

Pennsylvania State Core Curriculum
Standards adopted 2010
Algebra II

Strand	Reference	Description	Boardworks High School Algebra presentations
2.1. Numbers, Number Systems and Number Relationships	2.1.A2.A.	Model and compare values of complex numbers.	–
	2.1.A2.B.	Use factoring to create equivalent forms of polynomials.	Factoring Factoring quadratic expressions Quadratic expressions and factoring
	2.1.A2.D.	Use exponential notation to represent any rational number.	Exponents
	2.1.A2.F.	Understand the concepts of exponential and logarithmic forms and use the inverse relationships between exponential and logarithmic expression to determine unknown quantities in equations.	The laws of logarithms Solving equations involving logarithms Exponentials and logarithms Exponential growth and decay
2.2. Computation and Estimation	2.2.A2.C.	Evaluate numerical expressions of complex numbers that include the four basic operations and operations of powers, opposites, conjugates, and absolute values.	–
2.3. Measurement and Estimation	2.3.A2.C.	Solve a formula for a given variable using algebraic processes.	Substituting into formulas Formula problems Rearranging a formula Generating formulas
	2.3.A2.E.	Describe how a change in the value of one variable in formulas affects the value of the measurement.	Substituting into formulas Formula problems Rearranging a formula Generating formulas
2.5. Mathematical	2.5.A2.A.	Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense, and explain how the problem was solved in grade appropriate contexts.	–

Problem Solving and Communication	2.5.A2.B.	Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.	–
2.6. Statistics and Data Analysis	2.6.A2.C.	Construct a line of best fit and calculate its equation for linear and non linear two variable data.	Scatter plots Lines of best fit Non-linear relationships
	2.6.A2.E.	Make predictions based on lines of best fit or draw conclusions on the value of a variable in a population based on the results of a sample.	Lines of best fit
2.7. Probability and Predictions	2.7.A2.A.	Use probability to predict the likelihood of an outcome in an experiment.	Introduction to probability Probabilities of single events Combined events part 1 Combined events part 2 Probabilities from tables and Venn diagrams Dependent events Probability notation
	2.7.A2.C.	Compare odds and probability.	Introduction to probability Probabilities of single events Combined events part 1 Combined events part 2 Probabilities from tables and Venn diagrams Dependent events Probability notation
	2.7.A2.E.	Use probability to make judgments about the likelihood of various outcomes.	Introduction to probability Probabilities of single events Combined events part 1 Combined events part 2 Probabilities from tables and Venn diagrams Dependent events Probability notation

2.8. Algebra and Functions	2.8.A2.B.	Evaluate and simplify algebraic expressions, for example: products/quotients of polynomials, logarithmic expressions and complex fractions; and solve and graph, quadratic, exponential, and logarithmic equations; and, solve and graph systems of equations and inequalities.	Operations with polynomials Dividing polynomials The factor theorem The laws of logarithms Solving equations involving logarithms Exponentials and logarithms Exponential growth and decay Simplifying rational functions Solving quadratic equations Graphs of quadratic functions 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
	2.8.A2.C.	Recognize, describe and generalize patterns using sequences and series to predict long-term outcomes	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
	2.8.A2.D.	Demonstrate an understanding and apply properties of functions (domain, range, inverses) and characteristics of families of functions (linear, polynomial, rational, exponential, logarithmic).	Graphs of important non-linear functions Functions and relations Domain, range and composite functions Inverse functions Exponentials and logarithms Simplifying rational functions

	2.8.A2.E.	Use combinations of symbols and numbers to create expressions, equations, and inequalities in two or more variables, systems of equations and inequalities, and functional relationships that model problem situations.	<p>Solving linear equations Using equations to solve problems Inequalities Solving linear inequalities Inequalities and regions Inequalities in two variables 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</p>
	2.8.A2.F.	Interpret the results of solving equations, inequalities, systems of equations, and systems of inequalities in the context of the situation that motivated the model.	<p>Solving linear equations Using equations to solve problems Inequalities Solving linear inequalities Inequalities and regions Inequalities in two variables 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</p>
2.9. Geometry	2.9.A2.A.	Use algebraic techniques to determine if two lines are parallel and/or perpendicular; find points of intersections and distances between points.	<p>Parallel and perpendicular lines Coordinate geometry</p>
	2.9.A2.C.	Use techniques from coordinate geometry to establish properties of lines, 2-dimensional shapes and solids.	<p>Coordinate geometry The equation of a straight line The equation of a circle</p>

2.11. Concepts of Calculus	2.11.A2.A.	Determine and interpret maximum and minimum values of a function over a specified interval.	Graphs of quadratic functions
	2.11.A2.B.	Analyze and interpret rates of growth/decay.	Exponential growth and decay
	2.11.A2.C.	Estimate areas under curves using sums of areas.	–