Name ..... CA.... row .... col....

1.	2.	3.	4.	$\sum$

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 a) set $\mathbb{N}$ b) $\mathbb{R}$ and symbols indicated in brackets

a) *square root of an odd number is odd*$(\cdot, +, =, 1)$

b) *not every square root of a positive number is positive number*$(\cdot, +, =, 1, >, 0)$

2. Prove or disprove $(x, y, z \in \mathbb{R})$

$\exists z \exists x \forall y \; z \cdot y \neq x$

3. Proof by induction

$14 | 3^{4n+2} + 5^{2n+1}$

4. For how many assignments the formula is true? Transform it into DNF form (e.i. $(x_1 \wedge x_2 \wedge x_3) \vee (..) ... \vee (...)$ where x_i are variable or their negations)

$$[(q \vee r) \Rightarrow (r \vee p)] \Rightarrow \sim (p \Rightarrow q)$$

Name ..... CA.... row .... col....

1.	2.	3.	4.	$\sum$

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

a) *square root of an even number is even*$(\cdot, +, =, 1)$

b) *every positive number has a square root*$(\cdot, +, =, 1, >, 0)$

2. Prove or disprove $(x, y, z \in \mathbb{R})$

$\exists z \exists x \forall y \; z \cdot y = x$

3. Proof by induction $9 | 4^n + 15n + 17$

4. For how many assignments the formula is true? Transform it into DNF form (e.i. $(x_1 \wedge x_2 \wedge x_3) \vee (..) ... \vee (...)$ where x_i are variable or their negations)

$$[(r \vee q) \Rightarrow (q \vee p)] \Rightarrow \sim (p \Rightarrow r)$$