

Montclair High School

Course Syllabus

Department: Mathematics

Course: Algebra 2

Level: Academic

Credits: 5 Credits

Course Description:

This course is designed to build on algebraic and geometric concepts. It develops advanced algebra skills such as solving systems of equations, advanced polynomials, imaginary and complex numbers, quadratics and trigonometric functions. It also introduces matrices and their properties. The content of this course is important for students' success on both the ACT and college mathematics entrance exams. Students who complete Algebra 2 should take Pre-Calculus next.

Standards:

<http://www.corestandards.org/math>

Anchor Text(s):

Text Title	Publisher/Author	Year/Edition	ISBN	Text Distribution
Prentice Hall Algebra 2	Pearson	2004 First Edition	0-13-062560-4	Hard copy, PDF copy, & online text available

Supplementary Materials:

Weekly Packets

www.mathopenref.com

Units of Study:

Analyzing Equations and Inequalities

Graphing Linear Functions

Solving Systems of Linear Equations and Inequalities

Exploring Polynomials and Radical Expressions

Exploring quadratics Functions and Inequalities

Exploring Polynomial Functions

Exploring Rational Expressions

Exploring Exponential and Logarithmic Functions

Calculate the probability of dependent and independent events

Proficiencies:

By the end of this course, students will:

- Evaluate expressions and solve linear equations and inequalities including those involving compound sentences and absolute value
- Identify relations versus functions and graph them together with inequalities on a coordinate plane

- Solve systems of equations and inequalities in two and three variables. Use linear programming to find maximum and minimum values of the function.
- Simplifying expressions containing polynomials, radicals, complex numbers and rational exponents. Factoring Polynomials and solving equations containing radicals.
- Solve and graph radical equations. Analyze graphs of quadratic functions and inequalities
- Find the length and the midpoint of a segment in the coordinate plane. Write the equation of and graph conic sections. Solve systems of conic section equations and inequalities
- Find the factors and zeroes of and graph polynomial functions. Approximate the real zeroes. Find compositions of functions and their inverses.
- Solve and graph rational equations. Solve problems involving direct, inverse and joint variations. Simplify rational expressions
- Simplify expressions and solve equations involving real exponents and logarithms. Find common and natural logarithms. Solve equations with variable exponents
- Find the sum of an arithmetic series using summation notation. Understand the use of factorials. Use pascals triangle and the binomial theorem to expand a binomial.
- Perform operations with matrices. Use matrices to solve systems of equations
- Solve problems involving permutations and combinations. Find the probability of events

Evaluation & Assessment:

- Tests 40 %
- Quizzes 30 %
- Homework 15 %
- Classwork 15 %