

Math (Algebra)

Year 8

(70 hrs, 2 hrs/week)

Table of contents	
1	<p>Rational expressions</p> <p>Degree with an integral exponent and its features</p> <p>Standard look of a number</p> <p>Rational expressions</p> <p>Rational fractions and their features</p> <p>Arithmetic operations with rational fractions</p> <p>Rational equations</p> <p>Equivalent equations</p> <p>Function $y = k/x$, its graph and features</p>
2	<p>Square roots. Real numbers</p> <p>Function $y = x^2$, its graph and features</p> <p>Arithmetic square root and its features</p> <p>Rational numbers</p> <p>Irrational numbers. Real numbers</p> <p>Function $y = \sqrt{x}$, its graph and features</p>
3	<p>Square equations</p> <p>Square equations</p> <p>Vieta theorem</p> <p>Quadratic function (quadratic function transformation into linear multipliers)</p> <p>Square equation (solving the equations reduced to square equations)</p>
<p><u>Expected results</u></p> <p>Pupil solves tasks implying:</p> <ul style="list-style-type: none"> • simplifying fractions; reducing a fraction to a common denominator; finding the sum, difference, multiplying and dividing fractions; solving tasks with a variable of fraction nominator; building $y = k/x$ function graph; • using the concept of arithmetic square root; extracting a multiplier from a square, adding a multiplier to a square; rationalizing a fraction nominator; building $y = x^2$ та $y = \sqrt{x}$ function graphs; • finding roots of square equations; dividing a quadratic function into multipliers; finding the roots of equations reduced to square equations; making up and solving square equations and equations reduced to them. 	

Math (Geometry)

Year 8

(70 hrs, 2 hrs/week)

Table of contents	
1	<p>Quadrilaterals A rectangle and its elements. Sum of rectangle angles. Parallelogram, its features and signs Rectangle, rhombus, square, and their features. Trapezoid Thales' theorem</p>
2	<p>Similarity of triangles Generalizes Thales' theorem Similar triangles Signs of similarity of triangles Features of triangle median and bisection</p>
3	<p>Solving right triangles Sine, cosine, and tangent of an acute angle of a right triangle Pythagorean theorem Perpendicular and oblique, their features Correlation between the sides and the angles of a right triangle Sine, cosine, and tangent of certain angles Solving right triangles</p>
4	<p>Polygons. Area of polygons Polygon and its elements A polygon inside a circle and a circle inside a polygon Polygon area concept Area of a rectangular, parallelogram, rhombus, triangle, and trapezoid</p>
<p><u>Expected results</u></p> <p>Pupil solves tasks implying:</p> <ul style="list-style-type: none"> ● usage of the learned definitions and features to solve tasks, specifically, to find distances on the land; ● solves right triangles; ● solves the tasks on: dividing a polygon into equal parts; polygon homogeneity, etc. 	