



## Algebra I Curriculum

Welcome to ACE's Tutoring LLC's Algebra I sessions. These sessions are conducted in hourly increments and will provide both enlightenment and enrichment for Algebra I. 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:

- **QUANTITIES**
  - Reason quantitatively and use units to solve problems
    - Understanding units and multi-step problems
    - Define appropriate quantities for descriptive modeling
- **SEEING STRUCTURE IN EXPRESSIONS**
  - Interpret the structure of expressions.
    - Interpreting expressions such as terms , factors and coefficients
  - Write expressions in equivalent forms to solve problems
    - Combining Like Terms
    - FOIL Method
    - Completing The Square
- **ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS**
  - Perform arithmetic operations on polynomials
    - Simplifying Polynomials
  - Heart Stamp Assessment ♥
- **CREATING EQUATIONS**
  - Create equations that describe numbers or relationships
- **REASONING WITH EQUATIONS AND INEQUALITIES**
  - Understand solving equations as a process of reasoning and explain the reasoning.
  - Solve equations and inequalities in one variable.
    - Solve linear equations in one variable
    - Solve quadratic equations in one variable
  - Solve systems of equations.
    - Solve System of equations algebraically
    - Solve System of equations graphically
    - Finding the points of intersection graphically
  - Represent and solve equations and inequalities graphically.

- Graphing the solutions of linear inequalities
  - **Diamond Stamp Assessment** ♦
- **INTERPRETING FUNCTIONS**
  - Understand the concept of a function and use function notation.
    - Understanding Domain and Range
    - Sequences and Functions
  - Interpret functions that arise in applications in terms of the context.
    - Sketching Graphs
    - Relating Domain to A Graphed Function
  - Analyze functions using different representations.
    - Graph Functions and Identify Key Aspects (Minima, Maxima , Increasing, Decreasing, Intercepts, etc.)
    - Identifying the percent rate of change using exponential functions.
- **BUILDING FUNCTIONS**
  - Build a function that models a relationship between two quantities.
    - Creating functions that describes the relationship between two quantities.
    - Write arithmetic and geometric sequences with an explicit formula
  - Build new functions from existing functions.
    - Translations of Graphs
    - Inverse Functions
  - Club Stamp Assessment ♣
- **LINEAR, QUADRATIC AND EXPONENTIAL MODELS**
  - Construct and compare linear, quadratic, and exponential models, and solve problems.
    - Linear Functions vs. Exponential Functions: Scenarios
      - Growth at a fixed rate or higher rate
  - Interpret expressions for functions in terms of the situation they model
    - Interpret parameters of linear/exponential functions in terms of context
- **INTERPRETING CATEGORICAL AND QUANTITATIVE DATA**
  - Summarize, represent, and interpret data on a single count or measurement variable.
    - Represent data on the real number line
    - Identifying median, mean, MAD . interquartile range and standard deviation
  - Summarize, represent, and interpret data on two categorical and quantitative variables
  - Interpret linear models
    - Interpret slope and intercept of a linear model
  - 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](mailto:acestutoringllc@gmail.com).

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

