



Advanced Algebra Topics 7-9 Online Syllabus

Course Goals

1 Algebra Exploration

Students comfortable with Algebra 1 material explore more advanced algebra concepts. This is designed to be an "Algebra 1.5 class". It acts as a nice bridge between Algebra 1 and Algebra II.

2 Algebra 1 Fluency & Review

Students review Algebra 1 concepts such as order of operations, polynomial operations, and solving quadratic equations in order to solidify their understanding of essential algebraic skills.

3 Graphical Analysis

Students analyze graphs of quadratics, polynomials, exponents, and logarithmic functions for key features.

Course Topics

1 Expressions and Order of Operations

Students review order of operations by simplifying expressions using PEMDAS.

2 Translating Word Problems into Expressions and Equations

Students look for signal words and create variables to translate word problems into expressions and equations that can be mathematically manipulated.

3 Functions

Students analyze multiple forms of relationships to determine if it is a function.

4 Composite Functions

Students evaluate the values when composite functions are involved in operations.

5 Inverse Functions

Students find the inverse of a function.

6 Quadratic Equations

Students analyze quadratic equations graphically and solve them using factoring, the quadratic formula, and completing the square.

7 Polynomials

Students analyze polynomial functions graphically and perform polynomial operations (addition, subtraction, multiplication, and division).

8 Exponents

Students practice using the laws of exponents with positive and negative exponents to simplify expressions with multiple variables.

9 Radicals

Students simplify, add, subtract, multiply, and divide radicals.

10 Complex Numbers

Students simplify and perform operations on complex numbers. They also plot complex numbers on the imaginary axis.

11 Logarithms

Students use the laws of logarithms to simplify logarithms and solve equations for variables where logarithms are involved. Students are also exposed to the natural logarithm.

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