



**Catholic
Memorial**
HIGH SCHOOL

Year Long Course Plan

Department: Mathematics

Course: Algebra 2 432/433

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

1. Analyze and generalize patterns and represent them with algebraic expressions and equations.
2. Solve various equations and inequalities.
3. Model, solve and interpret mathematical and real world problems by using algebraic expressions, equations and inequalities.
4. Graph a variety of mathematical functions using the parent function and transformations.
5. Use appropriate technology to problem solve, analyze and interpret mathematical concepts.
6. Use appropriate statistical methods to analyze data.
7. Communicate their understanding of mathematics.

Quarter 1	Quarter 2
<p>Unit 1: Tools of Algebra ELO:1,2,3,5,7</p> <ul style="list-style-type: none"> •Properties of the Real •Algebraic Expressions •Solving Equations •Real World Application to Equation Solving •Solving Inequalities •Absolute Value Equations and Inequalities •ASSESSMENT: Written Quiz and Test <p>Unit 2: Linear Functions ELO: 2,3,4,5,6,7</p> <ul style="list-style-type: none"> •Relations and Functions •Linear Equations •Applications of the Linear Model •Direct Variation •Absolute Value Functions and Graphs •Translated Graphs •ASSESSMENT: Written Quiz and Test <p>Unit 3: Linear Systems ELO:2,3,4,5,7</p> <ul style="list-style-type: none"> •Graphical Solutions to Systems •Algebraic Solutions to Systems •Real World Application of Systems •Systems of Inequalities •Linear Programming •Three Dimensional Graphing •Algebraic Solutions to Three Variable Systems •ASSESSMENT: Written Quiz and Test Linear Programming Project 	<p>Unit 4: Matrices ELO:2,3,5,7</p> <ul style="list-style-type: none"> •Organizing Data into Matrices •Adding, Subtracting and Multiplying Matrices •Geometric Transformations with Matrices •2x2 Matrices and Determinants •3x3 Matrices and Determinants •Inverse Matrices and Determinants •Calculator Matrix Operations •Three Variable Word Problems Using Matrices •ASSESSMENT- Written Quiz and Test <p>Unit 5: Quadratic Equations and Functions ELO: 3,4,5,7</p> <ul style="list-style-type: none"> •Modeling Data with Quadratics •Standard Form of a Parabola •Vertex Form of a Parabola •Factoring Quadratics •Solving Quadratics Using Factoring •Complex Number System •Completing the Square •Quadratic Formula •Real Life Applications to Quadratics •ASSESSMENT: Written Quiz and Test <p>Unit 6: Polynomial and Polynomial Functions ELO:2,3,7</p> <ul style="list-style-type: none"> •Polynomial Functions •Polynomials and their factors •Long and Synthetic Division •Solving Polynomial Equations by Factoring •Real Solutions of Polynomial Equations •Fundamental Principle of Algebra

	<p align="center">Complex Solutions of Polynomial Equations</p> <ul style="list-style-type: none"> •Binomial Theorem •ASSESSMENT: Written Quiz and Test
Quarter 3	Quarter 4
<p>Unit 7: Radical Functions ELO: 2,4,7</p> <ul style="list-style-type: none"> •Roots and Radical Expressions •Multiplying and Dividing Radicals •Adding and Subtracting Radicals •Rational Exponents •Radical Equations •Function Operations •Inverse Functions •Graphing Radical Expression •ASSESSMENT: Written Quiz and Test <p>Unit 8: Exponential and Logarithm Functions ELO: 2,3,4,5,7</p> <ul style="list-style-type: none"> •Exponential Model •Properties of the Exponential Function •Applications of the Exponential Function •Logarithm Functions •Properties of Logs •Exponential and Logarithmic Functions •Natural Logarithms •ASSESSMENT: Written Quiz and Test <p>Unit 9: Rational Functions ELO: 1,2,4,7</p> <ul style="list-style-type: none"> •Inverse Variation •Graphing Inverse Variations •Rational Functions and their Graphs •Multiplying and Dividing Rational Expressions •Adding and Subtracting Rational Expressions •Rational Equations •Application of Rational Equations •ASSESSMENT: Written Quiz and Test 	<p>Unit 10: Trigonometry ELO: 4,7</p> <ul style="list-style-type: none"> •Exploring Periodic Data •Angles and Unit Circle •Radian Measure •Sine Function •Cosine Function •Tangent Function •Translating the Sine and Cosine Graphs •Reciprocal Trig Functions •ASSESSMENT: Written Quiz and Test <p>Unit 11: Trig Applications ELO: 2, 3,4,7</p> <ul style="list-style-type: none"> •Trig Identities •Trig Equations •Right Triangle Trig •Law of Sines •Law of Cosines •ASSESSMENT: Written Quiz and Test <p>Unit 12: Conics ELO: 4,7</p> <ul style="list-style-type: none"> •Parabola •Circle •Ellipse •Hyperbola •Translating the Conics •ASSESSMENT: Written Quiz and Test