



Kartezični produkt

Naloga 1. Dani sta množici $\mathcal{A} = \{2, 4, 6\}$ in $\mathcal{B} = \{2, 5\}$. Zapiši elemente naslednjih množic:

- a) $\mathcal{A} \times \mathcal{B}$,
- b) $(\mathcal{A} \setminus \mathcal{B}) \times (\mathcal{B} \setminus \mathcal{A})$,
- c) $(\mathcal{A} \cup \mathcal{B}) \times \{1\}$,
- d) $\mathcal{A} \times \emptyset$.

Naloga 2. Določi množici \mathcal{A} in \mathcal{B} , če je

- a) $\mathcal{B} \times \mathcal{A} = \{(x, 1), (y, 1), (z, 1), (x, 2), (y, 2), (z, 2)\}$,
- b) $\mathcal{A} \times (\mathcal{B} \setminus \mathcal{A}) = \{(1, 5), (2, 5), (4, 5)\}$ in $\mathcal{A} \cap \mathcal{B} = \{4\}$.

Naloga 3. Koliko elementov ima kartezični produkt $\mathcal{A} \times \mathcal{B}$, če

- a) je množica $\mathcal{A} = \{2, 3, 5\}$ in so v množici \mathcal{B} vse črke slovenske abecede,
- b) je množica $\mathcal{A} = \{5, 6, 7, 8, \dots, 21\}$ in $\mathcal{B} = \{2, 4, 6, 8, 10, \dots, 88\}$.

Naloga 4. Dani sta množici $\mathcal{A} = \{(-1)^n; n \in \mathbb{N}\}$ in $\mathcal{B} = \{n \in \mathbb{N}; n < 7 \text{ in } 3 \text{ ne deli } n\}$. Zapiši elemente naslednjih množic:

- a) \mathcal{A} ,
- b) \mathcal{B} ,
- c) $\mathcal{A} \times \mathcal{B}$,
- d) $(\mathcal{A} \cap \mathcal{B}) \times (\mathcal{A} \setminus \mathcal{B})$.

Naloga 5. Kateri od naslednjih zapisov so pravilni?

- a) $\mathcal{A} \times \mathcal{B} = \mathcal{B} \times \mathcal{A}$
- b) $\mathcal{A} \times \mathcal{U} = \mathcal{U}$
- c) $(1, 5) \in \{1, 3\} \times \{5\}$
- d) $\{(5, -6)\} \subset \mathbb{Z} \times \mathbb{N}$
- e) $\{(5, -6)\} \subset \mathbb{N} \times \mathbb{Z}$
- f) $\mathbb{Z} \times \mathbb{Z} \subset \mathbb{R} \times \mathbb{R}$

**Naloga 1.**

- a) $\mathcal{A} \times \mathcal{B} = \{(2, 2), (2, 5), (4, 2), (4, 5), (6, 2), (6, 5)\}$
b) $\mathcal{A} \setminus \mathcal{B} = \{4, 6\}$, $\mathcal{B} \setminus \mathcal{A} = \{5\}$,
 $(\mathcal{A} \setminus \mathcal{B}) \times (\mathcal{B} \setminus \mathcal{A}) = \{(4, 5), (6, 5)\}$
c) $\mathcal{A} \cup \mathcal{B} = \{2, 4, 5, 6\}$, $(\mathcal{A} \cup \mathcal{B}) \times \{1\} = \{(2, 1), (4, 1), (5, 1), (6, 1)\}$
d) $\mathcal{A} \times \emptyset = \emptyset$

Naloga 2.

- a) $\mathcal{A} = \{1, 2\}$, $\mathcal{B} = \{x, y, z\}$
b) $\mathcal{A} = \{1, 2, 4\}$. Iz $\mathcal{B} \setminus \mathcal{A} = \{5\}$ sledi $5 \in \mathcal{B}$.
Iz $\mathcal{A} \cap \mathcal{B} = \{4\}$ sledi $4 \in \mathcal{B}$.
 $\mathcal{B} = \{4, 5\}$

Naloga 3.

- a) $m(\mathcal{A}) = 3$, $m(\mathcal{B}) = 25$, $m(\mathcal{A} \times \mathcal{B}) = m(\mathcal{A}) \cdot m(\mathcal{B}) = 3 \cdot 25 = 75$
b) $m(\mathcal{A}) = 21 - 4 = 17$, $m(\mathcal{B}) = 44$, $m(\mathcal{A} \times \mathcal{B}) = m(\mathcal{A}) \cdot m(\mathcal{B}) = 17 \cdot 44 = 748$

Naloga 4.

- a) $\mathcal{A} = \{-1, 1\}$
b) $\mathcal{B} = \{1, 2, 4, 5\}$
c) $\mathcal{A} \times \mathcal{B} = \{(-1, 1), (-1, 2), (-1, 4), (-1, 5), (1, 1), (1, 2), (1, 4), (1, 5)\}$
d) $\mathcal{A} \cap \mathcal{B} = \{1\}$, $\mathcal{A} \setminus \mathcal{B} = \{-1\}$, $(\mathcal{A} \cap \mathcal{B}) \times (\mathcal{A} \setminus \mathcal{B}) = \{(1, -1)\}$

Naloga 5.

- a) nepravilno
b) nepravilno
c) pravilno
d) nepravilno
e) pravilno
f) pravilno