Southmoreland School District
Advanced Algebra 2 Curriculum Overview

Advanced Algebra 2 Overview:

Designed to build upon algebra skills, linear functions progressing into quadratic functions. It reviews and builds on concepts of Algebra 1, covering systems of equations, inequalities, quadratic and polynomial functions, rational expressions, and logarithms. Creative approaches to problem solving, communicating mathematical ideas, and real-world problem solving will be emphasized. The material will be covered at a faster pace with more complicated problems than Algebra 2 for students who wish to take AP Calculus their senior year.

Module Titles:

Module 1: Equations and Inequalities
Module 2: Linear Relations and Functions
Module 3: Systems of Equations and Inequalities
Module 4: Matrices
Module 5: Quadratic and Polynomial Functions and Relations
Module 6: Radical, Exponential and Logarithmic Functions

Module Overviews:

Module 1: Equations and Inequalities
In this module the students use formulas and solve for variables. They incorporate number properties and literal equations. It wraps up with solving Absolute Value Equations.

Module 2: Linear Relations and Functions
Students calculate rate of change, direct variation, and write linear equations in various forms. After graphing, mapping, and determining whether the relation is a function, the students transform parent functions.

Module 3: Systems of Equations and Inequalities
This module builds on linear equations into systems of equations. The students will graph and solve systems linear equations and systems of inequalities. They will apply these skills to Linear Programming.

Module 4: Matrices
Students will be introduced to matrices, and will learn how to manipulate matrices to solve problems.

Module 5: Quadratic and Polynomial Functions and Relations
In this module the students consider polynomial functions and their solutions. They solve quadratic and higher-degree functions using factoring, completing the square, quadratic formula, and the rational root theorem. The students learn that when a quadratic solution does not have a real solution they must use complex numbers in order to solve. The students add, subtract, multiply and divide polynomials. They also analyze polynomial graphs and functions

Module 6: Radical, Exponential and Logarithmic Functions
Students will model and solve radical and exponential functions, inequalities, and equations along with describing the relationship between those functions and their inverses. They will also determine solutions of radical, exponential and logarithmic equations using graphs, tables, and algebraic methods.