§ 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