Algebra II Curriculum

Welcome to ACE's Tutoring LLC's Algebra II sessions. These sessions are conducted in hourly increments and will provide both enlightenment and enrichment for Algebra II. At the end of these sessions, the student may be assigned a worksheet that will further their understanding of any of the offered topics. At this tutoring firm, the goal is to ensure that the enrolled student receives a letter grade of a B or higher and have a deeper understanding of the following topics:

- **THE REAL NUMBER SYSTEM**
  - Extend the properties of exponents to rational exponents.
    - Rewriting and simplifying radicals
  - Use properties of rational and irrational numbers
    - Explaining properties between rational and irrational numbers
- **THE COMPLEX NUMBER SYSTEM**
  - Perform arithmetic operations with complex numbers.
    - Properties of the imaginary number 'I'
  - Use complex numbers in polynomial identities and equations.
    - Solve equations and quadratics with complex solutions.
    - Extending Polynomial Identities
- **SEEING STRUCTURE IN EXPRESSIONS**
  - Interpret the structure of expressions.
  - Write expressions in equivalent forms to solve problems
    - Rewrite expressions in other equivalent forms
  - Heart Stamp Assessment ♥
- **ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS**
  - Perform arithmetic operations on polynomials.
    - Extending Polynomials
  - Understand the relationship between zeros and factors of polynomials.
    - The Remainder Theorem
    - Identifying Zeroes
  - Use polynomial identities to solve problems.
    - Binomial Theorem and Pascal's Triangle
  - Rewrite rational expressions
- **CREATING EQUATIONS**
  - Create equations that describe numbers or relationships.

- Diamond Stamp Assessment ♦

- **REASONING WITH EQUATIONS AND INEQUALITIES**
  - Understand solving equations as a process of reasoning and explain the reasoning.
  - Solve systems of equations.
    - Solve system of equations involving three variables
  - Represent and solve equations and inequalities graphically.
- **INTERPRETING FUNCTIONS**
  - Interpret functions that arise in applications in terms of the context.
    - Calculating the Average Rate of Change
  - Analyze functions using different representations.
    - Graphing Square Root Functions, Cube Root Functions, Absolute Value Functions and Piece Wise Functions
    - Identifying Asymptotes
    - Graphing Logarithmic Functions , Exponential Functions and Trigonometric Functions
- **BUILDING FUNCTIONS**
  - Build a function that models a relationship between two quantities.
    - Composing Functions from Word Problems
  - Build new functions from existing functions
    - Identifying Inverse Functions
    - Odd/Even Functions
  - Club Stamp Assessment ♣
- **LINEAR, QUADRATIC AND EXPONENTIAL MODELS**
  - Construct and compare linear, quadratic, and exponential models, and solve problems
- **SIMILARITY, RIGHT TRIANGLES AND TRIGONOMETRY**
  - Define trigonometric ratios and solve problems involving right triangles.
    - Reciprocal Identities
  - Apply trigonometry to general triangles
    - Law of Sines
    - Law of Cosines
- **INTERPRETING CATEGORICAL AND QUANTITATIVE DATA**
  - Summarize, represent, and interpret data on two categorical and quantitative variables
    - Line of Best Fit
    - Assess the line of best fit by addressing the residuals
  - Spade Stamp Assessment ♠

For in class settings, worksheets, activities and projects will be incorporated within these topics for the enrolled student(s) to achieve a better understanding. A prize system will also be established for any student who excels in these topics. If you have any questions, please feel free to contact our company email acestutoringllc@gmail.com.

Thank you and we hope to see you at our sessions!