Honors Geometry (High School Level) Syllabus

Instructor: Edward Zhu

Weekly Classes on Friday from 8:30-9:30 PM

Course Description

This course is tailored toward students of all grade levels looking to learn the fundamentals of geometry to prepare themselves for challenging school courses. After covering the basics of geometry and becoming familiar with the vocabulary, the course will move on to proofs, a cornerstone of geometry. Next, students will learn about parallel and perpendicular lines, transformations, and congruency. In the final weeks, we will cover triangle similarity, basic trigonometry, and circles. The course will give students a solid foundation on the diverse concepts of geometry, allowing them to foster geometric reasoning skills and build a solid foundation for their future math endeavors.

Meeting Agenda

2/2 Meeting 1: Basics of Geometry
- Points, Lines, Planes, Segments
- Midpoint and Distance Formula
- The Coordinate Plane, Angles, Perimeter and Area

2/9 Meeting 2: Reasoning and Proofs
- Inductive, Deductive, and Algebraic Reasoning
- Postulates and Diagrams
- Proving Statements and Relationships

2/16 Meeting 3: Parallel and Perpendicular Lines
- Proofs
- Lines, Angles, Transversals
- Equations of Parallel and Perpendicular Lines

2/23 Meeting 4: Transformations
- Translations, Reflections, Rotations
- Congruence and Transformations
- Dilations
- Similarity and Transformations

3/1 Meeting 5: Congruent Triangles
- Properties of Triangles

- Triangle Theorems
- Converse Theorems
- Corollary Theorems

3/8 Meeting 6: Relationships with Triangles
- Bisector Theorems
- Center Theorems

3/15 Meeting 7: Polygons
- Properties of Trapezoids
- Properties of Kites
- Properties of Parallelograms

3/22 Meeting 8: Similarity
- Similar Polygons
- Angles and Sides Theorems
- Similar Triangle Proofs

3/29 Meeting 9: Right Triangles and Trigonometry
- Types of Right Triangles and Theorems
- Trigonometry Ratios
- Sine, Cosine, Tangent Laws and Properties

4/5 Meeting 10: Circles
- Arcs and Postulates
- Angle Theorems
- Inscribed Shapes