

$$1) A \setminus (B \cup C) = (A \setminus B) \cap (A \setminus C)$$

$$A = \{1; 2; 3; 4; 5\} \quad B = \{2; 4; 6; 8\} \quad C = \{7; 3; 2; 1\}$$

$$\{1; 2; 3; 4; 5\} \setminus \{2; 3; 4; 6; 7; 8; 1\} = \{1; 3; 5\} \cap$$

$$\cap \{4; 5\}$$

$$\{5\} = \{5\}$$

$$2) A \setminus (B \cap C) = (A \setminus B) \cup (A \setminus C)$$

$$\{1; 2; 3; 4; 5\} \setminus \{2\} = \{1; 3; 5\} \cup \{4; 5\}$$

$$\{1; 3; 4; 5\} = \{1; 3; 4; 5\}$$

$$3) A \setminus (A \setminus B) = A \cap B$$

$$\{1; 2; 3; 4; 5\} \setminus \{1; 3; 5\} = \{2; 4\}$$

$$\{2; 4\} = \{2; 4\}$$

$$4) A \setminus B = A \setminus (A \cap B)$$

$$\{1; 3; 5\} = \{1; 3; 5\}$$

$$6) (A \cap B) \setminus (A \cap C) = (A \cap B) \setminus C$$

$$\{2; 4\} \setminus \{1; 2; 3\} = \{2; 4\} \setminus \{7; 3; 2; 1\}$$

$$\{4\} = \{4\}$$

$$7) A \cap (B \setminus C) = (A \cap B) \setminus C$$

$$\{1; 2; 3; 4; 5\} \cap \{4; 6; 8\} = \{2; 4\} \setminus \{7; 3; 2; 1\}$$

$$\{4\} = \{4\}$$

$$8) (A \setminus B) \setminus C = (A \setminus C) \setminus (B \setminus C)$$

$$\{1, 3, 5\} \setminus \{7, 3, 2, 1\} = \{4, 5\} \setminus \{4, 6, 8\}$$

$$\{5\} = \{5\}$$

$$9) A \cup B = A \cup (B \setminus A)$$

$$\{1, 2, 3, 4, 5, 6, 8\} = \{1, 2, 3, 4, 5\} \cup \{6, 8\}$$

$$\{1, 2, 3, 4, 5, 6, 8\} = \{1, 2, 3, 4, 5, 6, 8\}$$

$$10) (A \cap B) \cup (A \cap \bar{B}) = A$$

$$\{2, 4\} \cup \{1, 3, 5\} = \{1, 2, 3, 4, 5\}$$

$$\{1, 2, 3, 4, 5\} = \{1, 2, 3, 4, 5\}$$

$$11) (A \cup B) \cap (A \cup \bar{B}) = A$$

$$\{1, 2, 3, 4, 5, 6, 8\} \cap \{N \setminus 6, 8\} = \{1, 2, 3, 4, 5\}$$

$$\{1, 2, 3, 4, 5\} = \{1, 2, 3, 4, 5\}$$

$$12) (\bar{A} \cup B) \cap A = A \cap B$$

$$\{N \setminus 1, 5\} \cap \{1, 2, 3, 4, 5\} = \{2, 3, 4\}$$

$$\{2, 3, 4\} = \{2, 3, 4\}$$

$$13) (A \cup B) \setminus C = (A \setminus C) \cup (B \setminus C)$$

$$\{1, 2, 3, 4, 5, 6, 8\} \setminus \{7, 3, 2, 1\} = \{4, 5\} \cup \{4, 6, 8\}$$

$$\{4, 5, 6, 8\} = \{4, 5, 6, 8\}$$