

Honors Geometry

Ms. Maria Gale

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Office Hours: : Drop by at the beginning of
Break or Lunch or right after school.

We'll meet at that time or we'll make an appointment.

Location: U6

Course Description: Geometry is important as a foundation for higher mathematics not only for its content (transformations, congruence, similarity, area, volume, triangle relationships, etc.) but also for the process of logical reasoning (proof). Both strands will be equally emphasized while using Algebra 1 skills when required. Reading and reasoning will be as much a part of your development as your ability to work with numbers

Academic Content Standards:

The primary goal of the Mathematics Department is to produce numerate women confident in their mathematical abilities. Upon graduation from Immaculate Heart High School students will:

1. Have dependable algebra skills, including simplifying expressions, solving equations, and graphing functions.
2. Distinguish between and use inductive and deductive reasoning.
3. Use and apply the formulas of plane and solid geometry: perform constructions and transformations
4. Summarize and analyze data and draw inferences from charts, tables and graphs.
5. Have a concrete understanding of theoretical and experimental probability.
6. Use mathematical language and concepts to communicate in oral and written form
7. Use technology as an aid to critical thinking and problem solving.
8. Recognize patterns and make predictions based on them.
9. Apply all of the above to solve problems in academic or practical settings.

Benchmarks and Performance Standards:

Students who have successfully completed two semesters of Honors Geometry will:

- Demonstrate understanding by identifying and giving examples of undefined terms, postulates, theorems, and inductive and deductive reasoning.
- Write geometric proofs (direct and indirect, formal and informal)
- Construct and judge the validity of a logical argument and give counterexamples to disprove a statement.
- Prove basic theorems involving congruence and similarity.
- Prove that triangles are congruent or similar and use the concept of corresponding parts of congruent triangles.
- Know and are able to use the Triangle Inequality Theorem.
- Prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.
- Know, derive, and solve problems involving perimeter, circumference, area, volume and surface area of common geometric figures and solids and compounds of common figures and solids.
- Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.
- Find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.
- Prove relationships between angles in figures by using properties of complementary, supplementary, vertical, interior and exterior angles.
- Prove the Pythagorean Theorem and use it to determine distances and find missing side lengths of right triangles and apply it when required for other problems.
- Students know the definitions of basic trigonometric functions defined by the angles of a right triangle. they also know and are able to use elementary relationships between them. for example $\tan(x) = \sin(x) / \cos(x)$.
- Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.
- Use the basic Right Triangle Trigonometry to solve problems of length and distance.
- Perform basic constructions with a straight edge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to the given through a point off the line and know how to apply them.
- Know and are able to use angle and side relationships in problems involving special right triangles (30° - 60° - 90° and 45° - 45° - 90°).
- Prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles and inscribed and circumscribed polygons of circles.
- Know the effect of rigid and non-rigid motions on figures in the coordinate plane and space, including rotations, translations, reflections, and dilations.
- Compute probabilities requiring an area model.
- Use Geometer's Sketchpad as a tool for inductive reasoning.
- Draw 3-dimensional objects, including a representation of coordinate space, isometric drawings, and drawings with 1 or 2 vanishing points. Draw orthographic projections of 3 dimensional figures.

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Required Materials:

HRW Geometry

Three-ring binder to organize notes, homework, handouts, quizzes etc.

TI-83 Plus or TI-84 Graphing Calculator

pencil, eraser, straight edge, clear ruler with inches and centimeters, compass, protractor, graph paper (hole-punched in binder), scissors, highlighters, triangles

Note: Though we may not use construction tools daily it is important that you have them when needed.

Classroom Expectations:

- **Participation:** Students are expected to be participants in the learning process. Your contribution to the environment - positive or negative - will be considered when the semester grade is calculated. Participation includes, but is not limited to, asking and answering questions, making relevant observations, remaining on task, having grade sheet and notebook up-to-date, being civil and helpful, attending regularly and being on time.
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- **Make-Up Work:** When student is absent from class it is expected that the student will read the text, get the notes, attempt the assignment and make an appointment with me for any needed clarification.
Generally, students with extended absence for illness have as many days to make up an exam. Quizzes that have been graded and returned cannot be made-up, and a student who misses a quiz will be given a blank copy for study purposes without penalty.
(This should not happen more than twice in a semester.)
 - A student who is absent the day before a test, but present when the test was scheduled, should be prepared to take the test with the class.
 - A student who is absent on the test day only should be prepared to take the test on the day she returns.
 - Any extenuating circumstances must be discussed with me PRIOR to the beginning of class. Feel free to contact me by e-mail but follow-up with me in person.
- **Academic Integrity:** It should go without saying that you are expected to do your own work and to know the difference between collaborating and copying. I prefer that you do nothing rather than copy answers from the back of the book or from someone else's paper. Therefore, assignments that consist of a list of answers will not be designated complete. An assignment is deemed complete if the textbook is not needed to determine the question and the process for answering it.
- **Other classroom rules:**

It is expected that honor students will participate in the California Math League for which extra credit can be earned.

Check my webpage for assignments and test dates.

Keep track of your grade with a gradesheet and compare to my online gradebook.

Grading Policy:

70% of each semester grade will be based on a percentage of total points of tests (100 points each), quizzes (30-50 points each), assignments and class participation (10%).

30% of each semester grade will be based on a comprehensive final exam.

Course Chronology:

Semester One	Semester Two
Exploring Geometry Reasoning in Geometry Parallels & Polygons Congruence Indirect Proof	Perimeter & Area Shapes in Space Surface Area & Volume Similarity Introduction to Trigonometry Circles

