PETERS TOWNSHIP SCHOOL DISTRICT

CORE BODY OF KNOWLEDGE (CBK)

ALGEBRA II A FOUNDATIONS

GRADE 11-12

For each of the sections that follow, students may be required to understand, apply, analyze, evaluate or create the particular concepts being taught.

COURSE DESCRIPTION

This course is a study of 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), probability and statistics. Real world applications are presented within the course content and a function's approach is emphasized. The pacing of this course is slower than the academic level to allow for more remediation and review. Students will have the opportunity for one-on-one help within the classroom and will receive more hands-on practice in order to allow for immediate feedback. It is required that the student purchase his/her own graphing calculator.

STUDY SKILLS

- Students will take notes during class discussions, and maintain notes and assignments in an organized binder/notebook
- Students will complete assigned problem sets and readings in accordance with deadlines
- Students will work individually and in peer groups as a means to learn and develop problem solving skills relevant to the course and life
- Students will collect, analyze and reflect on data collected during group work to obtain a deeper understanding of content discussed in class and covered in problem sets

MAJOR UNIT THEMES:

1. FOUNDATIONS FOR FUNCTIONS

- Identify sets of numbers
- Apply properties of real numbers
- Calculate square roots
- Simplify algebra expressions
- Apply properties of exponents
- Differentiate between relations and functions
- Understand and use function notation
- Explore transformations
- Understand parent functions

2. LINEAR FUNCTIONS

- Solve linear equations and inequalities
- Apply proportional reasoning
- Graph linear functions
- Write linear functions
- Solve linear inequalities in two variables
- Transform linear functions
- Fit data with linear models
- Solve absolute-value equations and inequalities
- Use absolute-value functions

3. LINEAR SYSTEMS

- Use graphs and tables to solve linear systems
- Use algebraic methods to solve linear systems
- Solve systems of linear inequalities
- Apply linear programming

5. POLYNOMIALS FUNCTIONS

- Understand polynomials
- Multiply polynomials
- Divide polynomials
- Factor polynomials
- Find real roots of polynomials functions
- Apply the fundamental theorem of algebra
- Investigate graphs of polynomial equations
- Transform polynomial functions
- Fit data with polynomial models

MATERIALS (and Supplemental materials used in course):

• Algebra 2 (Burger, Chard, Kennedy, Leinwand, Renfro, Roby, Waits): Holt McDougal, Copyright 2011, Orlando, Florida, ISBN-13 978-0-030-99579-8

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