

MATH

Algebra

Year 7

(70 hrs, 2 hrs per week, reserve – 12 hrs)

Table of contents	
1.	<p>Integer expressions</p> <p>Expressions with variables. Integer rational expressions. Identical equation. Composing identically equal expressions. Degree with a natural indicator. Features of a degree with a natural indicator. Monomial. Degrees of monomials. Multiplying monomials. Polynome. Similar members of a polynome and their combinations. Degree of a polynome. Adding, subtracting and multiplying of polynomes. Formulas of square binomial, differences between the binomials, sum, and differences of cubes. Dividing polynomes into multipliers</p>
2	<p>Functions</p> <p>Functional dependence between the units as a mathematic model of real processes.</p> <p>Function. Function domain and range. Method of function setting. Function graph. Linear function, its graph, and features</p>
3.	<p>Linear EQUATIONS AND THEIR SYSTEMS</p> <p>Linear equation with one variable. Linear equation with two variables and a graph of it. System of two linear equations with two variables. Solving a system of two linear equations with two variables: graphic, by substitution, and by adding. Linear equations and their systems as mathematic models of text tasks</p>
<p>Expected results</p> <p>Pupil:</p> <ul style="list-style-type: none"> ● solves tasks on: calculation of expressions with variables; bringing a monomial to standard expression; transformation of a sum of a monomial and polynome, sums, differences, and multiplying of two polynomes into a polynome; dividing a polynome into multipliers by factoring out, by grouping, using shortened multiplying formulas and using several means; using the indicated transformation in the process of solving of equations, and proving of arguments; ● solves tasks on: finding the area of defining a function; finding the value of function by the provided argument; building a graph of a linear function; finding the function value 	

using the function graph for the provided argument value and vice versa; defining separate features of a function by its graph (positive quantities, negative quantities, and zeros);

- **makes up and solves tasks on:** direct proportions from life situations; building graphs in modelling real processes using a linear function, etc.

Geometry

Year 7

(70 hrs, 2 hrs per week, reserve – 20 hrs)

Table of contents	
1.	<p>Elementary geometric figures and their features. Geometric figures. Dot, line, fragment, ray, and angle. Their features. Measuring fragments and angles. Bisector of angle. Distance between two dots</p>
2	<p>Mutual placement of lines on a plane. Adjacent and vertical angles, and their features. Parallel and perpendicular lines, and their features. Perpendicular. Distance from a dot to a line. Angles between two crossing lines. Angles formed at a crosspoint of two lines and a cut. Features of line parallelity. Features of angles formed at a crosspoint of two parallel lines and a cut</p>
3.	<p>Triangles. Features of equality of triangles. A triangle and its elements. Height, bisector, and median of a triangle. Equality of geometric figures. Features of equality of triangles. Types of triangles. Oblique triangle, its features and signs. Triangle inequality. Sum of triangle angles. External angle of a triangle and its features. Features of right triangles</p>
4.	<p>Circle and circular disk. Tangential and its features. Main tasks on building:</p> <ul style="list-style-type: none"> ● a triangle having three side lengths; ● an angle equal to the given one; ● bisector of an angle; ● division of a fragment in half; ● a line perpendicular to the given one. <p>Circle around a triangle.</p>



Circle within a triangle

Expected results

Pupil:

- **classifies:** angles (acute, right, obtuse, and flat); triangles classification by sides and angles;
- **measures and calculates:** the length of a fragment, angle degree, using the features of measurement; distance from a dot to a line;
- **depicts and finds on the images** geometric figures indicated in the content;
- **uses** the learned definitions and features to solve tasks;
- **uses practical tasks on:** finding the distance to a remote dot; defining equidistance of objects on the Earth surface; using the triangle strength in construction, etc.