

$$1) \quad A = \{-6; \underline{-4}; -2; \underline{0}; 2; 6; 14, \underline{16}, 18; \underline{20}; 22; 26\}$$

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

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

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

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

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

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

$$d) \quad B \setminus A = \{x \in [-10; 33]_{\mathbb{Z}} \setminus \underline{\{-4; 0; 16; 20\}} \mid \left. \begin{array}{l} x \bmod 4 = 0 \vee \\ x \bmod 10 = 0 \end{array} \right\}$$

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

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

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

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

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

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

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

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

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

$$d) B \setminus A = \{x \in [7; 23]_{\mathbb{N}} \setminus \{9; 15; 21\} \mid x \bmod 2 \leftrightarrow 0\}$$

Mathematik ist begreifbar...



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de Moivre in de Arithmetik

$$\overline{5 + 37} = \overline{42}$$

$$\hookrightarrow \overline{5} - \overline{37} = 50 - 8 = 42$$

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$$3 \cdot x + 5 = 11 \quad | -5$$

$$3 \cdot x + (5-5) = 11-5$$

$$3 \cdot x + 0 = 6 \quad | \cdot \frac{1}{3}$$

$$(3 \cdot \frac{1}{3}) \cdot x + 0 = 6 \cdot \frac{1}{3}$$

$$1 \cdot x + 0 = 2$$

$$x = 2$$

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

de Morgan

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

de Morgan

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

de Morgan

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



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

Distributiv

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

Komplement

$$A \cup \{\}$$

neutral

$$A$$