

Scope and Sequence

Subject: Math

Grade: HS

Course :Pre-

Calculus

<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>	<u>Unit 4</u>
Unit title: Properties of algebra Duration: 15 days • Properties of Equality • Properties of Inequalities • Distance Formula • Midpoint Formula • Quadratic Formula • Equations of a Circle • Completing the Square • Solving Quadratics Algebraically • Approximating Solutions Graphically	Unit title: Functions and Graphs Duration: 20 days • Zero Product Property • Vertical Line Test • Odd/Even Functions • Horizontal Line Test • Inverses/Composite functions • Translations of Graphs • Reflections over Axes • Stretches/Shrinks of Graphs • Roots/Zeros/X-intercept • Problem Solving • Domain • Inverse Notation	Unit title: Quadratics Duration: 15 days • Vertex Form of a Quadratic • Vertical Free Fall Motion • Local Extrema and Zeros of a Polynomial • Leading Term Test for End Behavior • Intermediate Value Theorem • Division Algorithm for Polynomials	Unit title: Modeling, Complex Numbers Duration: 20 days • Vertex Form of a Quadratic • Vertical Free Fall Motion • Local Extrema and Zeros of a Polynomial • Leading Term Test for End Behavior • Intermediate Value Theorem • Division Algorithm for Polynomials • Remainder Theorem • Factor Theorem • Fundamental Theorem of Algebra • Linear Factorization • Complex Conjugate Zeros Theorem • Graph of Rational Function • Regression Analysis • Polynomial Long Division • Synthetic Division
<u>Unit 5</u>	<u>Unit 6</u>	<u>Unit 7</u>	<u>Unit 8</u>
Unit title: Exponential Functions Logarithmic Functions	Unit title: Angles and their Measures	Unit title: Analytic Trigonometry Duration: 20 days	Unit title: Introduction to calculus Duration: 10 days

Duration: 15 days - Exponential Growth/Decay - Exponential Functions $f(x)=b^x$ - Exponential Functions and Base e - Population Model - Convert log/exponential form - Basic Logarithm Properties - Basic Natural Log Properties - Change of Base Formula - Compound Interest - Present/Future Value of Annuities	Duration: 15 days - Trigonometric Functions of Acute Angles - Circular Functions - Graphs of Sines/Cosines - Graphs of Tangent/Cotangent and Secant/Cosecant - Inverse Trig Functions - Solving Problems with Trigonometry	- Reciprocal Identities - Quotient Identities - Pythagorean Identities - Cofunction Identities - Law of Sines - Law of Cosines - Heron's Formula - Strategies for Proving Identities	- Limits - Average Rate of Change - Derivative at a Point - Derivative - Limit at Infinity - Definite Integral - Properties of Limits - Difference Quotient - Numerical Derivative - Numerical Integral
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