

Operatiuni cu multimi 16.10.2020

- Cucu Aramyis 6 C

Operatii cu multimi: reuniune, intersectie, diferente

$A \cup B = \{a, b, c, d, x, y, z\}$
 $A \cap B = \{x, y, z\}$
 $A - B = \{a, b, c\}, B - A = \{d, e, f\}$

Notiuni de diferite

pagi: 5, 8, 9, 10
 sub-pagi: 6, 5/18
 $A = \{1, 2\}, B = \{1, 3, 5\}, C = \{1, 4, 5, 6\}$

- a) $A \cup B = \{1, 2, 3, 5\}$
- b) $B \cap C = \{1, 5\}$
- c) $A - C = \{2\}$
- d) $A \cup (C - B) = A \cup \{4, 6\} = \{1, 2, 4, 6\}$
- e) $(A \cap B) \cup (B \cap C) = \{1, 5\}$
- f) $(A \cap B) \cup (B \cap C) = \{1, 5\}$
- g) $(A \cap B) \cup (B \cap C) = \{1, 5\}$
- h) $A \cap (B \cup C) = A$
- i) $A - A = \emptyset$
- j) $(A - B) \cup (B - A) = \{2, 3, 5\} \cup \{1, 3, 5\} = \{1, 2, 3, 5\}$
- k) $(A \cup B) - (A \cap B) = \{1, 2, 3, 5\} - \{1, 3, 5\} = \{2, 3, 5\}$
- l) $A \cap B \cap C = \{1, 5\}$

6/18
 $M = \{x \in \mathbb{N}^* \mid x < 5\} = \{1, 2, 3, 4\}$
 $P = \{x \in \mathbb{N} \mid 8 \leq x < 6\} = \{3, 4, 5\}$
 $T = \{x \in \mathbb{N} \mid 2 \cdot x + 3 < 9\} = \{1, 2, 3\}$
 $M \cap P = \{3, 4\}, M - T = \{3, 4\}$

$M \cup \{2, 3, 4\} = \{1, 2, 3, 4, 5\}$ si $M \cap \{2, 3\} = \emptyset$
 $M = \{1, 2, 3, 4, 5\}$ sau $M = \{1, 5\}$
 9) $A = ? \mid A \cup B = \{a, b, c, d, e, f, g, h\}$
 $B = ? \mid A \cap B = \{c, d, e, f\}$

- I) $A = \{a, b, c, d, e, f, g, h\}$
 $B = \{c, d, e, f, g, h\}$
- II) $A = \{a, b, c, d, e, f, g, h\}$
 $B = \{c, d, e, f, g, h\}$
- III) $A = \{a, b, c, d, e, f, g, h\}$
 $B = \{c, d, e, f, g, h\}$
- IV) $A = \{a, b, c, d, e, f, g, h\}$
 $B = \{c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z\}$
- V) $A = \{a, b, c, d, e, f, g, h\}$
 $B = \{c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z\}$

$\text{card}(A) = 6$
 $\text{card}(B) = 5$
 A? C. / pag. 23.

- 1) $E = \{a, b\}, F = \{a, b, c, d, e, f, g, h\}$
 a) $E \cup F = \{a, b, c, d, e, f, g, h\}$ ✓
 b) $E \cap F = \{a, b\}$ ✓
 c) $F - E = \{c, d, e, f, g, h\}$ ✓
- 2) $A = \{x \in \mathbb{N} \mid x = 6\}, B = \{y \in \mathbb{N}^* \mid y \leq 5\}$ Obi: $A \subset B$
 $A = \{2, 3, 4, 5\}, B = \{1, 2, 3, 4, 5\}$
 a) $A \cup B = \{1, 2, 3, 4, 5\}$ ✓ = B
 b) $A \cap B = \{2, 3, 4, 5\}$ ✓ = A

a) $A \setminus B = \emptyset$
 3) a) $X \cup Y = \{m, n, p, q, r, s\}$ si $X \setminus Y = \{m, p, s\}$ si $Y \setminus X = \{n, q, r\}$
 $X = \{m, n, p, s\}, Y = \{m, q, r, s\}$
 $X = \{m, n, p, s\}, Y = \{n, q, r\}$

Tabelul 2 cc. pag. 24.

$D_{12} = \{1, 2, 3, 4, 6, 12\}$
 2) $A = \{0, 1, 4\}, B = \{0, 1, 3\}$
 a) $A \cup B = \{0, 1, 3, 4\}$
 b) $A \cap B = \{0, 1\}$
 c) $A - B = \{4\}$
 d) $B - A = \{3\}$

- 3) a) $\{x \in \mathbb{N} \mid x < 0\} = \emptyset$ A
 b) $\{x \in \mathbb{N} \mid x \leq 3\}$ F
 c) $\{2, 3\} \subset \{1, 2, 4\}$ F
 d) $\{0, 1, 2, 4, 5\}$ A
 4)

$A = \{x \in \mathbb{N} \mid x : 5 \text{ si } x \leq 35\} \Rightarrow A = \{0, 5, 10, 15, 20, 25, 30, 35\}$
 $B = \{x \in \mathbb{N} \mid x : 24 \text{ si } x < 15\} \Rightarrow B = \{1, 2, 3, 4, 6, 8, 12\}$
 5) $A \cup B = \{1, 2, 3, 4\}, A \cap B = \{2, 3\}, A - B = \{1, 4\}$
 $A = \{1, 2, 3\}, B = \{2, 3, 4\}$

6) $A = \{1 \times 6, 2 \times 6, 3 \times 6, 4 \times 6, 5 \times 6\}$ si $4 \mid (a + b)$ $B = \{1 \times 6, 2 \times 6, 3 \times 6, 4 \times 6, 5 \times 6\}$
 $A = \{1060, 1460, 1860, 2260, 2660\}$
 $a \neq 0, a = 0$
 $A \cap B = \emptyset, A \cap B = \{1060\}$
 $A - B = A, A - B = A - \{1060\}$
 $B - A = B, B - A = B - \{1060\}$

Obs: Obținem alte soluții dacă în scrierem $\forall x \in \mathbb{R}$ pentru x se iau valori diferite adică $\forall x \in \mathbb{R}, x: 2x = x$

Testul 1 c.i. pag 83 Teore de evaluare sumativă

1 $D = \{1, 2, 5, 6, 7\}$

a) F b) A

2

a) $A = \{r, i, n, a, m, d\}$ în card (A) = 6

3 $B = \{g, h\}$ $B = \{i, h, g\}$

4 $E = \{0, 1, 3, 4\}$ $F = \{0, 1, 5\}$

$E \cup F = \{0, 1, 3, 4, 5\}$

$E \cap F = \{0, 1\}$

$E - F = \{3, 4\}$

$F - E = \{5\}$

5 $A = \{x \in \mathbb{N}^* \mid x \leq 3\}$ $B = \{x \in \mathbb{N}^* \mid x^2 - 1, x \in A\}$

$A = \{1, 2, 3\}$

$B = \{3, 8\}$

$(A - B) \cup (B - A) = \{1, 2\} \cup \{8\} = \{1, 2, 8\}$

$\{A \cup B\} - \{A \cap B\} = \{1, 2, 3, 8\} - \{1, 3\} = \{2, 8\}$

$\{1, 2, 8\} = \{2, 8\}$

6 $A \cup B = \{l, d, m, n\}$ $A - B = \{l\}$ $B - A = \{d, m\}$

I $A = \{l, d, m\}$ $B = \{d, m\}$

II $A = \{l\}$ $B = \{d, m, n, l\}$

III $A = \{l, d\}$ $B = \{m, n, l\}$

IV $A = \{l, m\}$ $B = \{d, m, l\}$