

Name .....

	EA....	row ....	col....	
1.	2.	3.	4.	$\Sigma$

1. Write the mathematical formulas corresponding to the following statements with the help of the following signs only: propositional connectives, quantifiers, variables varying through set  $\mathbb{R}$  and symbols indicated in brackets

*there exactly two numbers each equal to its squares( $\cdot, =$ )*

2. For what real numbers  $x$  the following holds.

$$\{3, 5, x\} \in \{\{3, 5, 8\}, \{3, 5\}, \{3, 8\}, \{3, 8, 9\}\}$$

3. Find:

$$\bigcap_{i \in \mathbb{N}_+} \left[ 1 + \frac{1}{(i-3)^2+2}, 5 - \frac{1}{(i+2)^2+2} \right) =$$

$$\bigcup_{i \in \mathbb{N}_+} \left[ 1 + \frac{1}{(i-3)^2+2}, 5 - \frac{1}{(i+2)^2+2} \right) =$$

4. Prove or disprove

a)  $[(A \div B) \setminus C] \cup (A \cap B \cap C) = [A \setminus (B \div C)] \cup [B \setminus (A \div C)]$

b)  $[A \setminus (B \setminus C)] \cap [A \setminus (C \setminus B)] = A \setminus (B \cap C)$

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1. Write the mathematical formulas corresponding to the following statements with the help of the following signs only: propositional connectives, quantifiers, variables varying through set  $\mathbb{R}$  and symbols indicated in brackets

*there are exactly two numbers that are self-inverse with respect to multiplication*( $\cdot, =, 1$ )

2. For what real numbers  $x$  the following holds.

$$\{\{3, 5\}, \{x, 5\}\} \subseteq \{\{3, 5, 8\}, \{3, 5\}, \{5, 8\}, \{3\}, \{5\}, \{3, 8, 9\}\}$$

3. Find:

$$\bigcap_{i \in \mathbb{N}_+} \left[ 2 - \frac{1}{(i+3)^2+2}, 7 + \frac{1}{(i-2)^2+2} \right) =$$

$$\bigcup_{i \in \mathbb{N}_+} \left[ 2 - \frac{1}{(i+3)^2+2}, 7 + \frac{1}{(i-2)^2+2} \right) =$$

4. Prove or disprove

a)  $[A \setminus (B \setminus C)] \cap [A \setminus (C \setminus B)] = A \div (B \div C)$

b)  $[(A \div C) \setminus B] \cup (A \cap B \cap C) = (A \cup B \cup C) \setminus [(C \setminus B) \cup (B \setminus A)]$