

## § Algebra 2 Syllabus

The study of Algebra 2 will include:

### LINEAR RELATIONS AND FUNCTIONS

- Relations and Functions
- Function notation
- Exploring Transformations
- Introduction to Parent Functions
- Solving Linear Functions
- Graphing Linear Functions
- Writing Linear Functions
- Linear Inequalities in Two Variables
- Curve Fitting with Linear Models
- Solving Absolute-Value Equations and Inequalities

### LINEAR SYSTEMS

- Using Graphs and Tables to Solve Linear Systems
- Using Algebraic Method to Solve Linear Systems
- Solving Systems of Linear Inequalities
- Linear Programming
- Solving Linear Systems in Three Variables

## MATRICES

- Matrices and Data
- Multiplying Matrices
- Determinants and Cramer's Rule
- Matrix Inverses and Solving Systems

## QUADRATIC FUNCTIONS

- Using Transformation to Graph Quadratic Functions
- Solving Quadratic Equation by Graphing and Factoring
- Completing the Squares
- Complex Numbers and Roots
- The Quadratic Formula
- Solving Quadratic Inequalities
- Curve Fitting with Quadratic Models
- Operations with Complex Numbers

## POLYNOMIAL FUNCTIONS

- Multiplying Polynomials
- Dividing Polynomials
- Factoring Polynomials
- Finding Real Roots of Polynomial Functions
- Fundamental Theorem of Algebra
- Investigating Graphs of Polynomial Functions

## EXPONENTIAL AND LOGARITHMIC FUNCTIONS

- Exponential Functions, Growth and Decay
- Inverses of Relations and Functions
- Logarithmic Functions
- Properties of Logarithms
- The Natural Base  $e$
- Transforming Exponential and Logarithmic Functions
- Solving Exponential and Logarithmic Equations

## RATIONAL AND RADICAL FUNCTIONS

- Variation Functions
- Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions
- Solving Rational Equations and Inequalities
- Radical Expressions and Rational Exponents

## PROPERTIES AND ATTRIBUTES OF FUNCTIONS

Multiple Representations of Functions

Transforming Functions

Operations with Functions

Functions and Their Inverses

Modeling Real-World Data

## CONIC SECTIONS

- Midpoint and Distant Formulas
- Parabolas
- Circles
- Ellipses
- Hyperbolas
- Identifying Conic Sections
- Solving Nonlinear Systems