



ALLEN ACADEMY

Algebra II		
First Trimester Objectives:	Second Trimester Objectives:	Third Trimester Objectives:
<ul style="list-style-type: none">- Introduce the basic concepts of linear and quadratic functions.- Connect functions and their properties to solving matrices.- Introduce slope as a rate of change- Model Direct Variation and draw scatterplots to represent data and make predictions	<ul style="list-style-type: none">- Continue study of quadratics: solving, factoring, graphing,- Review of quadratic inequalities, including modeling and solving real-life applications.- Solve quadratics by "completing the square" and using calculators- Introduce growth and decay concepts and relate them to exponential properties.	<ul style="list-style-type: none">- Introduce algebra concepts as they relate to pre-calculus and calculus.- Introduce the concept of trigonometry using natural and common logarithms- Emphasize solving applications using graphing and algebra techniques- Graph, solve, and write equations for conic sections: circles, ellipses, hyperbolas, and parabolas- Solve equations using trigonometry, combined with algebra processes.- Investigate the Unit Circle and draw trigonometric graphs of sine, cosine, and tangent
Topics Covered:	Topics Covered:	Topics Covered:
<ul style="list-style-type: none">- Review of essential algebra operations, including but not limited to solving equations.- Find slopes of lines and relate the slope as a rate of change.- Investigate Relations and Functions and associate their properties to modeling- Graph and apply linear inequalities and absolute value inequalities using transformations- Study of matrices; how to solve with and without calculators. Apply operations of inverses to matrices.- Initial study of quadratic functions including graphing and identifying different parts of quadratics	<ul style="list-style-type: none">- Solve quadratic functions by: finding square roots, using discriminant, quadratic formula, factoring.- Study properties of exponents- Evaluate and graph polynomial functions- Perform arithmetic operations with polynomials: add, subtract, multiply, divide- Analyze and graph polynomial functions- Use properties of exponents to solve and/or graph growth and decay functions- Introduce the concept of a natural logarithm with the value of "e".	<ul style="list-style-type: none">- Model inverse, direct, and joint variation- Graph simple and complex rational functions.- Perform arithmetic operations with rational functions.- Analyze conic sections including parabolas, ellipses, hyperbolas, and circles- Solve applications using conic style equations- Graph conic sections using the concept of transformations- Introduce unit circle and radian values- Use trigonometry with right triangles- Define general angles: use radian



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	<p>- Solve exponential growth and decay applications involving the natural and common logarithm.</p>	<p>measure and degree measure to express solutions</p> <p>- Solve real-life applications using trigonometry functions of sine, cosine, and tangent.</p> <p>- Graph trig functions: sine, cosine, and tangent</p> <p>- Express angle measures in different forms: degrees, pi, radians</p>
Instructional Resources:		
<ul style="list-style-type: none">• Online Learning Platform: Khan Academy• Textbook: <i>Big Ideas Math, A Bridge to Success; Algebra 2</i> by Ron Larson• Outside Sources: College Board AP		