



# ALLEN ACADEMY

Algebra II 2017-2018		
First Trimester Objectives:	Second Trimester Objectives:	Third Trimester Objectives:
<ul style="list-style-type: none"> <li>- Introduce the basic concepts of linear and quadratic functions.</li> <li>- Connect functions and their properties to solving matrices.</li> <li>- Introduce slope as a rate of change</li> <li>- Model Direct Variation and draw scatterplots to represent data and make predictions</li> </ul>	<ul style="list-style-type: none"> <li>- Continue study of quadratics: solving, factoring, graphing,</li> <li>- Review of quadratic inequalities, including modeling and solving real-life applications.</li> <li>- Solve quadratics by "completing the square" and using calculators</li> <li>- Introduce growth and decay concepts and relate them to exponential properties.</li> </ul>	<ul style="list-style-type: none"> <li>- Introduce algebra concepts as they relate to pre-calculus and calculus.</li> <li>- Introduce the concept of trigonometry using natural and common logarithms</li> <li>- Emphasize solving applications using graphing and algebra techniques</li> <li>- Graph, solve, and write equations for conic sections: circles, ellipses, hyperbolas, and parabolas</li> <li>- Solve equations using trigonometry, combined with algebra processes.</li> <li>- Investigate the Unit Circle and draw trigonometric graphs of sine, cosine, and tangent</li> </ul>
Topics Covered:	Topics Covered:	Topics Covered:
<ul style="list-style-type: none"> <li>- Review of essential algebra operations, including but not limited to solving equations.</li> <li>- Find slopes of lines and relate the slope as a rate of change.</li> <li>- Investigate Relations and Functions and associate their properties to modeling</li> <li>- Graph and apply linear inequalities and absolute value inequalities using transformations</li> <li>- Study of matrices; how to solve with and without calculators. Apply operations of inverses to matrices.</li> <li>- Initial study of quadratic functions including graphing and identifying different parts of quadratics</li> </ul>	<ul style="list-style-type: none"> <li>- Solve quadratic functions by: finding square roots, using discriminant, quadratic formula, factoring.</li> <li>- Study properties of exponents</li> <li>- Evaluate and graph polynomial functions</li> <li>- Perform arithmetic operations with polynomials: add, subtract, multiply, divide</li> <li>- Analyze and graph polynomial functions</li> <li>- Use properties of exponents to solve and/or graph growth and decay functions</li> <li>- Introduce the concept of a natural logarithm with the value of "e".</li> </ul>	<ul style="list-style-type: none"> <li>- Model inverse, direct, and joint variation</li> <li>- Graph simple and complex rational functions.</li> <li>- Perform arithmetic operations with rational functions.</li> <li>- Analyze conic sections including parabolas, ellipses, hyperbolas, and circles</li> <li>- Solve applications using conic style equations</li> <li>- Graph conic sections using the concept of transformations</li> <li>- Introduce unit circle and radian values</li> <li>- Use trigonometry with right triangles</li> <li>- Define general angles: use radian</li> </ul>



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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>
<p style="text-align: center;"><b>Instructional Resources:</b></p>		
<ul style="list-style-type: none"><li>• Online Learning Platform: Khan Academy</li><li>• Textbook: <i>Big Ideas Math, A Bridge to Success; Algebra 2</i> by Ron Larson</li><li>• Outside Sources: College Board AP</li></ul>		