Math is not about many rules you have to remember, it is about few ideas you have to understand.

Dear students and parents,

welcome to the new semester at the SchoolNova!

This class is designed to cover the topics from various level of SchoolNova math classes to facilitate the adaptation of new students to the SchoolNova curriculum. The list of topics covered in this class will be posted online.

Be in time for class, if you are a little late, just go in and take your seat. Parents are always welcome, please have a seat at the back rows.

Homework is very important part of the learning process. it complements our class work and provides a feedback of students' progress. Homework is not optional. Each assignment should be written in a notebook, show all your work. Some problems are more difficult than the other, If you can't solve a problem, don't worry, submit your best attempt. Any attempt is better than nothing!

You will need

a ruler, a compass, a protractor to draw geometrical sketches. Write and draw your sketches neatly.

If you miss a class, review the class notes posted online.

There will be no grades in the class!

If you have any questions, I will be glad to answer them after the class, or you can always email me at zal.tanya.sv@gmail.com

Foundation in Algebra and geometry 1. Grades 6-7.

algebra

1. Sets and natural numbers. Operation with sets (intersection, union, classification).
2. Sentences and statements. True and false statements. Categorical statements. Concept of proof.
3. From numbers to counting. Arithmetic operations and their properties. Order of operations.
4. Divisibility, divisibility rules, division with remainder, prime numbers and prime factorization. Factorization.
5. Divisors and multiples. Possible divisors of a number, GCD (GCF) and LCM.
6. Fractions, how to operate with them.
7. Negative numbers and how to operate with them. Absolute value of a number.
8. Ratio. Golden ratio. Proportion. Direct and revers proportionality. Percent.
9. Rational numbers. Decimals. From rational to decimals and from decimals to rational numbers.
10. Variables and how to work with them: numerical and algebraic expressions.
11. Equations, equalities, and identities.
12. How we can solve an equation? Linear equations and linear equations with absolute values. Inequalities.
13. Power of the power. Properties of natural exponent. Properties of integer exponent.
14. Number system-not only 10-based.
15. All kind of numbers are there: natural numbers, integers, rational numbers, ….more? Irrational numbers, arithmetic square root. Root of any natural power.
16. Concept of a rational exponent.
17. Monomials, binomials, and polynomials. Combining like terms. Standard form of polynomials.

18. Working with expressions. Addition and multiplication of expressions, factorization of expressions.
19. Standard Algebraic Identities.
20. Algebraic fractions. Reducing algebraic fraction.
21. Concept of function. Simple functions $f(x) = ax + b, \quad f(x) = ax^2 + bx + c, f(x) = |x|$
22.

Geometry.

1. Definition. What we define and what we don't. Point, line, plane and their properties.
2. Acxiom of a straight line.
3. Mutual positions of points, lines, and planes. Points and lines on a plane and in space.
4. 3D shapes: planes, segments, and points.
5. Rays and angles. Types of angles, supplementary and complementary angles. Right angle. Bisector of an angle. Measuring of angles.
6. Axioms and theorems. Postulates.
7. Parallel lines. Angles formed by a transversal line and two parallel lines.
8. Triangle. Special segments in a triangle – bisector, high (altitude), and median.
9. Circle. Radius, diameter, chord, arch.
10. Criteria of congruency of 2 triangles.
11. Isosceles triangle and its properties, theorem about bisector, altitude, and median of isosceles triangle.