Southmoreland School District
Algebra 3 Curriculum Overview

Algebra 3 Overview:

This course reviews and builds on concepts of Algebra II. Concepts such as systems of equations and inequalities, quadratic and polynomial functions and relations, rational and radical functions and relations will be reinforced. New topics will include exponential functions and relations, and probability.

Module Titles:

Module 1: **Operations with Radicals**
Module 2: **Operations with Exponents**
Module 3: **Operations with Polynomials and Rational Expressions and Equations**
Module 4: **Graphing and Solving Systems of Linear Equations and Inequalities**
Module 5: **Statistics**
Module 6: **Identifying, Graphing, and Solving Nonlinear Functions**

Module Overviews:

Module 1: Operations with Radicals
Students will be able to estimate, simplify radicals. Then the students will be able to add, subtract, multiply and divide expressions with radicals.

Module 2: Operations with Exponents
Students will be able to apply all the properties of exponents and then use those skills along with the skills of simplifying radicals to rewrite rational exponents and solve exponential functions.

Module 3: Operations with Polynomials and Rational Expressions and Equations
Students will be able to name, add, subtract, multiply and divide polynomial expressions. There will be an intensive review of factoring quadratics included in this section to help the students simplify and divide polynomials. The students will then use this knowledge to be able to add, subtract, multiply and divide rational expressions and then be able to solve the rational equations.

Module 4: Graphing and Solving Systems of Linear Equations and Inequalities
The students will be able to graph linear equations, solve linear equations by graphing and calculate the rate of change. They will relate direct variation to the rate of change and use arithmetic sequences with linear functions. The students also will be able to graph equations in slope intercept form, as well as, write equations in slope intercept form and standard form and relate them to real world situations. The students will identify and graph parallel and perpendicular lines. Then the students will be able to graph linear inequalities and determine the solutions area for each, along with setting up and solving real world problems. The students will be able apply their knowledge of graphing and solving linear functions to solve a system of linear equations by graphing, substitution, and elimination and apply this knowledge to real world problems. The students will also be able to solve a system of linear inequalities and set up word problems to solve.

Module 5: Statistics
The students will be able to calculate measures of central tendency and represent data using various graphs, such as, box and whisker, stem and leaf, and line graphs. Then determine the outcome of independent and compound events.

Module 6: Identifying, Graphing, and Solving Nonlinear Functions
The student will be able to be able to identify their parent functions of graphs and determine how they move around the x/y coordinate plane. Then the students will be able to graph and solve absolute value functions. Then to end this module, the students will be able to solve quadratic equations by factoring, completing the square, and the quadratic formula.