

Grade Level(s) <u>HS</u>	Course <u>Algebra II A</u>	Date Last Revised <u>May 5, 2010</u>
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Weeks 1-2 of 12 Foundations for Functions	L1.1.1 L1.2.1	1-1: Sets of Numbers	Classify and order real numbers	<ul style="list-style-type: none"> <li>• Set</li> <li>• Element</li> <li>• Subset</li> <li>• Empty set</li> <li>• Roster notation</li> <li>• Finite set</li> <li>• Infinite set</li> <li>• Interval notation</li> <li>• Set-builder notation</li> </ul>	<ul style="list-style-type: none"> <li>• Partner-pairs</li> <li>• Board review</li> <li>• Demonstrations                             <ul style="list-style-type: none"> <li>◦ Taking notes</li> <li>◦ Example problems</li> </ul> </li> <li>• After-school tutorial</li> <li>• Direct instruction</li> <li>• Daily practice problems</li> <li>• Practice testing</li> <li>• Create multiplication tables.</li> </ul>	<ul style="list-style-type: none"> <li>• Textbook</li> <li>• PowerPoint lessons on projector</li> <li>• Practice, Reteach, Reading Strategies and Challenge activities</li> <li>• Know-it-Notebook</li> <li>• Pinnacle Parent-Viewer</li> <li>• Internet help</li> <li>• Scientific calculator</li> <li>• Rope</li> <li>• Overhead projector</li> <li>• Vocabulary Definition Worksheet</li> <li>TI-82/83</li> <li>Graphing Claculators</li> </ul>	<ul style="list-style-type: none"> <li>• 5-minute quizzes</li> <li>• Teacher observation</li> <li>• Self-checked assignments</li> <li>• Teacher-checked assignments</li> <li>• Notebook checks</li> <li>• Formative assessments</li> <li>• Summative assessments</li> <li>Multiplication table warm-up</li> </ul>
	A1.1.1 L1.1.1	1-2: Properties of Real Numbers	Identify and use properties of real numbers	<ul style="list-style-type: none"> <li>•</li> </ul>			
	A1.1.1 A1.1.2	1-3: Square Roots	Estimate square roots Simplify, add, subtract, multiply, and divide square roots	<ul style="list-style-type: none"> <li>• Radical symbol</li> <li>• Radicand</li> <li>• Principal root</li> <li>• Rationalize the denominator</li> <li>• Like radical terms</li> </ul>			
	A1.1.1 A1.2.8	1-4: Simplifying Algebraic Expressions	Simplify and evaluate algebraic expressions	<ul style="list-style-type: none"> <li>•</li> </ul>			
	A1.1.1 A1.1.2	1-5: Properties of Exponents	Simplify expressions involving exponents	<ul style="list-style-type: none"> <li>• Scientific notation</li> </ul>			
	A2.1.1 A2.1.3	1-6: Relations and Functions	Identify the domain and range of relations and functions Determine whether a relation is a function	<ul style="list-style-type: none"> <li>• Relation</li> <li>• Domain</li> <li>• Range</li> <li>• Function</li> </ul>			

A2.1.1	A2.1.2	1-7: Exploring Transformations	Write functions using function notation Evaluate and graph functions	<ul style="list-style-type: none"> <li>• Function notation</li> <li>• Dependent variable</li> <li>• Independent variable</li> </ul>			
A2.2.2		1-8: Introduction to Parent Functions	Apply transformations to points and sets of points Interpret transformations of real-world data	<ul style="list-style-type: none"> <li>• Transformation</li> <li>• Translation</li> <li>• Reflection</li> <li>• Stretch</li> <li>• Compression</li> </ul>			
A2.1.7	A2.3.1	1-9: Introduction to Parent Functions	Identify parent functions from graphs and equations Use parent functions to model real-world data and make estimates for unknown values	<ul style="list-style-type: none"> <li>• Parent Function</li> </ul>			
A2.3.2	A2.3.3						

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Weeks 3-4 of 12 Linear Functions	A1.1.1 A1.2.1 A1.2.3 A1.2.8 L2.4.1	2-1: Solving Linear Equations and Inequalities	Solve linear equations using a variety of methods Solve linear inequalities	<ul style="list-style-type: none"> <li>Equation</li> <li>Solution set of an equation</li> <li>Linear equation in one variable</li> <li>Identity</li> <li>Contradiction</li> <li>Inequality</li> </ul>	<ul style="list-style-type: none"> <li>Partner-pairs</li> <li>Board review</li> <li>Demonstrations                             <ul style="list-style-type: none"> <li>Taking notes</li> <li>Example problems</li> </ul> </li> <li>After-school tutorial</li> </ul>	<ul style="list-style-type: none"> <li>Textbook</li> <li>PowerPoint lessons on projector</li> <li>Practice, Reteach, Reading Strategies and Challenge activities</li> <li>Know-it-Notebook</li> <li>Pinnacle Parent-Viewer</li> <li>Internet help</li> <li>Scientific calculator</li> <li>Rope</li> <li>Overhead projector</li> <li>Vocabulary Definition Worksheet</li> <li>TI-82/83 Graphing Claculators</li> </ul>	<ul style="list-style-type: none"> <li>5-minute quizzes</li> <li>Teacher observation</li> <li>Self-checked assignments</li> <li>Teacher-checked assignments</li> <li>Notebook checks</li> <li>Formative assessments</li> <li>Summative assessments</li> <li>Multiplication table warm-up</li> </ul>
	L2.3.1	2-2: Proportional Reasoning	Apply proportional relationships to rates, similarity, and scale	<ul style="list-style-type: none"> <li>Ratio</li> <li>Proportion</li> <li>Rate</li> <li>Similar</li> <li>Indirect measurement</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Daily practice problems</li> <li>Practice testing</li> <li>Create multiplication tables.</li> </ul>		
	A2.1.7 A2.3.2 A3.1.1 A3.1.2 A3.1.3	2-3: Graphing Linear Functions	Determine whether a function is linear Graph a linear function, given two points, a table, an equation, or a point and a slope	<ul style="list-style-type: none"> <li>Linear function</li> <li>Slope</li> <li>Y-intercept</li> <li>X-intercept</li> <li>Slope-intercept form</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>		
	A1.2.9 A2.1.7 A3.1.1 A3.1.4	2-4: Writing Linear Functions	Use slope-intercept form and point-slope form to write linear functions Write linear functions to solve problems	<ul style="list-style-type: none"> <li>Point-slope form</li> </ul>			
	A1.2.1 A1.2.3 A1.2.4	2-5: Linear Inequalities in Two Variables	Graph linear inequalities on the coordinate plane Solve problems using linear inequalities	<ul style="list-style-type: none"> <li>Linear inequality</li> <li>Boundary line</li> </ul>			
	A1.2.4 A2.2.2 A3.1.3	2-6: Transforming Linear Functions	Transform linear functions Solve problems involving linear transformations	<ul style="list-style-type: none"> <li>•</li> </ul>			



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Weeks 5-6 of 12 Linear Systems	A1.2.1    A1.2.3	3-1: Using Graphs and Tables to Solve Linear Systems	Solve systems of equations by using graphs and tables Classify systems of equations, and determine the number of solutions	<ul style="list-style-type: none"> <li>• System of equations</li> <li>• Linear system</li> <li>• Consistent system</li> <li>• Inconsistent system</li> <li>• Independent system</li> <li>• Dependent system</li> </ul>	<ul style="list-style-type: none"> <li>• Partner-pairs</li> <li>• Board review</li> <li>• Demonstrations                             <ul style="list-style-type: none"> <li>○ Taking notes</li> <li>○ Example problems</li> </ul> </li> <li>• After-school tutorial</li> <li>• Direct instruction</li> <li>• Daily practice problems</li> <li>• Practice testing</li> <li>• Create multiplication tables.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Textbook</li> <li>• PowerPoint lessons on projector</li> <li>• Practice, Reteach, Reading Strategies and Challenge activities</li> <li>• Know-it-Notebook</li> <li>• Pinnacle Parent-Viewer</li> <li>• Internet help</li> <li>• Scientific calculator</li> <li>• Rope</li> <li>• Overhead projector</li> <li>• Vocabulary Definition Worksheet</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• 5-minute quizzes</li> <li>• Teacher observation</li> <li>• Self-checked assignments</li> <li>• Teacher-checked assignments</li> <li>• Notebook checks</li> <li>• Formative assessments</li> <li>• Summative assessments</li> <li>• Multiplication table warm-up</li> </ul>
	A1.2.3    A1.2.8	3-2: Using Algebraic Methods to Solve Linear Systems	Solve systems of equations by substitution Solve systems of equations by elimination	<ul style="list-style-type: none"> <li>• Substitution</li> <li>• Elimination</li> </ul>			
	A1.2.3	3-3: Solving Systems of Linear Inequalities	Solve systems of linear inequalities	<ul style="list-style-type: none"> <li>• Systems of linear inequalities</li> </ul>			
	A1.2.1    A1.2.3	3-4: Linear Programming	Solve linear programming problems	<ul style="list-style-type: none"> <li>• Linear programming</li> <li>• Constraint</li> <li>• Feasible region</li> <li>• Objective function</li> </ul>			
	A1.2.1	3-5: Linear Equations in Three Dimensions	Graph points and linear equations in three dimensions	<ul style="list-style-type: none"> <li>• Three-dimensional coordinate plane</li> <li>• Ordered pair</li> <li>• Z-axis</li> </ul>			

	A1.2.3 A1.2.8	3-6: Solving Linear Systems in Three Variables	Represent solutions to systems of equations in three dimensions graphically Solve systems of equations in three dimensions algebraically	•			

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Weeks 7-8 of 12	A2.1.7 A2.3.2 A3.3.1 A3.3.2	5-1: Using Transformations to Graph Quadratic Functions	Transform quadratic functions Describe the effects of changes in the coefficients of $y=a(x-h)^2+k$	<ul style="list-style-type: none"> <li>quadratic function</li> <li>parabola</li> <li>vertex of a parabola</li> <li>vertex form</li> </ul>	<ul style="list-style-type: none"> <li>Partner-pairs</li> <li>Board review</li> <li>Demonstrations                             <ul style="list-style-type: none"> <li>Taking notes</li> <li>Example problems</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Textbook</li> <li>PowerPoint lessons on projector</li> <li>Practice, Reteach, Reading Strategies and Challenge activities</li> </ul>	<ul style="list-style-type: none"> <li>5-minute quizzes</li> <li>Teacher observation</li> <li>Self-checked assignments</li> <li>Teacher-checked assignments</li> <li>Notebook checks</li> <li>Formative assessments</li> <li>Summative assessments</li> <li>Multiplication table warm-up</li> </ul>
	A1.1.1 A2.1.7 A2.3.2 A3.3.1 A3.3.2 A3.3.5 L1.2.1	5-2: Properties of Quadratic Functions in Standard Form	Define, identify and graph quadratic functions Identify and use maximums and minimums of quadratic functions to solve problems	<ul style="list-style-type: none"> <li>Axis of symmetry</li> <li>Standard form</li> <li>Minimum value</li> <li>Maximum value</li> </ul>	<ul style="list-style-type: none"> <li>After-school tutorial</li> <li>Direct instruction</li> <li>Daily practice problems</li> <li>Practice testing</li> </ul>	<ul style="list-style-type: none"> <li>Know-it-Notebook</li> <li>Pinnacle Parent-Viewer</li> <li>Internet help</li> <li>Scientific calculator</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
	A1.1.3 A1.2.2 A2.1.6 A2.1.7 A3.3.4	5-3: Solving Quadratic Equations by Graphing and Factoring	Solve quadratic equations by graphing or factoring Determine a quadratic function from its root	<ul style="list-style-type: none"> <li>Zero of a function</li> <li>Root of an equation</li> <li>Binomial</li> <li>Trinomial</li> </ul>	<ul style="list-style-type: none"> <li>Create multiplication tables.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
	A3.3.3 A3.3.5	5-4: Completing the Square	Solve quadratic equations by completing the square Write quadratic equations in vertex form	<ul style="list-style-type: none"> <li>Completing the square</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>Rope</li> <li>Overhead projector</li> <li>Vocabulary Definition Worksheet</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
	L2.1.4 L2.1.5	5-5: Complex Numbers and Roots	Define and use imaginary and complex numbers Solve quadratic equations with complex roots	<ul style="list-style-type: none"> <li>Imaginary unit</li> <li>Imaginary number</li> <li>Complex number</li> <li>Real part</li> <li>Imaginary part</li> <li>Complex conjugate</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

A1.2.3 A1.2.9 A3.3.4	5-6: Quadratic Formula	Solve quadratic equations using the quadratic formula Classify roots using the discriminant	• Discriminate			
A1.2.3	5-7: Solving Quadratic Inequalities	Solve quadratic inequalities by using tables and graphs Solve quadratic inequalities by using algebra	• Quadratic inequalities in two variables			
A2.4.3	5-8: Curve Fitting with Quadratic Models	Use quadratic functions to model data Use quadratic models to analyze and predict	• Quadratic model • Quadratic regression			
A1.1.1 L1.2.2 L2.1.5	5-9: Operations with Complex Numbers	Perform operations with complex numbers	• Complex plane • Absolute value of a complex number			

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<b>Weeks 9-10 of 12</b>	A1.1.4 A2.1.7 A3.5.1 A3.5.2 A3.5.3	6-1: Polynomials	Identify, evaluate, add, and subtract polynomials Classify and graph polynomials	<ul style="list-style-type: none"> <li>• Monomial</li> <li>• Polynomial</li> <li>• Degree of monomial</li> <li>• Degree of polynomial</li> <li>• Leading coefficient</li> <li>• Binomial</li> <li>• Trinomial</li> <li>• Polynomial function</li> </ul>	<ul style="list-style-type: none"> <li>• Partner-pairs</li> <li>• Board review</li> <li>• Demonstrations                             <ul style="list-style-type: none"> <li>◦ Taking notes</li> <li>◦ Example problems</li> </ul> </li> <li>• After-school tutorial</li> <li>• Direct instruction</li> <li>• Daily practice problems</li> <li>• Practice testing</li> <li>• Create multiplication tables.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Textbook</li> <li>• PowerPoint lessons on projector</li> <li>• Practice, Reteach, Reading Strategies and Challenge activities</li> <li>• Know-it-Notebook</li> <li>• Pinnacle Parent-Viewer</li> <li>• Internet help</li> <li>• Scientific calculator</li> <li>• Rope</li> <li>• Overhead projector</li> <li>• Vocabulary Definition Worksheet</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• 5-minute quizzes</li> <li>• Teacher observation</li> <li>• Self-checked assignments</li> <li>• Teacher-checked assignments</li> <li>• Notebook checks</li> <li>• Formative assessments</li> <li>• Summative assessments</li> <li>• Multiplication table warm-up</li> </ul>
	A1.1.4 L2.1.2 L3.1.1	6-2: Multiplying Polynomials	Multiply polynomials Use binomial expansions to expand binomial expressions that are raised to positive integer powers	<ul style="list-style-type: none"> <li>•</li> </ul>			
	A1.1.5 A2.4.2	6-3: Dividing Polynomials	Use long division and synthetic division to divide polynomials	<ul style="list-style-type: none"> <li>• synthetic division</li> </ul>			
	A1.1.3	6-4: Factoring Polynomials	Use the factor theorem to determine factors of a polynomial Factor the sum and difference of two cubes	<ul style="list-style-type: none"> <li>•</li> </ul>			
	A1.2.5 L2.3.1	6-5: Finding Real Roots of Polynomial Equations	Identify the multiplicity of roots Use the Rational Root Theorem and the Irrational Root Theorem to solve polynomial equations	<ul style="list-style-type: none"> <li>• multiplicity</li> </ul>			
	A1.2.1 A1.2.5 A3.5.3	6-6: Fundamental Theorem of Algebra	Use the Fundamental Theorem of Algebra and its corollary to write a polynomial equation of least degree with given root Identify all the roots of a polynomial equation	<ul style="list-style-type: none"> <li>•</li> </ul>			

	A2.1.7 A2.3.1 A3.5.1 A3.5.2	6-7: Investigating Graphs of Polynomial Functions	Use properties of end behavior to analyze, describe, and graph polynomial functions Identify and use maxima and minima of polynomial functions to solve problems	<ul style="list-style-type: none"> <li>• end behavior</li> <li>• turning point</li> <li>• local maximum</li> <li>• local minimum</li> </ul>			
	A2.2.2	6-8: Transforming Polynomial Functions	Transform polynomial functions	•			
	A2.4.1 A2.4.3	6-9: Curve Fitting with Polynomial Models	Use finite differences to determine the degree of a polynomial that will fit a given set of data Use technology to find polynomial models for a given set of data	•			