



Geometry Curriculum

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

- **CONGRUENCE**

- Experiment with transformations in the plane.
 - Defining the following terms:
 - Rays
 - Angles
 - Circle
 - Perpendicular Lines
 - Parallel Lines
 - Line Segments
 - Introduction to symmetry
 - Line Symmetry
 - Rotational Symmetry
 - Develop definitions of rotations, reflections and translations in terms of angles, circles, perpendicular lines, parallel lines and line segments.
 - Drawing geometric figures given a rotation, reflection or translation
- Understand congruence in terms of rigid motions.
 - Understanding the ASA, SAS and SSS theorems for triangle congruence
- Prove geometric theorems both formally and informally using a variety of methods.
 - Prove and apply theorems about lines and angles using the following:
 - Vertical angle
 - Transversal crosses with parallel lines
 - Alternate interior angles are congruent to corresponding angles
 - Points on perpendicular bisector being equidistant

- Prove and apply theorems about triangles using the following:
 - Interior angles' measures of triangle sums to 180 degrees
 - Base angles of isosceles triangle are congruent.
 - Medians of a triangle meets at one point
 - Segment joining midpoints of two sides of a triangle is parallel to the third side and half the length
 - Make geometric constructions.
 - Classify and analyze geometric figures
 - Heart Stamp Assessment ♥
- **SIMILARITY, RIGHT TRIANGLES AND TRIGONOMETRY**
 - Understand similarity in terms of similarity transformations.
 - Verifying similarity via dilations and scale factors
 - Prove and apply theorems involving similarity both formally and informally using a variety of methods.
 - Prove theorems that involves triangles
 - Define trigonometric ratios and solve problems involving right triangles.
 - Introduction to Trigonometric Ratios
 - SOH-CAH-TOA
 - Solving for angles and sides of right triangles
- **CIRCLES**
 - Understand and apply theorems about circles.
 - Find arc lengths and areas of sectors of circles
 - Finding Circumference and Area
 - Finding Arc Lengths and Area of Sectors
 - Diamond Stamp Assessment ♦
- **MODELING IN GEOMETRY**
 - Apply geometric concepts in modeling situations.
- **EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS**
 - Translate between the geometric description and the equation for a conic section.
 - Algebraic Equation for Circles
 - Use coordinates to prove simple geometric theorems algebraically and to verify specific geometric statements
 - Identifying Shapes given a set of coordinates
 - Slope: Parallel Lines and Perpendicular Lines
 - Distance Formula and Finding The Length of Lines
 - Club Stamp Assessment ♣
- **GEOMETRIC MEASUREMENT AND DIMENSION**
 - Explain volume formulas and use them to solve problems.
 - Working with the area and circumference of circles and correlating to cylinders, cones and pyramids
 - Volumes Problems involving Cones, Pyramids, Spheres and Cylinders

- Visualize relationships between two- dimensional and three-dimensional objects.
 - Identify the 2D shapes of cross sections of 3D shapes.
- Understand the relationships between lengths, area, and volumes
 - Similarity with length , area and volume
- **CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY**
 - Understand independence and conditional probability and use them to interpret data.
 - Understanding subsets of sample spaces
 - Properties of Independent Events
 - Properties of Conditional Events
 - Apply Independent Events and Independent Events to real world scenarios
 - Use the rules of probability to compute probabilities of compound events in a uniform probability model
 - Calculating Conditional Probability
 - Addition Rule of Probability
 - Multiplication Rule of Probability
 - Using Permutations and Combinations
 - 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!