

**Missouri State Core Curriculum**  
**Standards updated 2008**  
**Algebra II**

Strand	Description	Boardworks High School Algebra presentations
<b>Number and operations</b>	1. Understand numbers, ways of representing numbers, relationships among numbers and number systems	
	1A. Compare and order rational and irrational numbers, including finding their approximate locations on a number line	Classifying numbers Set notation
	1B. Use real numbers and various models, drawing, etc. to solve problems	–
	1C. Use a variety of representations to demonstrate an understanding of very large and very small numbers	Scientific notation Calculations involving scientific notation
	2. Understand meanings of operations and how they relate to one another	
	2D. Apply operations to matrices and complex numbers, using mental computation or paper-and-pencil calculations for simple cases and technology for more complicated cases	–
	3. Compute fluently and make reasonable estimates	
	3D. Judge the reasonableness of numerical computations and their results, including complex numbers	–
	3E. Solve problems involving proportions	Direct proportion Inverse proportion
	1. Understand patterns, relations and functions	

1B. Generalize patterns using explicitly or recursively defined functions	Sequences and rules Arithmetic sequences Geometric sequences Other types of sequences Sequences and series The sum of an arithmetic series The sum of a geometric series
1C. Compare and contrast various forms of representations of patterns	Sequences and rules Arithmetic sequences Geometric sequences Other types of sequences Sequences and series The sum of an arithmetic series The sum of a geometric series
1D. Compare properties of linear, exponential, logarithmic and rational functions	Linear graphs Slopes and intercepts Parallel and perpendicular lines The laws of logarithms Solving equations involving logarithms Exponentials and logarithms Exponential growth and decay Simplifying rational functions Operations with algebraic fractions Improper fractions
1E. Describe the effects of parameter changes on functions	Functions and relations Graphs of important non-linear functions Plotting and sketching graphs
2. Represent and analyze mathematical situations and structures using algebraic symbols	

**Algebraic relationships**

<p>2A. Use symbolic algebra to represent and solve problems that involve exponential, quadratic and logarithmic relationships</p>	<p>Factoring quadratic expressions            Quadratic equations and factoring            Completing the square            The quadratic formula            Problems leading to quadratic equations            Solving quadratic equations            The laws of logarithms            Solving equations involving logarithms            Exponentials and logarithms            Exponential growth and decay</p>
<p>2B. Describe and use algebraic manipulations, inverse or composition of functions</p>	<p>Functions and relations            Domain, range and composite functions            Inverse functions</p>
<p>2C. Use and solve equivalent forms of equations and inequalities</p>	<p>Solving linear equations            Equations with parentheses and fractions            Using equations to solve problems            Inequalities            Solving linear inequalities            Inequalities and regions            Inequalities in two variables            Quadratic inequalities</p>
<p>2D. Use and solve systems of linear and quadratic equations or inequalities with 2 variables</p>	<p>Systems of equations and graphs            The elimination method for systems of equations            The substitution method for systems of equations            Systems of linear and quadratic equations            Problems leading to systems of equations            Inequalities in two variables            One linear and one quadratic equation</p>
<p>3. Use mathematical models to represent and understand quantitative relationships</p>	<p></p>

	3A. Identify quantitative relationships and determine the type(s) of functions that might model the situation to solve the problem	Linear graphs Non-linear functions Non-linear relationships Graphs of important non-linear functions Plotting and sketching graphs Graphs of quadratic functions Exponential growth and decay
	4. Analyze change in various contexts	
	4A. Analyze exponential and logarithmic functions by investigating rates of change, intercepts and asymptotes	The laws of logarithms Solving equations involving logarithms Exponentials and logarithms Exponential growth and decay
<b>Geometric and spacial relationships</b>	1. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	
	1A. Use trigonometric relationships with right triangles to determine lengths and angle measures	Right triangles The three trigonometric ratios Finding trigonometric ratios Finding side lengths Finding angles
	3. Apply transformations and use symmetry to analyze mathematical situations	
	3B. Translate, dilate and reflect functions	Transforming functions part 1 Transforming functions part 2 Even, odd and periodic functions
	4. Use visualization, spatial reasoning and geometric modeling to solve problems	
	4B. Draw or use visual models to represent and solve problems	–
<b>Measurement</b>	2. Apply appropriate techniques, tools and formulas to determine measurements	
	2D. Apply concepts of successive approximation	Solving equations by trial and error

	2E. Use unit analysis to solve problems involving rates, such as speed, density or population density	–
<b>Data and probability</b>	1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them	
	1C. Select and use appropriate graphical representation of data and given one-variable quantitative data, describe its shape and calculate summary statistics	Specifying the problem and planning Types of data Collecting data Methods of sampling part 1 Methods of sampling part 2 The normal distribution The binomial distribution part 1 The binomial distribution part 2
	2. Select and use appropriate statistical methods to analyze data	
	2A. Apply statistical measures of center to solve problems	Histograms Frequency diagrams Cumulative frequency step polygons Cumulative frequency graphs Bar graphs Box and whisker plots Comparing data The mode The mean The median Which measure of central tendency?
	2C. Given a scatterplot, determine a type of function which models the data	Scatter plots Lines of best fit Non-linear relationships
	4. Understand and apply basic concepts of probability	

4A. Describe the concepts of sample space and probability distribution	Introduction to probability Combined events part 1 Combined events part 2 Probabilities from tables and Venn diagrams Dependent events Probability from experiments Probabilities of single events Probability notation The normal distribution The binomial distribution part 1 The binomial distribution part 2
4B. Use and describe the concepts of conditional probability and independent events and how to compute the probability of a compound event	Combined events part 1 Combined events part 2 Dependent events