# Geometry

## Course Description:

Thinkwell Geometry offers comprehensive coverage of concepts foundational to Geometry, emphasizing understanding, applying, justifying, and developing geometric properties and relationships in two and three dimensions.

In Thinkwell Geometry, students will learn and explore geometric reasoning, coordinate geometry, parallel and perpendicular lines, triangle congruence, properties of polygons and circles, similarity, right triangle trigonometry, area, and volume.

The lessons are presented to the student through approximately 20 hours of video lectures by Prof. Edward Burger. The student's grade is determined by their scores on quizzes (40%), tests (40%), a midterm exam (10%), and a final exam (10%).

## Geometry Overview

- **Foundations for Geometry and Geometric Reasoning**
  - Points, lines, planes, and angles
  - Measuring and constructing lines and angles
  - Midpoint and distance in the coordinate plane
  - Transformations in the coordinate plane
  - Inductive and deductive reasoning
  - Conditional and biconditional statements
  - Algebraic and geometric proofs
  - Flowchart, coordinate, and paragraph proofs

- **Parallel and Perpendicular Lines**
  - Angles formed by parallel lines and transversals
  - Properties of parallel and perpendicular lines
  - Slopes of lines
  - Equations of lines in slope-intercept and point-slope forms

- **Triangle Congruence**
  - Classifying triangles
  - Angle relationships
  - Triangle congruence
  - Isosceles and equilateral triangles

- **Properties of Triangles, Polygons, and Circles**
  - Segments in triangles
  - Relationships in triangles
  - The Pythagorean Theorem
  - Polygons and parallelograms
  - Special right triangles and quadrilaterals
  - Lines and arcs in circles
  - Angles and segments in circles

- **Similarity, Right Triangle Trigonometry, and Spatial Reasoning**
  - Similarity relationships
  - Trigonometric ratios
  - Perimeter, circumference, and area
  - Surface area and volume
  - Transformational geometry

## Geometry Course Information:

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| **Recommended Course Duration** | 36 weeks |
| **Topics** | 61 |
| **Hours of Video Content** | 20 |
| **Practice Exercise and Worksheet Questions** | 2000+ |
| **Number of Graded Assessments (Quizzes, Tests & Exams)** | 30 |