Name ..... 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) $\mathbb{N}$ b) $\mathbb{Z}$ and symbols indicated in brackets

a) *a number x has an odd multiple*$(\cdot, +, =, 1)$

b) *every positive number is a square of some number*$(\cdot, +, =, >, 0)$

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

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

3. Proof by induction

$11 | 2^{6n+1} + 3^{2n+2}$,

4. Is the following formula a tautology? 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)

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

Name ..... 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) $\mathbb{N}$ b) $\mathbb{Z}$ and symbols indicated in brackets

a) *a number x has an even divisor*$(\cdot, +, =, 1)$

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

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

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

3. Proof by induction $11 | 2^{6n+1} + 3^{2n+2}$,

4. Is the following formula a tautology? 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)

$[(p \Rightarrow (q \wedge r)) \Rightarrow r] \Rightarrow (p \wedge r)$