

Course Name: Summer 07-Geometry (Online course)

Objectives: This course provides students with the focus on the proofs of the following theorems or topics:

- Angles
 1. The Vertical Angle Theorem
 2. The Corresponding Angle Postulate
 3. The Alternate Interior/Exterior Angles Theorem
- Triangles
 1. The Triangle Sum Theorem
 2. The Pythagorean Theorem
 3. Proof of properties of isosceles/equilateral triangles
 4. Congruent triangles
 5. Similar triangles
- Polygons
 1. Introduction to equilateral polygon, equiangular polygon, and regular polygon
 2. Proof of the following formulas:
 - (1) formula for finding the sum of all interior angles of an n-gon is $180^\circ(n - 2)$.
 - (2) formula for finding the number of diagonals of an n-gon is $\frac{n(n-3)}{2}$.
 - (3) formula for finding the perimeter of a regular n-gon is nl , where l is the length of one side of the n-gon.
 3. The Exterior Angle theorem
- Parallelogram
 1. Understanding the definition of a parallelogram.
 2. Recognizing and proving the sufficient/necessary conditions for a quadrilateral to be a parallelogram.
 3. Using the properties of a parallelogram to find the measures of interior angles, the lengths of sides, and the area of a parallelogram.

Lesson Plan

- Lesson 1: Review lines, line segments, angles. Introduction to proofs.
- Lesson 2: More proofs. Introduction to polygons. The interior Angle theorem
- Lesson 3: More on polygons. The Exterior Angle theorem. The formula for the number of diagonals.
- Lesson 4: Congruent triangles. The short-cut to determine whether two triangles are congruent.

- Lesson 5: CPCTC. The Perpendicular Bisector Theorem and more.
- Lesson 6: Parallelograms and their properties (proofs of these properties).
- Lesson 7: The criteria for a quadrilateral to be a parallelogram.
- Lesson 8: Similar triangles and the rules for determining if two triangles are similar.
- Lesson 9: Properties of similar triangles. Review for the final exam
- Lesson 10: Final exam (1.5 hours)

Attendance Policy: Students are expected to attend each scheduled class meeting. Regular attendance is essential to your success in this course. If you miss a class, you are responsible for the material covered by reading lessons and watching the videos posted online.

Lecture Notes: Lecture notes will be posted on your assignment section after each class as a reference for students to use. All students are required to take notes in class and read them before doing homework.

Homework: Homework will be posted online after each class and must be submitted it online before the next class. It will be graded and the results will be posted online. It is the essential for the students to do the homework as exercises in order to digest the material covered in the class.

Quizzes: A weekly-quiz will be given at the end of each class except the first and the last class. Each quiz is worth of 10 points. Quiz questions will be similar to the questions in the previous homework assignment. Each quiz will be graded and its score will be posted online afterward.

Makeup Quizzes: If a student misses a class, he/she can make it up within two days by printing out the quiz, work it out at home with parent's supervision, and then email it to the teacher for grading with parent's signature on the top of the quiz.

Final Exam: The final exam will be given at the last class. To be prepared for the final exam, student are required to do all problems on the review sheet posted online.

Awards: The students' grades will be evaluated based on their performance in homework assignments, quizzes, and the final exam. The course grade will be calculated as follows:

Homework assignments: 20%

Quizzes: 50%

Final exam: 30%

Top three scored students will be awarded at the end of the semester.