

**Arizona State Core Curriculum
Algebra Standards 2008**

Strand 3: Patterns, Algebra and Functions	Boardworks High School Algebra presentations
Grades 9 and 10	
Concept 1: Patterns	
PO 1. Recognize, describe, and analyze sequences using tables, graphs, words, or symbols; use sequences in modeling.	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
PO 2. Determine a specific term of a sequence.	Sequences and rules Arithmetic sequences Geometric sequences Other types of sequences
PO 3. Create sequences using explicit and recursive formulas involving both subscripts and function notation.	Arithmetic sequences Geometric sequences Other types of sequences
Concept 2: Functions and Relationships	
PO 1. Sketch and interpret a graph that models a given context, make connections between the graph and the context, and solve maximum and minimum problems using the graph.	Linear graphs Graphs of important non-linear functions Plotting and sketching graphs
PO 2. Determine if a relationship represented by an equation, graph, table, description, or set of ordered pairs is a function.	Functions and relations
PO 3. Use function notation; evaluate a function at a specified value in its domain.	Function notation Functions and relations
PO 4. Use equations, graphs, tables, descriptions, or sets of ordered pairs to express a relationship between two variables.	Solving linear equations Linear graphs Graphs of important non-linear functions Coordinate geometry

PO 5. Recognize and solve problems that can be modeled using a system of two equations 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
PO 6. Recognize and solve problems that can be modeled using a quadratic function.	Problems leading to quadratic equations Solving quadratic equations
PO 7. Determine domain and range of a function from an equation, graph, table, description, or set of ordered pairs.	Domain, range and composite functions
Concept 3: Algebraic Representations	
PO 1. Create and explain the need for equivalent forms of an equation or expression.	–
PO 2. Solve formulas for specified variables.	Equations, formulas and identities Substituting into formulas Formula problems Rearranging a formula Manipulating formulas Generating formulas
PO 3. Write an equation given a table of values, two points on the line, the slope and a point on the line, or the graph of the line.	Slopes and intercepts The equation of a straight line
PO 4. Determine from two linear equations whether the lines are parallel, perpendicular, coincident, or intersecting but not perpendicular.	Parallel and perpendicular lines
PO 5. Solve linear equations and equations involving absolute value, with one variable.	Absolute value functions
PO 6. Solve linear inequalities in one variable.	Inequalities Solving linear inequalities Inequalities and regions
PO 7. Solve systems of two linear equations in two variables.	Inequalities in two variables
PO 8. Simplify and evaluate polynomials, rational expressions, expressions containing absolute value, and radicals.	Operations with polynomials Absolute value functions Manipulating radicals Simplifying rational functions Operations with algebraic fractions Improper fractions
PO 9. Multiply and divide monomial expressions with integer exponents.	Exponents Exponent laws

PO 10. Add, subtract, and multiply polynomial and rational expressions.	Operations with polynomials Operations with algebraic fractions
PO 11. Solve square root equations involving only one radical.	Radicals Manipulating radicals
PO 12. Factor quadratic polynomials in the form of $ax^2 + bx + c$ where a, b, and c are integers.	Factoring Factoring quadratic expressions Quadratic equations and factoring
PO 13. Solve quadratic equations.	Solving quadratic equations
PO 14. Factor higher order polynomials.	Operations with polynomials
PO 15. Solve problems using operations with matrices.	–
Concept 4: Analysis of Change	
PO 1. Determine the slope and intercepts of the graph of a linear function, interpreting slope as a constant rate of change.	Slopes and intercepts
PO 2. Solve problems involving rate of change.	–
PO 3. Solve interest problems.	Compound percentages