



## **Marianas High School Team Effort Towards Excellence Course Syllabus Algebra 2**

### **Teacher Information**

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### **School Wide Initiative:**

By the end of SY 17-18, all MHS students will increase their reading comprehension by 50 Lexiles or more as measured by Achieve3000.

### **School Mission:**

The mission of the Marianas High School is to establish, maintain, and sustain a learning environment in which all students have the opportunity to develop the competencies and the confidence necessary to enter and succeed in a post-secondary educational institution or in an employment field of their choice.

### **Course Description: Algebra 2**

Algebra 2 is a course where students are able to develop advanced algebra skills in algebraic operations and functions. Students will review concepts such as linear equations and equalities, exponential, quadratic, polynomial, and rational functions through online tools such as documents, tutorials, and videos. Students will work closely with the expressions that define the functions, and continue to expand and hone their abilities to model situations and solve equations (CCSSI Mathematics Appendix A). The primary goal for this course is for students to conceptualize, analyze, and identify relationships among functions. The Mathematical Process Standards apply throughout the course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of real life problem situations.

### **Course Competencies/ Learning Objectives**

Students who successfully complete Algebra 2 will be competent in the following areas:

- Students will be able to Identify, state the properties and perform arithmetic operations on real numbers in any format
- Students will be able to Solve systems of linear equations and in two or three variables using algebraic and matrix methods
- Students will be able to Describe and use the properties of exponents to simplify polynomial expressions
- Students will be able to Simplify, multiply, divide, add and subtract rational expressions
- Students will be able to Solve rational equations and real world applications that are modeled by rational equations
- Students will be able to Use the remainder theorem to factor and evaluate polynomials
- Students will be able to Describe and use the properties of rational exponents to simplify radical functions and expressions
- Students will be able to Solve radical equations and real world problems modeled by radical equations

- Students will be able to Identify, add, subtract, multiply and divide complex numbers
- Students will be able to Solve quadratic equations and real world applications modeled by quadratic functions
- Students will be able to Solve quadratic and rational inequalities
- Students will be able to Graph and analyze the graphs of quadratic equations
- Students will be able to Use combinations and permutations to solve problems
- Students will be able to Use the binomial theorem to expand  $(x+y)^n$
- Students will be able to Find probability of various single, compound, dependent and independent events
- Students will be able to Perform algebraic, composition and inverse operations on functions
- Students will be able to Describe the characteristics of exponential functions and show how are they useful in solving real-world problems
- Students will be able to Describe characteristics of logarithmic functions and show how are they useful in solving real-world problems
- Students will be able to Solve systems of non-linear equations
- Students will be able to Demonstrate the ability to identify and evaluate arithmetic and geometric sequences and series
- Students will be able to Identify, evaluate, perform arithmetic operations and create algebraic expressions
- Students will be able to Find solutions of linear equations
- Students will be able to Find solution of simple and compound linear inequalities
- Students will be able to Translate real world applications into equations or inequalities and solve them
- Students will be able to Understand the properties of functions and demonstrate how relations and functions can be represented numerically, graphically, algebraically, and/or verbally
- Students will be able to Find the equations of linear functions and use those equations to solve real world applications
- Students will be able to Solve real world applications which use systems of linear equations in two or three variables using algebraic and matrix methods
- Students will be able to Add, subtract and multiply polynomials and polynomial functions
- Students will be able to Factor polynomials and use this method to solve polynomials
- Students will be able to Find the distance and midpoint between points in the coordinate plane

**Text book:** Suggested Readings/Texts

Algebra 2 text Pearson's Common Core

Algebra 2 text preferably Holt McDougal *Algebra 2*, Common Core Edition. (Used as reference)

**Materials:**

**You are expected to bring the following materials to class everyday.**

- Notebook (note taking)

- Pencils and erasers

- **A Graphing Calculator** such as the TI-83+ or TI-84+ is recommended but not required. Classroom set is available for use in class.

A **Scientific Calculator** may be used.

- MHS Gmail account (for Google Drive sharing of ebook)

**Student Evaluation**

The CNMI Public School System grading policy suggests the following breakdown for scores:

Percent Letter Grade

93 – 100 A

83 – 92 B

73 – 82 C

63 – 72 D

0 – 62 F

## **Grading System (Weights)**

Class work/Group activities	15%
Journal/Notes	10%
Homework	25%
Quizzes/Tests	40%
Final Exam	10%

## **Attendance Policy**

Regular and prompt class attendance is an essential part of the educational experience. Marianas High School expects students to exercise good judgment regarding attendance and absences. Students will accept full responsibility for ensuring their work does not suffer because of absences. All students are expected to attend every scheduled class on time. Exceptions may be made for illness and valid emergencies. **Refer to student handbook for information.**

## **Classroom Expectations**

The purpose of the class is to learn algebra. Any behavior that distracts significantly from this purpose can not be accepted.

1. Students will come to class on time prepared and ready to learn.
2. Students will complete all assignments, including homework, by all deadlines. Make-up work is only accepted after an excused absence. It is your responsibility to see me for your work before or after school.
3. All students will be silent and respectful while other students read aloud.
4. The teachers and students will work together for a respectful, safe classroom.
5. Participation in class discussions will enhance all students' learning experiences.
6. Students are expected to have all assigned readings completed; this may require some reading to be completed outside of the classroom.
7. Cell phones and any other electronic devices are prohibited in class at any time, unless directed otherwise by the teacher.
8. Sleeping is not allowed in the classroom and will be interrupted by the teacher.
9. Students are expected to talk to the instructor if you have a special problem that hinders your progress in the course in order to get the help you need.

## **Class Requirements**

Students will be required to successfully and correctly complete tests, exams, quizzes, and homework. Students will be required to complete some of these outside of school hours. Students will participate meaningfully and respectfully in classroom discussions, maintain good attendance, have a respectful and positive attitude, and come to class ready to learn.

## **Plagiarism, Cheating, and Academic Integrity**

Plagiarism is the practice of copying words, sentences, images, or ideas for use in written or oral assessments without giving proper credit to the source. Cheating is defined as the giving or receiving of help on anything that has been determined by the teacher to be an individual effort. Both are considered serious offenses and will significantly affect your course grade. Please refer to the Student Handbook booklet for additional information.

## **Achieve3000 Lessons:**

Students will be completing a minimum of 3 lessons per week in their LA, Science, & Social Studies class. Students are welcome to do more lessons. Please see teacher for more info.

## Course Calendar

**Students will be given an update by the teacher if changes are made**

Unit/ Topic	Course Activities	Unit Learning Outcomes	Assessments/ Assignments	Timeframe
1.1 Exploring Transformation 1.2 Introduction to Parent Function 1.3 Transforming Linear Functions 1.4 Curve Fitting with Linear Models  2.1 Using Transformations to Graph Quadratic Functions 2.2 Properties of Quadratic Functions in Standard Form 2.3 Solving Quadratic Equations by Graphing and Factoring 2.4 Completing the Square 2.5 Complex Numbers and Roots 2.6 The Quadratic Formula 2.7 Solving Quadratic Inequalities 2.8 Curve Fitting with Quadratic Models 2.9 Operations with Complex Numbers	Ø Daily Routine Ø Warm Up Ø Lesson Presentation (includes note taking) Ø Board work / Seat work Ø Group work (Classwork) Ø Individual Work (Classwork/homework) Ø Lesson quiz Ø Test Ø Cognitive Tutor Ø Online work (Edmodo)	Students will be able to Identify, state the properties and perform arithmetic operations on real numbers in any format Students will be able to Identify, evaluate, perform arithmetic operations and create algebraic expressions Students will be able to Find the distance and midpoint between points in the coordinate plane Students will be able to Solve systems of linear equations and in two or three variables using algebraic and matrix methods Students will be able to Identify, add, subtract, multiply and divide complex numbers Students will be able to Solve quadratic equations and real world applications modeled by quadratic functions Students will be able to Solve quadratic and rational inequalities Students will be able to Graph and analyze the graphs of quadratic equations Students will be able to Use combinations and permutations to solve problems Students will be able to Find solutions of linear equations Students will be able to Find solution of simple and compound linear inequalities	>> <b>Classworks</b> >> <b>Homework/Notes</b> >> <b>Group work (participation)</b> >> <b>Lesson quiz</b> >> <b>Test</b> >> <b>End of the Topic/chapter activity</b>	First Quarter
3.1 Polynomials 3.2 Multiplying Polynomials 3.3 Dividing Polynomials 3.4 Factoring Polynomials 3.5 Finding Real Roots of Polynomial Equations 3.6 Fundamental Theorem of Algebra 3.7 Investigating Graphs of Polynomial Functions 3.8 Transforming Polynomial Functions	Ø Daily Routine Ø Warm Up Ø Lesson Presentation (includes note taking) Ø Board work / Seat work Ø Group work (Classwork)	Students will be able to Describe and use the properties of exponents to simplify polynomial expressions Students will be able to Simplify, multiply, divide, add and subtract rational expressions	>> <b>Classwork</b> >> <b>Homework/Notes</b> >> <b>Group work (participation)</b> >> <b>Lesson quiz</b> >> <b>Test</b> >> <b>Final Exam</b> >> <b>End of the Topic/chapter activity</b> >> <b>Cognitive Tutor</b>	Second Quarter

<p>3.9 Curve Fitting with Polynomial Models</p> <p>4.1 Exponential Functions, Growth and Decay</p> <p>4.2 Inverses of Relations and Functions</p> <p>4.3 Logarithmic Functions</p> <p>4.4 Properties of Logarithms</p> <p>4.5 Exponential and Logarithmic Equations and Inequalities</p> <p>4.6 The Natural Base</p> <p>4.7 Transforming Exponential and Logarithmic Functions</p> <p>4.8 Curve Fitting with Exponential and Logarithmic Models</p> <p>5.1 Variation Functions</p> <p>5.2 Multiplying and Dividing Rational Expressions</p> <p>5.3 Polynomials, Rational Expressions and Closure</p> <p>5.4 Rational Functions</p> <p>5.5 Solving Rational Equations and Inequalities</p> <p>5.6 Radical Expressions and Rational Exponents</p> <p>5.7 Radical Functions</p> <p>5.8 Solving Radical Equations and Inequalities</p>	<p>Ø Individual Work (Classwork/homework)</p> <p>Ø Lesson quiz</p> <p>Ø Test</p> <p>Ø Cognitive Tutor</p> <p>Ø Online work (Edmodo)</p>	<p>Students will be able to Solve rational equations and real world applications that are modeled by rational equations</p> <p>Students will be able to Use the remainder theorem to factor and evaluate polynomials</p> <p>Students will be able to Describe and use the properties of rational exponents to simplify radical functions and expressions</p> <p>Students will be able to Solve radical equations and real world problems modeled by radical equations</p> <p>Students will be able to Use the binomial theorem to expand <math>(x+y)^n</math></p> <p>Students will be able to Add, subtract and multiply polynomials and polynomial functions</p> <p>Students will be able to Factor polynomials and use this method to solve polynomials</p> <p>Students will be able to Describe the characteristics of exponential functions and show how are they useful in solving real-world problems</p> <p>Students will be able to Describe characteristics of logarithmic functions and show how are they useful in solving real-world problems</p> <p>Students will be able to Solve systems of non-linear equations</p>		
<p>6.1 Multiple Representations of Functions</p> <p>6.2 Comparing Functions</p> <p>6.3 Piecewise Functions</p> <p>6.4 Transforming Functions</p> <p>6.5 Operations with Functions</p> <p>6.6 Functions and Their Inverses</p> <p>6.7 Modeling Real-World Data</p> <p>7.1 Permutations and Combinations</p> <p>7.2 Theoretical and Exponential Probability</p> <p>7.3 Independent and Dependent Events</p> <p>7.4 Two – Way Tables</p> <p>7.5 Compound Events</p> <p>8.1 Measure of Central Tendency and Variation</p>	<p>Ø Daily Routine</p> <p>Ø Warm Up</p> <p>Ø Lesson Presentation (includes note taking)</p> <p>Ø Board work / Seat work</p> <p>Ø Group work (Classwork)</p> <p>Ø Individual Work (Classwork/homework)</p> <p>Ø Lesson quiz</p> <p>Ø Test</p> <p>Ø Cognitive Tutor</p> <p>Ø Online work (Edmodo)</p>	<p>Students will be able to Perform algebraic, composition and inverse operations on functions</p> <p>Students will be able to Find probability of various single, compound, dependent and independent events</p> <p>Students will be able to Translate real world applications into equations or inequalities and solve them</p>	<p>&gt;&gt; <b>Classwork</b></p> <p>&gt;&gt; <b>Homework/Notes</b></p> <p>&gt;&gt; <b>Group work (participation)</b></p> <p>&gt;&gt; <b>Lesson quiz</b></p> <p>&gt;&gt; <b>Test</b></p> <p>&gt;&gt; <b>Journal</b></p> <p>&gt;&gt; <b>End of the Topic/chapter activity</b></p>	<p>Third Quarter</p>

<p>8.2 Data Gathering  8.3 Survey, Experiments, and Observational Studies  8.4 Significance of Experimental Results  8.5 Sampling Distributions  8.6 Binomial Distributions  8.7 Fitting to a Normal Distribution  8.8 Analyzing Decisions</p>		<p>Students will be able to Understand the properties of functions and demonstrate how relations and functions can be represented numerically, graphically, algebraically, and/or verbally  Students will be able to Find the equations of linear functions and use those equations to solve real world applications  Students will be able to Solve real world applications which use systems of linear equations in two or three variables using algebraic and matrix methods</p>		
<p>9.1 Introduction to Sequences  9.2 Series and Summation Notation  9.3 Arithmetic Sequences and Series  9.4 Geometric Sequences and Series  9.5 Mathematical Induction and Infinite Geometric Series</p> <p>10.1 Right-Angle Trigonometry  10.2 Angle of Rotation  10.3 The Unit Circle  10.4 Inverses of Trigonometric Functions  10.5 The Law of Sines  10.6 He Law of Cosines</p> <p>11.1 Graphs of Sine and Cosine  11.2 Graphs of Other Trigonometric Functions  11.3 Fundamental Trigonometric Identities  11.4 Sum and Difference Identities  11.5 Double – Angle and Half – Angle Identities  11.6 Solving Trigonometric Equations</p>	<ul style="list-style-type: none"> <li>Ø Daily Routine</li> <li>Ø Warm Up</li> <li>Ø Lesson Presentation (includes note taking)</li> <li>Ø Board work / Seat work</li> <li>Ø Group work (Classwork)</li> <li>Ø Individual Work (Classwork/homework)</li> <li>Ø Lesson quiz</li> <li>Ø Test</li> <li>Ø Cognitive Tutor</li> <li>Ø Online work (Edmodo)</li> </ul>	<p>Students will be able to Demonstrate the ability to identify and evaluate arithmetic and geometric sequences and series</p> <p>Students will be able to Identify Sine, Cosine and other Trigonometric ratios  Students will be able to use trigonometric identities to solve trigonometric equations</p>	<p><b>&gt;&gt;Classwork</b>  <b>&gt;&gt;Homework/Notes</b>  <b>&gt;&gt;Group work (participation)</b>  <b>&gt;&gt; Lesson quiz</b>  <b>&gt;&gt; Test</b>  <b>&gt;&gt;Final Exam</b>  <b>&gt;&gt; End of the Topic/chapter activity</b></p>	<p>Fourth Quarter</p>

**Special Accommodations**

Please see me or email me if you require special accommodations due to learning disabilities, religious practices, physical requirements, medical needs, or any other reasons.

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**PARENT-STUDENT AGREEMENT**

Student Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

I have received, read, and understand the **(Course Name)** course syllabus and outline. \_\_\_\_\_ (initial)  
I understand my responsibilities in this class. I understand that this is an academic classroom and I agree to conduct myself accordingly. \_\_\_\_\_ (initial)

I understand the grading system and policies to be used in this class. \_\_\_\_\_ (initial)

I accept that the grades I receive while enrolled in this class will be a direct reflection of the level of effort and commitment that I put toward my assigned work. I accept responsibility for all work that will be assigned in this class. \_\_\_\_\_ (initial)

I accept responsibility for the consequences I will experience should I choose not to comply with all that is required of me for the successful completion of this course. \_\_\_\_\_ (initial)

I accept that if, at any time, I do not successfully complete all of the assigned work in this class, I will be placed on academic remediation, I will receive a disciplinary referral, and I will be required to explain my academic behavior in a conference attended by me, my parent/guardian, my teacher, and the vice-principal for student personnel. \_\_\_\_\_ (initial)

I will treat all of the school's property and (Teacher) property with the utmost respect and care. I understand that if **(Ms. Taisacan)** decides that I have not been respectful of his property or school property, she has the right to not let me use it. If this happens, I must bring my own device, borrow a friends, or use the school's computers to complete all classroom activities and tasks. \_\_\_\_\_ (initial)

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Print Name

**By signing below, I acknowledge I have read this Parent-Student Agreement and that all of the contact information below is correct.**

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Print Name

Parent Email: \_\_\_\_\_

Contact Number: \_\_\_\_\_

Parent Facebook: \_\_\_\_\_