

Calallen ISD 2025-2026
Algebra 2 Syllabus

Campus: Calallen High School

Course and/or Grade Level: Algebra 2

Course Description: Algebra 2 students will review, refine, and extend the concepts and techniques introduced in Algebra 1. This course also covers concepts of quadratic, radical, rational, exponential, absolute value, reciprocal, and logarithmic functions.

Semester 1: August 13 – December 19, 2025

1st Quarter Topics	2nd Quarter Topics
Unit 1 – Introduction to Functions in Algebra 2 • Expressing domain and range in both set-builder and interval notations • Understanding composite functions • Finding inverse functions using tables, graphs, and equations • Using function composition to determine whether functions are inverses of each other Unit 4A – Exponent Rules and Polynomial Operations • Using the properties of exponents to simplify monomials • Adding, subtracting, and multiplying polynomials. • Dividing polynomials by monomials • Dividing polynomials using both long and synthetic division Unit 2 – Absolute Value Functions, Equations, and Inequalities • Graphing absolute value functions • Evaluating absolute value expressions • Solving absolute value equations and inequalities • Writing absolute value equations to model data given in a table or story problem	Unit 3 – Systems of Linear Equations and Inequalities • Solving 2x2 systems using elimination and/or substitution • Solving 3x3 system using algebraic methods and/or augmented matrices • Solving systems of linear inequalities Unit 4B – Factoring Polynomials • Factoring methods: GCF, difference of squares, trinomials, sum and difference of cubes, and factoring by grouping • Solving quadratic equations by factoring Unit 5 – Quadratic Relations, Equations, and Inequalities • Understanding imaginary numbers • Adding, subtracting, and multiplying complex numbers • Solving equations using the quadratic formula • Graphing quadratic equations • Converting from standard form to vertex form by completing the square • Solving quadratic equations by graphing

Semester 2: January 5 – May 29, 2026

3rd Quarter Topics	4th Quarter Topics
Unit 6 – Square Root Functions and Equations • Graphing square root functions • Solving square root equations Unit 7 – Cubic and Cube Root Functions and Equations • Simplifying rational exponents • Solving equations with rational exponents • Graphing cubic and cube root functions • Finding inverse functions (with cubic and cube root functions) • Solving cube root equations Part of Unit 8 – Rational Functions and Equations • Graphing reciprocal functions • Graphing rational functions • Modeling situations using direct, inverse, and joint variation models • Simplifying rational expressions by factoring • Multiplying and dividing rational expressions	Part of Unit 8 – Rational Functions and Equations • Adding and subtracting rational expressions • Solving rational equations Unit 9 – Exponential Functions and Equations • Graphing exponential functions • Solving exponential functions • Modeling situations using exponential growth and decay models Unit 10 – Exponential and Logarithmic Functions and Equations • Understanding the connection between exponential and logarithmic functions • Graphing logarithmic functions • Understanding the properties of logarithms • Solving logarithmic equations Unit 11 – Linear, Quadratic, and Exponential Data Models • Using technology to explore regression equations for data sets. • Interpreting which model best fits a given situation and data set.

**Minor adjustment to the schedule may be made based on campus schedules and student needs.*