PETERS TOWNSHIP HIGH SCHOOL
COURSE SYLLABUS: ALGEBRA IIB/TRIGONOMETRY FOUNDATIONS

Course Overview and Essential Skills

This course is a study of the essential skills in the language, concepts, and techniques of Algebra that will prepare students to approach and solve problems following a logical succession of steps. This course is the foundation for high school mathematics courses. Topics include the study of functions (polynomial, exponential, logarithmic, rational, radical, and trigonometric). Real world applications are presented within the course content and a function's approach is emphasized.

Course Textbook and Required Materials

- *Algebra 2*, Holt McDougal, ISBN# 978-0-030-99576-7
- Online textbook: my.hrw.com (Students given login and password during first week of course.)
- Required daily materials: Textbook, Three-Ring Binder, Pencil, Graphing Calculator (TI-83 Plus, TI-84, or TI-84 Plus)

Course Outline of Material Covered:

Unit or Topic	Concepts/Skills/Resources	Timeframe
Factoring	GCF, Binomials, Trinomials and Grouping	2 weeks
Quadratic Functions	Graphing Quadratic Functions, Properties of Quadratic Functions, Factoring Quadratic Expressions, Solving Quadratic Equations (Graphing, Factoring, Quadratic Formula), Complex Numbers and Roots, Solving Quadratic Inequalities, Quadratic Regression, Operations with Complex Numbers	5 weeks
Polynomial Functions	Operations with Polynomials (Addition, Subtraction, Multiplication), Polynomial Division (Long and Synthetic), Factoring Polynomials, Finding Real and Complex Roots, Fundamental Theorem of Algebra, Graphing Polynomial Functions	4 weeks
Rational and Radical Functions	Variation Functions, Operations with Rational Expressions (Addition, Subtraction, Multiplication, Division), Rational Functions and Asymptotes, Solving Rational Equations and Inequalities, Radical Expressions and Rational Exponents, Radical Functions, Solving Radical Equations and Inequalities	5 weeks
Exponential and Logarithmic Functions	Exponential Growth and Decay, Inverse Functions, Logarithmic	4 weeks

	Functions, Properties of Logarithms, Solving Exponential and Logarithmic Equations, Natural Logarithms, Transforming Exponential and Logarithmic Functions	
Properties and Attributes of Functions	Multiple Representations of Functions, Piece-wise Functions, Transforming Functions, Operations with Functions, Inverse Functions, Regression	2 weeks
Trigonometric Functions	Radian and Degree Measure, Unit Circle, Right Triangle Trigonometry, Graphing Trigonometric Functions, Inverse Trigonometric Functions	5 Weeks
Solving Triangles with Trigonometric Functions	Laws of Sines and Cosines	3 Weeks

****Depending on the needs of the class or changes in the school year, the course outline is subject to change.***