Rockwall ISD Advanced Algebra Parent Guide

Course Resources and Support

My Math Lab Content as assigned by teacher. Access at RISD Secondary Online Learning Resources

Kahn Academy
SAT Practice Sign up with College Board ID, Parent can sign up to coach Khan Academy SAT Practice
Other Kahn Academy Lessons by topic

Imaging Math Purchased by each Campus. Students will need to login to their Google dashboard.

Course objectives: Course objectives are divided into three groups: Foundation, Target, and Extension. Students should be able to master Foundation Objectives without a calculator. If a student masters Target Objectives, then the student will be prepared to take the TSI placement test and College Algebra. If a student masters Extension Objectives, then the student should be prepared to take the College Algebra CLEP test.

Grading Period*	Unit Description and Student Learning Objectives
1	**Unit 1: Linear Equations and Inequalities/Parent Functions** **Student Learning Objectives**: Foundation ● I can graph inequalities in one variable (AA.1.A) ● I can write equations and inequalities to model real world problems (AA.1.B) ● I can solve literal equations (AA.1.C) **SAT** Target ● **I can solve equations and inequalities with rational coefficients (AA.1.D)** ● I can express solutions to linear inequalities graphically and in interval and set notation form (AA.1.E) ● I can identify attributes of graphs of parent functions (domain, range, symmetry, etc.) (AA1.F) Extension ● I can apply understandings to complex real world problems (AA.1.G) **Unit 2: Radicals and Exponents**

Rockwall ISD Advanced Algebra Parent Guide

	Student Learning Objectives: Foundation ● I can multiply and divide expressions with integer exponents (AA.2.A) ● I can simplify exponential expressions (AA.2.B) Target ● I can add and subtract radical expressions (AA.2.C) ● I can multiply and divide radical expressions (AA.2.D) ● I can convert between radical and exponential forms (AA.2.E) **SAT** ● **I can simplify radical expressions (AA.2.F) SAT** Extension ● I can add, subtract complex numbers (AA.2.G) **SAT** ● I can multiply and divide complex numbers (AA.2.H) **SAT** **Unit 3: Quadratic Equation Forms** **Student Learning Objectives**: Foundation ● I can factor basic trinomial expressions,grouping, difference of two squares, sum and difference of two cubes, and perfect square trinomial (AA.3.A) **SAT** Target ● **I can solve quadratic equations by factoring, completing the square, and quadratic formula (AA.3.B) SAT** ● I can factor cubic and quartic expressions (AA.4.A) ● I can solve typical applications of quadratic equations (AA.3.C) ● I can discuss the meaning of the discriminant and complex roots (AA.3.D) **SAT** Extension ● I can simplify equations reducible into quadratic equations and solve (AA.3.E) **SAT** ● I can factor using substitution (AA.3.F) ● I can solve complicated applications of quadratic equations (AA.3.G) **SAT**
2	**Unit 4: Rational Operations** **Student Learning Objectives**: Foundation ● I can divide polynomials with long division and synthetic division (AA.4.A) Target ● I can divide cubic and quartic polynomials with long division and synthetic division (AA.4.B) ● I can simplify and perform operations with rational expressions (AA.4.C) **SAT** ● **I can solve rational equations (AA.4.D) SAT** Extension

Rockwall ISD Advanced Algebra Parent Guide

	● I can divide quintic and higher order polynomials with long division or synthetic division (AA.4.E) **Unit 5: Polynomial and Rational Expressions, Equations, and Functions** **Student Learning Objectives**: Foundation ● I can review parabolic graph characteristics and forms of quadratic equations (AA.5.A) **SAT** ● I can find the roots (zeros) of quadratic and cubic functions using a variety of methods (AA.5.B) **SAT** ● I can review rational functions (AA.5.C) Target ● **I can find the key attributes and graph rational functions (AA.5.D)** ● I can apply the graphs to solve polynomial functions (AA.5.E) **SAT** Extension ● I can identify and use the Fundamental Theorem of Algebra (AA.5.F) ● I can extend exploration of roots to cubics (AA.5.G) ● I can find asymptotes and points of discontinuity for rational functions (AA.5.H) ● I can explore end behavior of polynomial functions and rational functions (AA.5.I) **SAT**
3	**Unit 6: Equations and Inequalities** **Student Learning Objectives**: Foundation ● I can solve basic radical equations (AA.6.A) **SAT** ● I can solve basic absolute value equations (AA.6.B) **SAT** Target ● **I can solve more complex radical equations (AA.6.C)** ● **I can solve more complex absolute value equations and inequalities (AA.6.D)** ● I can solve quadratic inequalities (AA.6.E) Extension ● I can solve rational inequalities (AA.6.F) **Unit 7: Parent Functions and their Attribute** **Student Learning Objectives**: Foundation ● I can graph parent functions (AA.7.A) Target ● I can identify attributes of parent functions (AA.7.B) ● **I can describe transformations verbally, algebraically, and pictorially (AA.7.C) SAT** ● I can write the function given the attributes of the transformations (AA.7.D) **SAT**

Rockwall ISD Advanced Algebra Parent Guide

	● I can identify different lines of symmetry (AA.7.E) Extension ● I can apply graph transformations of the parent functions (AA.7.F) **Unit 8: Operations of Functions** **Student Learning Objectives**: Foundation ● I can understand and be able to state the characteristics of functions (AA.8.A) ● I can apply domain and range to piecewise functions (AA.8.B) ● I can find the inverse of a function (AA.8.C) Target ● I can write and graph piecewise functions (AA.8.D) ● I can combine functions by adding, subtracting, multiplying and dividing functions (algebraic focus) (AA.8.E) Extension ● **I can perform and understand composition of functions (including finding the inverse) algebraically and graphically (AA.8.F)**
4	**Unit 9: Exponential and Logarithmic Functions and Graphs** **Student Learning Objectives**: Foundation ● I can identify exponential function characteristics (AA.9.A) **SAT** ● I can identify logarithmic function characteristics (AA.9.B) ● I can perform transformations of exponential and logarithmic graphs (AA.9.C) **SAT** ● I can use properties of logs (AA.9.D) ● I can use the Change of Base Formula (AA.9.E) Target ● I can identify, graph, and find characteristics of logarithmic functions with base 2, 3, 10 and e + (AA.9.F) ● I can simplify logarithmic expressions (AA.9.G) ● I can evaluate logarithmic functions (AA.9.H) ● I can describe the inverse relationship between log and exponential functions (AA.9.I) ● **I can solve logarithmic and exponential equations (AA.9.J) SAT** Extension ● I can describe asymptotes in exp/log functions (AA.9.K) ● I can describe end behavior of exp/log functions (AA.9.L) **SAT** **Unit 10: Systems and Matrices** **Student Learning Objectives**:

Rockwall ISD Advanced Algebra Parent Guide

	Foundation ● I can solve systems of two linear equations, 2 variables - using graphing, substitution, elimination (AA.10.A) ● I can solve systems of linear inequalities (AA.10.B) Target ● I can use systems of equations to model real world linear relationships (AA.10.C) ● **I can solve systems of three linear equations, 3 variables using elimination method (AA.10.D)** ● **I can add, subtract and multiply matrices (AA.10.E)** ● I can find the inverse of a 2x2 and 3x3 matrix (AA.10.F) ● I can use the calculator to solve a 3x3 matrix (Ax=B) with $x= A^{-1}b$ (AA.10.G) Extension ● I can solve a system with linear and nonlinear equations (quadratic, radical, absolute value, circle, etc.) (AA.10.H) **SAT** **Unit 11: Sequences and Series** **Student Learning Objectives**: Foundation ● I can describe arithmetic and geometric sequences using appropriate notation (AA.11.A) Target ● **I can apply the proper formulas to find the nth term of sequences (AA.11.B)** ● I can apply the proper formulas to find the finite sum of a series (AA.11.C) Extension ● I can identify and understand the use of the Binomial Theorem (AA.11.D)

***** Units may cross grading periods. Indicated here is in which grading period the unit generally will begin.