



**Catholic
Memorial**
HIGH SCHOOL

Year Long Course Plan

Department: Mathematics

Course: Algebra I 412/413

Essential Learning Outcomes: After successfully completing this course, students will be able to:

1. Formulate questions from patterns and relationships to further understanding.
2. Communicate and justify results using a variety of methods which include estimation, reasoning, logic, conjecture, and proof.
3. Demonstrate mathematical literacy orally and in writing effectively and across disciplines.
4. Perform and explain operations, their properties and applications on real numbers.
5. Use technology to carry out computations
6. Use the Cartesian plane and algebraic procedures to graph lines, explore their relationships, and interpret the meaning.
7. Use and apply formulas as appropriate
8. Organize a collection of one and two-dimensional data and use this data to formulate and analyze a hypothesis
9. Apply both theoretical and experimental probability to real life situations
10. Understand and translate between various forms of Algebraic notation
11. Solve linear equations, linear inequalities, quadratic equations, systems of linear equations and inequalities

<i>Quarter 1</i>	<i>Quarter 2</i>
<p>Unit 1: Tools of Algebra (ELO 3, 4, 5,6, 7, 10)</p> <ul style="list-style-type: none"> • Using Variables • Exponents and Order of Operations • Exploring Real Numbers • Adding and Subtracting Real Numbers • Multiplying and Dividing Real Numbers • Distributive property • Properties of Real Numbers • Graphing on the Coordinate Plane • ASSESSMENT: Written Test <p>Unit 2: Solving Equations(ELO 2, 3, 4)</p> <ul style="list-style-type: none"> • Solving one-step equations • Solving two-step equations • Solving multi-step equations • Solving equations with variables on both sides • Problem solving using equations • Using measures of central tendency • ASSESSMENT: Written Test <p>Unit 3: Solving Inequalities(ELO 3, 4, 11)</p> <ul style="list-style-type: none"> • Understanding inequalities and their graphs • Solving inequalities using one-step 	<p>Unit 4: Solving and Applying Proportions (ELO 1, 4, 7, 9)</p> <ul style="list-style-type: none"> • Ratio and proportion • Proportions and similar figures • Proportions and percent equations • Percent of change • Applying ratios to probability • Probability of compound events • ASSESSMENT: Written Test <p>Unit 5: Graphs and Functions(ELO 1, 2, 3, 6, 7, 8, 10)</p> <ul style="list-style-type: none"> • Relating graphs to events • Relations and functions • Function rules, tables, and graphs • Writing a function rule • Describing number patterns • ASSESSMENT: Written Test <p>Unit 6: Linear Equations and their graphs (ELO 1, 2, 6, 7, 8, 10, 11,)</p> <ul style="list-style-type: none"> • Rate of change and slope • Slope-intercept form

<ul style="list-style-type: none"> • Solving inequalities using multi-steps • Compound inequalities • Absolute value equations and inequalities • ASSESSMENT: Written Test 	<ul style="list-style-type: none"> • Standard form • Point-slope form and writing linear equations • Parallel and perpendicular lines • Scatter plots and equations of lines • Graphing absolute value equations • ASSESSMENT: Written Test
Quarter 3	Quarter 4
<p>Unit 7: Systems of Equations and Inequalities (ELO 6, 8, 11)</p> <ul style="list-style-type: none"> • Solving systems by graphing • Solving systems using substitution • Solving systems using elimination • Applications of linear systems • Linear inequalities • Systems of linear inequalities • ASSESSMENT: Written Test <p>Unit 8: Exponents and Exponential Functions (ELO 1, 2, 3, 5, 6, 7)</p> <ul style="list-style-type: none"> • Zero and negative exponents • Scientific notation • Multiplication properties of exponents • Division properties of exponents • Geometric sequences • Exponential functions • Exponential growth and decay • ASSESSMENT: Written Test <p>Unit 9: Polynomials and Factoring (ELO 4)</p> <ul style="list-style-type: none"> • Adding and subtracting polynomials • Multiplying monomial and polynomial • Factoring a monomial term from a polynomial • Multiplying binomials • Factoring polynomials into the product of two binomials • Multi-step factoring of polynomials • ASSESSMENT: Written Test 	<p>Unit 10: Quadratic Equations and Functions (ELO 6, 8, 11)</p> <ul style="list-style-type: none"> • Exploring quadratic graphs • Quadratic functions • Solving quadratic equations using graphing • Solving quadratic equations using factoring • Solving quadratic equations using the quadratic formula • Using the discriminant • ASSESSMENT: Written Test <p>Unit 11: Radical Expressions and Equations (ELO 1, 2, 4, 6, 7)</p> <ul style="list-style-type: none"> • Simplifying radicals, Pythagorean theorem • Distance and midpoint formulas • Operations with radical expressions • Solving radical equations • ASSESSMENT: Written Test <p>Unit 12: Rational Expressions and Functions (ELO 2, 4, 7, 9)</p> <ul style="list-style-type: none"> • Graphing rational functions • Simplify rational expressions • Multiplying and dividing rational expressions • Adding and subtracting rational expressions • Solving rational expressions • Counting methods and permutations • Combinations • ASSESSMENT: Written Test

Template: Center for Catholic School Effectiveness 2006