

# 1 Množiny

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1. Výčtem prvků zapište množinu:

a)  $A = \{x \in \mathbb{N}; 2x < 11\}$   $(A = \{1; 2; 3; 4; 5\})$

b)  $B = \{x \in \mathbb{N}; x^2 = 25\}$   $(B = \{5\})$

c)  $C = \{x \in \mathbb{Z}; -5 \leq x < 3\}$   $(C = \{-5; -4; -3; -2; -1; 0; 1; 2\})$

d)  $D = \{x \in \mathbb{Z}; x^2 = 2\}$   $(D = \emptyset)$

2. Charakteristickou vlastností určete množiny:

a)  $A = \{1; 2; 3; 4; 5\}$   $(A = \{x \in \mathbb{N}; x \leq 5\} = \{x \in \mathbb{N}; x < 6\})$

b)  $B = \{1; 3; 5; 7; 9; 11\}$   $(B = \{x \in \mathbb{N}; x \text{ je liché} \wedge x \leq 11\})$

3. Jsou dány množiny  $A = \{a; b; c; d\}$ ,  $B = \{a; c\}$ ,  $C = \{b; d; e\}$ . Určete množiny:

a)  $A \cap B$   $(A \cap B = \{a; c\} = B)$

b)  $A \cap C$   $(A \cap C = \{b; d\})$

c)  $B \cap C$   $(B \cap C = \emptyset)$

d)  $A \cup B$   $(A \cup B = \{a; b; c; d\} = A)$

e)  $A \cup C$   $(A \cup C = \{a; b; c; d; e\})$

f)  $B \cup C$   $(B \cup C = \{a; b; c; d; e\})$

g)  $A \setminus B$   $(A \setminus B = \{b; d\})$

h)  $B'_A$   $(B'_A = \{b; d\})$

4. Určete výčtem prvků množinu:

a)  $K = \{x \in \mathbb{Z}; -1 \leq x < 2\}$   $(K = \{-1; 0; 1\})$

b)  $L = \{x \in \mathbb{N}_0; x < 3\}$   $(L = \{0; 1; 2\})$

c)  $S = \{x \in \mathbb{N}; x < 5\}$   $(S = \{1; 2; 3; 4\})$

d)  $T = \{x \in \mathbb{Z}; -4 \leq x \leq -2\}$   $(T = \{-4; -3; -2\})$

5. Určete, zda jsou si dané množiny rovny (ANO – NE):

a)  $A = \{-0,67; 3\}, B = \{\sqrt[3]{27}; -\frac{2}{3}\}$  (NE)

b)  $C = \{\frac{9}{4}; 5^3; 8^0\}, D = \{125; 0; 2,25\}$  (NE)

c)  $E = \{-6; \frac{0}{6}; \frac{1}{6}\}, F = \{0; -\frac{192}{32}; 0,1\bar{6}\}$  (ANO)

d)  $G = \{(-2)^2; -\frac{252}{63}\}, H = \{4; -4\}$  (ANO)

6. Jsou dány množiny  $A = \{-2; -1; 0; 2; 4\}, B = \{x \in \mathbb{Z}; -2 < x \leq 5\}, C = \{6\}$  a základní množina  $W = \{x \in \mathbb{Z}; -3 \leq x \leq 6\}$ . Určete výčtem prvků:

a)  $A \cup B, A \cup C$  ( $A \cup B = \{-2; -1; 0; 1; 2; 3; 4; 5\}, A \cup C = \{-2; -1; 0; 2; 4; 6\}$ )

b)  $A \cap B, B \cap C$  ( $A \cap B = \{-1; 0; 2; 4\}, B \cap C = \emptyset$ )

c)  $A'_W$  ( $A'_W = \{-3; 1; 3; 5; 6\}$ )

d)  $B'_W$  ( $B'_W = \{-3; -2; 6\}$ )

e)  $A \setminus B$  ( $A \setminus B = \{-2\}$ )

f)  $B \setminus A$  ( $B \setminus A = \{1; 3; 5\}$ )

7. Jsou dány množiny  $U = \{-3; 0; 1; 3; 4; 7\}, V = \{0; 2; 4\}$ . Určete:

a)  $U \cup V$  ( $U \cup V = \{-3; 0; 1; 3; 4; 7; 2\}$ )

b)  $U \cap V$  ( $U \cap V = \{0; 4\}$ )

8. Jsou dány množiny  $S = \{x \in \mathbb{N}; x \leq 4\}, T = \{x \in \mathbb{Z}; -2 < x < 1\}$ . Určete:

a)  $S \cup T$  ( $S \cup T = \{1; 2; 3; 4; -1; 0\}$ )

b)  $S \cap T$  ( $S \cap T = \emptyset$ )

9. Je dána základní množina  $W = \{x \in \mathbb{Z}; -2 \leq x < 4\}$  a množiny  $A = \{x \in \mathbb{N}_0; x < 3\}, B = \{3; -2\}$ . Určete

a)  $A \cup B$  ( $A \cup B = \{0; 1; 2; 3; -2\}$ )

b)  $A \cap B$  ( $A \cap B = \emptyset$ )

c)  $A'_W$  ( $A'_W = \{-2; -1; 3\}$ )

d)  $B'_W$  ( $B'_W = \{-1; 0; 1; 2\}$ )

10. Jsou dány množiny  $C = \{-3; -1; 5\}$ ,  $D = \{-1; 0; 6; 8\}$ . Určete

a)  $C \cup D$

$(C \cup D = \{-3; -1; 5; 0; 6; 8\})$

b)  $C \cap D$

$(C \cap D = \{-1\})$

c)  $C \setminus D$

$(C \setminus D = \{-3; 5\})$

d)  $D \setminus C$

$(D \setminus C = \{0; 6; 8\})$