8th Grade Mathematics Curriculum

Welcome to ACE's Tutoring LLC's 8th Grade Mathematics sessions. These sessions are conducted in hourly increments and will provide both enlightenment and enrichment for 8th Grade Mathematics. 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 NUMBER SYSTEM**
  - Know that there are numbers that are not rational and approximate them by rational numbers.
    - Rational vs. Irrational Numbers
      - Integers , Natural Numbers and Whole Numbers
      - Repeating Decimals, Never-Ending Decimals and Special Numbers
    - Rational Approximation
- **EXPRESSIONS AND EQUATIONS**
  - Work with radicals and integer exponents.
    - Properties of Exponents (Multiplication/Division)
    - Introduction to Square Roots/Cube Roots
    - Introduction to Scientific Notation
    - Applying Scientific Notation in Real World Problems
  - **Heart Stamp Assessment** ♥
  - Understand the connections between proportional relationships, lines, and linear equations
    - Understanding slope of a graph
    - Reviewing Slope-Intercept Form and Point-Slope Form
  - Analyze and solve linear equations and pairs of simultaneous linear equations.
    - Comparing two linear equations and seeing whether not they have one solution, infinite solutions or no solutions
    - Utilizing linear equations to solve real world problems
- **FUNCTIONS**
  - Define, evaluate, and compare functions.
    - Understanding the rules of functions (Every input has exactly one output)
    - The Vertical Line Test

        - Comparing Slope of Functions
    - Use functions to model relationships between quantities
        - Constructing linear functions
        - Qualitatively describing functions (nonlinear vs. linear , increasing vs. decreasing, etc.)
    - **Diamond Stamp Assessment♦**
- **GEOMETRY**
    - Understand congruence and similarity using physical models, transparencies, or geometry software.
        - Understanding Geometric Transformations:
            - Rotations
            - Reflections
            - Translations
            - Dilations
        - Understanding the concepts of lines , line segments and angles
        - Understanding congruency via Geometric Transformations (except dilations)
        - Describing the effects of dilations, reflections ,translations and dilations using the coordinate grid.
        - Understanding the concept of similarity given a combination of dilations , reflections , translations and dilations.
    - Understand and apply the Pythagorean Theorem.
        - Understanding the Pythagorean Theorem
        - Applying the Pythagorean Theorem to real world scenarios.
    - Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres
        - Understanding the volume formulas for cylinders, cones and spheres
        - Solving for volumes given real world situations.
    - Club Stamp Assessment ♣
- **STATISTICS AND PROBABILITY**
    - Investigate patterns of association in bivariate data.
        - Constructing and interpreting scatterplot data
        - Understanding linear models represent trend lines of a scatterplot
        - Utilizing linear models to solve statistical problems
    - 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!