

Geometry

Course Overview and Syllabus

Course Number: MA3110CA

Grade level: 10

Prerequisite Courses: Algebra I

Credits: 1.0

Course Description

Based on plane Euclidean geometry, this rigorous full-year course addresses the critical areas of: congruence, proof, and constructions; similarity and trigonometry; circles; three-dimensional figures; and probability of compound events. Transformations and deductive reasoning are common threads throughout the course. Students build on their conceptual understanding of rigid transformations established in middle school as they formally define each and then, use them to prove theorems about lines, angles, and triangle congruency. Rigid transformations are also used to establish relationships between two-dimensional and three-dimensional figures. Students use their knowledge of proportional reasoning and dilations to develop a formal definition for similarity of figures. They apply their understanding of similarity to defining trigonometric ratios and radian measure. Students also make algebraic connections as they use coordinate algebra to verify properties of figures in the coordinate plane and write equations of parabolas and circles. Throughout the course, students investigate properties of figures, make conjectures, and prove theorems. Students demonstrate their reasoning by completing proofs in a variety of formats. The standards of mathematical practice are embedded throughout the course as students apply geometric concepts in modeling situations, make sense of problem situations, solve novel problems, reason abstractly, and think critically.

Course Objectives

Throughout the course, you will meet the following goals:

- Use transformations to understand and explain triangle congruence and similarity.
- Perform geometric constructions and justify them.
- Formalize reasoning by writing proofs in a variety of formats.
- Apply geometric concepts to model and solve real-world problems.
- Visualize the relationship between two-dimensional and three-dimensional figures.
- Apply probability concepts

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Students are expected to spend approximately five to seven hours per week online on:

- Interactive lessons that include a mixture of instructional videos and tasks
- Assignments in which you apply and extend learning

- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, e-mail, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Quiz	20%
Test	30%
Exam	20%
Assignment	20%
Project	10%
Additional	0%

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

Unit 1:	Foundations of Euclidean Geometry	Unit 12:	Applying Trigonometric Ratios
Unit 2:	Understanding Proofs and Constructions	Unit 13:	Quadrilaterals and Coordinate Algebra
Unit 3:	Geometric Transformations: Part 1	Unit 14:	Circles: Part 1
Unit 4:	Geometric Transformations: Part 2	Unit 15:	Circles: Part 2
Unit 5:	Angles and Lines	Unit 16:	Understanding Area
Unit 6:	Triangles	Unit 17:	Geometric Modeling in Two Dimensions
Unit 7:	Triangle Congruence: Part 1	Unit 18:	Geometric Modeling in Three Dimensions
Unit 8:	Triangle Congruence: Part 2	Unit 19:	Introduction to Probability
Unit 9:	Similarity Transformations	Unit 20:	Applications of Probability
Unit 10:	Applying Similarity Concepts		
Unit 11:	Right Triangle Relationships and Trigonometry		