

# Algebra 1

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:** Algebra is the abstract study of numbers and their relationship to each other. What this class offers and what you will gain through diligence is the ability to use problem-solving techniques to solve increasingly complex problems and to find the relevance of algebra through applications. The skills learned in Algebra 1 are basic to the study of Geometry and Intermediate Algebra as well as the quantitative aspects of any field you that may wish to pursue in the future.

Everyone is capable of learning the mathematics taught in this course, though perhaps to a different depth. Learning takes time, patience, practice and willingness to learn from mistakes. For this class, effort and perseverance will be more important than talent.

## 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 Algebra 1 will:*

- Students identify and use the arithmetic properties of subsets of integers and ration, irrational, and real numbers, including the closure properties for the four basic arithmetic operations.
- Students understand and use such operations as taking the opposite, finding the reciprocal, raising to a power and taking a root. They understand and use the rules of exponents.
- Students solve equations and inequalities involving absolute value.
- Students simplify expressions before solving linear equations and inequalities in one variable.
- Students solve multi-step problems, including word problems, involving linear equations and inequalities in one variable and provide justification for each step.
- Students graph a linear equation and compute x- and y-intercepts. They are able to sketch the region defined by linear inequality.
- Students verify that a point lies on a line, given the equation of the line. Students can derive linear equations using the point-slope formula.
- Students understand the concepts of parallel and perpendicular lines and how those slopes are related. Students are able to write the equation of a line parallel or perpendicular to a given line that passes through a given point.
- Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solution set.
- Students add, subtract, multiply and divide monomials and polynomials. Students solve multi-step problems using these techniques.
- Students apply basic factoring techniques to second (quadratic) and simple third-degree (cubic) polynomials. These techniques include finding a common factor for all terms of a polynomial, recognizing the difference of two squares and recognizing perfect square trinomials.
- Students solve quadratic equations by factoring.
- Students apply algebraic techniques to solve rate and mixture problems.
- Students understand the concepts of function and relation, determine whether a given relation defines a function, and give pertinent information about given relations and functions.
- Students determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs or a symbolic expression.
- Students determine whether a relation defined by a graph, a set of ordered pairs or a symbolic expression is a function and justify the conclusion.
- Students use the properties of the number system to judge the validity of results, to justify each step in a procedure, and to prove or disprove results.
- Students judge the validity of an argument according to whether the properties of real numbers and the order of operations have been applied correctly at each step.
- Students understand and use the Fundamental Counting Principle and how it is applied to count permutations and combinations.
- Students understand and compute basic experimental and theoretical probabilities.
- Students simplify, add, subtract and multiply radical expressions.
- Students solve simple radical equations and solve quadratic equations with irrational solutions by taking square roots.

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## **Required Materials:** Glencoe Algebra 1 (California Edition)

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

TI-83 Plus, TI-84 Plus Graphing Calculator

Paper, graph paper (hole punched in the binder), ruler, pencil, eraser

The website associated with the text, [www.algebra1.com](http://www.algebra1.com), has resources such as Extra Examples, Self check Quizzes and a Parent and Student Study Guide.

## **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.
- **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:**

Check my webpage for assignments and test dates. Use Hotmath.com for extra help on homework problems. The password is... xe63070de.

Keep track of your grade with a gradesheet and compare it 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
The Language of Algebra Real Numbers Linear Equations Relations and Functions Analyzing Linear Function Probability and Odds	Linear Inequalities Systems of Equations & Inequalities Polynomials Factoring & Quadratic Equations Radical Expressions & Equations Principles of Counting

