GRADE 8 ADVANCED MATH - ALGEBRA 2

MAJOR UNITS/TOPICS	ASSESSMENTS/PROJECTS
Unit 1: Quadratic Functions and Relations ● **Graphing Quadratic Functions** ● **Solving Quadratic Functions by Graphing** ● **Solving Quadratic Functions by Factoring** ● **Completing the Square** ● **The Quadratic Formula and The Discriminant** ● **Transformations of Quadratic Graphs** ● **Quadratic Inequalities**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 2: Complex Numbers ● **Perform operations with imaginary numbers** ● **Perform operations with complex numbers** ● **Use complex numbers in the solutions to quadratic equations using the quadratic formula** ● **Graph in the complex plane** ● **Find the absolute value of a complex number**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 3: Polynomials and Polynomial Functions ● **Operations with Polynomials** ● **Dividing polynomials** ● **Solving Polynomial Equations** ● **Factor polynomials**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.

including sum and difference of cubes • **Find the rational zeros of a polynomial function**	

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Unit 4: Linear Relations and Functions • **Relations and Functions** • **Scatter Plots and Lines of Regression** • **Special Functions** • **Parent Functions and Transformations** • **Graphing Linear and Absolute Value Inequalities**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 5: Systems of Equations and Inequalities • **System of Equations in Three Variables** • **Operations with Matrices** • **Multiplying Matrices** • **Solving Systems of Equations Using Cramer's Rule** • **Solving Systems of Equations Using Inverse Matrices**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 6: Inverses and Radical Functions and Relations • **Operations with Functions** • **Inverse Functions and Relations** • **Square Root Functions and Inequalities** • **nth Root** • **Operations with Radical Expressions** • **Rational Exponents**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.

• **Solving Radical Equations and Inequalities**	

MAJOR UNITS/TOPICS	ASSESSMENTS/PROJECTS
Unit 7: Exponential and Logarithmic Functions and Relations • **Graphing Exponential Functions** • **Solving Exponential Equations and Inequalities** • **Logarithms and Logarithmic Functions** • **Solving Logarithmic Equations and Inequalities** • **Properties of Logarithms** • **Common Logarithms** • **Base e and Natural Logarithms** • **Using Exponential and Logarithmic Functions**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 8: Rational Functions and Relations • **Multiplying and Dividing Rational Expressions** • **Adding and Subtracting Rational Expressions** • **Graphing Reciprocal Functions** • **Graphing Rational Functions** • **Variation Functions** • **Solving Rational Equations and Inequalities**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.
Unit 9: Sequences and Series • **Sequences as Functions** • **Arithmetic Sequences and Series** • **Geometric Sequences and Series** • **Infinite Geometric Series**	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.

Unit 10: Geometry
    ● **Circles- Arcs and Secants**
    ● **Geometric Proofs- Introduction to Two-Column Proofs**
	In class assignments, homework, tests/quizzes, projects, will be designed to fit each class setting.