

## Sets

Set of all Sets

Ready, set, go!

### 1 Problem – Sets of natural numbers

Sets  $A$ ,  $B$  and  $C$  contain following elements:

$$A = \{9, 16, 17, 18, 23, 24\}$$

$$B = \{3, 8, 11, 17, 18, 20, 25\}$$

$$C = \{3, 8, 13, 16, 17, 19, 24, 25\}$$

Determine:

- the union  $A \cup B$ ,
- the union  $B \cup C$ ,
- the union  $A \cup B \cup C$ ,
- the difference  $A \setminus B$ ,
- the difference  $B \setminus C$ ,
- the difference  $A \setminus C$ ,
- the intersection (common part)  $A \cap B$ ,
- the intersection  $B \cap C$ ,
- the intersection  $A \cap C$ ,
- the intersection  $A \cap B \cap C$ .

### 2 Problem – Set operations

Simplify the following expressions with sets  $A$  and  $B$ :

- $(A \cup B) \setminus B$
- $A \cap (B \cup A)$
- $(A \cup B) \cap (B \setminus A)$
- $(A \cap B) \setminus B$

### 3 Problem – Set operations

Simplify the following expressions with sets  $A$  and  $B$ :

- $A \cap (B \cup A)$
- $(B \setminus A) \setminus A$
- $B \cap (B \setminus A)$
- $(B \cup B) \setminus A$