8; 12\} \mid x \bmod 4 = 0\}$$

$$A \cup B = \{x \in [-10; 32]_{\mathbb{Z}} \mid x \bmod 2 = 0\}$$

$$A \setminus B = \{x \in [-6; 26]_{\mathbb{Z}} \setminus \{-4; 0; 4; 8; 10; 12; 16; 20; 24\} \mid x \bmod 2 = 0\}$$

$$B \setminus A = \{\underline{\{x \in [-10; 33]_{\mathbb{Z}} \setminus \{-4; 0; 16; 20\} \mid x \bmod 4 = 0 \vee x \bmod 10 = 0\}}\}$$

$$2) \quad A = \{ x \in ]7; 22]_{\mathbb{N}} \mid x \bmod 2 = 0 \vee x \bmod 3 = 0 \\ \vee x \bmod 5 = 0 \}$$

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

$$B = \{ x \in ]6; 24]_{\mathbb{N}} \mid x \bmod 2 \leftrightarrow 0 \}$$

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

$$A \cap B = \{ 9; 15; 21 \}$$

$$= \{ x \in [9; 21]_{\mathbb{N}} \setminus \{ 12, 18 \} \mid x \bmod 3 = 0 \}$$

$$= \{ x \in [9; 21]_{\mathbb{N}} \mid x \bmod 3 = 0 \wedge x \bmod 2 \neq 0 \}$$

$$A \cup B = \{x \in [7; 23]_{\mathbb{N}}\}$$

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

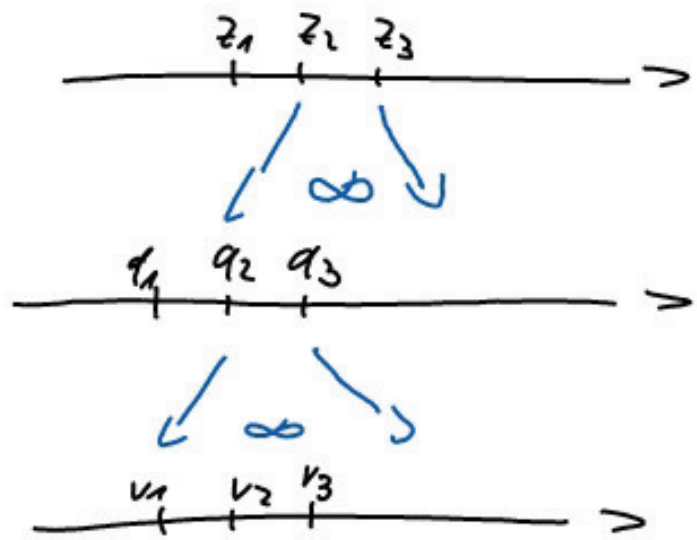
$$B \setminus A = \{x \in ]6; 24]_{\mathbb{N}} \setminus \{9; 15; 21\} \mid x \bmod 2 < 0\}$$

$\mathbb{Z}$  (ganze Zahl)

$\mathbb{Q}$  (rationale Zahl)

$\mathbb{R}$  (reelle Zahl)

$\mathbb{C}$  (komplexe Zahl)



$$42 = 42 + 0i$$
$$(42 | 0)$$

$$\overline{32 + 10} = \overline{42}$$

$$\overline{32} - \overline{10} = 50 - 8 = 42$$

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$$4 \cdot x + 10 = 22 \quad | -10$$

$$4 \cdot x + (10 - 10) = 2^{\sim}$$

$$4 \cdot x + 0 = 12 \quad | \cdot \frac{1}{4}$$

$$(4 \cdot \frac{1}{4}) \cdot x + 0 = 12 \cdot \frac{1}{4}$$

$$1 \cdot x + 0 = 3 \quad x = 3$$

$$3) \overline{\overline{A \cup B} \cup \overline{A \cup \overline{B}}}$$

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

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

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

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

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

$$A \cup \{\}$$

$$A$$

} de Morgan

} de Morgan

} de Morgan

$$\overline{\overline{A}} = A$$

Distributiv

Komplement

neutral