

HONORS ALGEBRA 2

2012-2013

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Conference Period: Sixth (1:35 pm – 2:30 pm)

Description: Honors Algebra II is designed for the [advanced math student](#). Students are expected to have a good working knowledge of Algebra I because the material will be reviewed rapidly, and more sophisticated ideas will be introduced. Many of the topics will be new, and it is expected that students can correctly handle the basic algebra so that emphasis can be placed on more abstract topics. Some of these topics include inequalities, absolute value, complex numbers, complete analysis of quadratic functions, laws of exponents, exponential functions, logarithms, triangle trigonometry, sequences, series, probability and statistics, and world problems relating to these topics.

Tentative Course Outline:

Month	Chapter/Section	Topic
Chapter 2 Linear Equations and Functions Review		
Sept.	2.1	Functions and Their Graphs
	2.2	Slope and Rate of Change
	2.3	Quick Graphs of Linear Equations
	2.4	Writing Equations of Lines
	2.5	Correlation and Best-Fitting Lines
	2.6	Linear Inequalities in Two Variables
	2.7	Piecewise Functions
	2.8	Absolute Value Functions
Chapter 3 Systems of Linear Equations & Inequalities		
Sept./Oct.	3.1	Solving Linear Systems by Graphing
	3.2	Solving Linear Systems Algebraically
	3.3	Graphing and Solving Systems of Linear Inequalities
	3.4	Linear Programming
	3.6	Solving Systems of Linear Equations in Three Variables
Chapter 5 Quadratic Functions		
Oct.	5.1	Graphing Quadratic Functions
	5.2	Solving Quadratic Equations by Factoring
	5.3	Solving Quadratic Equations by Finding Square Roots
	5.4	Complex Numbers
	5.5	Completing the Square
	5.6	Quadratic Formula

	5.7	Graphing and Solving Quadratic Inequalities
	5.8	Modeling with Quadratic Functions
Chapter 6 Polynomials and Polynomial Functions		
Nov.	6.1	Using Properties of Exponents
	6.2	Evaluating and Graphing Polynomial Functions
	6.3	Adding, Subtracting, and Multiplying Polynomials
	6.4	Factoring and Solving Polynomial Equations
	6.5	The Remainder and Factor Theorems
	6.6	Finding Rational Zeros
	6.7	Using the Fundamental Theorem of Algebra
	6.8	Analyzing Graphs of Polynomial Functions
	6.9	Modeling with Polynomial Functions
Chapter 7 Powers, Roots, and Radicals		
Nov./Dec.	7.1	Nth Roots and Rational Exponents
	7.2	Properties of Rational Exponents
	7.3	Power Functions and Function Operations
	7.4	Inverse Functions
	7.5	Graphing Square Root and Cube Root Functions
	7.6	Solving Radical Equations
Chapter 8 Exponential and Logarithmic Functions		
Dec./Jan.	8.1	Exponential Growth
	8.2	Exponential Decay
	8.3	The Number e
	8.4	Logarithmic Functions
	8.5	Properties of Logarithms
	8.6-8.8	Solving Exponential and Power Functions Modeling with Exponential and Power Functions Logistic Growth Functions
Chapter 12 Probability and Statistics		
Jan.	7.7	Statistics and Statistical Graphs
Jan.	12.1	Fundamental Counting Principle and Permutations
	12.2	Combinations and the Binomial Theorem
	12.3	Introduction to Probability
	12.4	Probability of Compound Events
	12.5	Probability of Independent and Dependent Events
Chapter 13 Trigonometric Ratios and Functions		
Chapter 14 Trigonometric Graphs, Identities and Equations		
Feb./Mar.	13.1	Right Triangle Trigonometry
	13.2	General Angles and Radian Measure
	13.3	Trigonometric Functions of Any Angle
	14.1	Graphing Sine, Cosine and Tangent Functions

	14.2	Translations and Reflections of Trigonometric Graphs
	13.4	Inverse Trigonometric Functions
	13.5	Law of Sines
	13.6	Law of Cosines
Chapter 9 Rational Equations and Functions		
Mar./Apr.	9.1	Inverse and Joint Variation
	9.2	Graphing Simple Rational Functions
	9.3	Graphing General Rational Functions
	9.4	Multiplying and Dividing Rational Expressions
	9.5	Addition, Subtraction, and Complex Fractions
	9.6	Solving Rational Equations
Chapter 10 Quadratic Relations and Conic Sections		
Apr./May	10.1	Distance and Midpoint Formulas
	10.3	Circles
	10.4	Ellipses
	10.5	Hyperbolas
	10.6	Graphing and Classifying Conics
	10.7	Solving Quadratic Systems
Chapter 11 Sequences and Series		
May	11.1	Introduction to Sequences and Series
	11.2	Arithmetic Sequences and Series
	11.3	Geometric Series
	11.4	Infinite Geometric Series
	11.5	Recursive Rules for Sequences