

Algebra II

Course Description:

This course is designed to teach students to be successful mathematical problem solvers. It is a continuation of algebraic and geometric concepts developed in Algebra I and Geometry. Topics covered will be the properties and attributes of functions (linear, quadratic, square root, rational, exponential, logarithmic, and cubic functions) and the multiple representations of all functions mentioned above.

Course Objective:

Students will interpret attributes of functions and their inverses. Students will solve systems of equations and inequalities. They will learn properties and apply matrices to systems of equations. Students will evaluate the effectiveness of various methods used to solve quadratic and square root equations and inequalities. Students will apply exponential and logarithmic equations to real life application problems. Students will explore attributes and transformations of cubic, cube root, and rational equations.

Grading Policy:

60% Major Assignments (Exams)

40% Minor Assignments (Daily Classwork, Homework & Quizzes)

see district grading policy for specifications

Required Materials:

- Algebra II Notebook
- Pencils/Pens
- Graph Paper
- 1 in. 3 ring binder

Expectations:

- Be on time and be prepared.
- Must turn in cell phone in assigned pocket chart at beginning of class.
- Bring all materials to class.
- Be prepared and ready to work as soon as the bell rings.
- Sit quietly and be attentive while the teacher is addressing the class.
- Stay in your seat during class time and raise your hand to be recognized.

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- Turn in assignments on time (no late work will be accepted).
- Ask for any missed work due to an excused absence.
 - If absent during test day, you will be able to take the test before or after school only.
- Follow all school rules at all times.
- Stay on task until the bell rings. The teacher dismisses the class, not the bell.
- Take notes every day and keep a neat and well-organized binder.
- There will be no food or drinks allowed in class.

Course Work

Chapter 1 - Functions

- 1-1 Relations and Functions
- 1-2 Attributes of Functions
- 1-3 Function Operations and Composition
- 1-4 Inverse Functions

Chapter 2 – Absolute Value Equations and Functions

- 2-1 Absolute Value Equations
- 2-2 Solving Absolute Value Inequalities
- 2-3 Attributes of Absolute Value Functions
- 2-4 Transformations of Absolute Value Functions
- 2-5 Graphing Absolute Value Inequalities

Chapter 3 – Systems of Linear Equations

- 3-1 Solving Systems Using Tables and Graphs
- 3-2 Solving Systems Algebraically
- 3-3 Systems of Inequalities
- 3-4 Linear Programming
- 3-5 Systems in Three Variables
- 3-6 Solving Systems Using Matrices

Chapter 4 – Matrices

- 4-1 Adding and Subtracting Matrices
- 4-2 Matrix Multiplication
- 4-3 Determinants and Inverses
- 4-4 Systems and Matrices

Chapter 5 – Quadratic Functions and Equations

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- 5-1 Attributes and Transformations of Quadratic Functions
- 5-2 Standard Form of a Quadratic Function
- 5-3 Modeling with Quadratic Functions
- 5-4 Focus and Directrix of a Parabola
- 5-5 Factoring Quadratic Expressions
- 5-6 Quadratic Equations
- 5-7 Completing the Square
- 5-8 The Quadratic Formula
- 5-9 Complex Numbers
- 5-10 Quadratic Inequalities
- 5-11 Systems of Linear and Quadratic Equations

Chapter 6 – Square Root Functions and Equations

- 6-1 Square Root Functions as Inverses
- 6-2 Attributes of Square Root Functions
- 6-3 Transformations of Square Root Functions
- 6-4 Introduction to Square Root Equations
- 6-5 Solving Square Root Equations

Chapter 7 – Exponential and Logarithmic Functions and Equations

- 7-1 Attributes of Exponential Functions
- 7-2 Transformations of Exponential Functions
- 7-3 Attributes and Transformations of
- 7-4 Exponential Models in Recursive Form
- 7-5 Attributes of Logarithmic Functions
- 7-6 Properties of Logarithms
- 7-7 Transformations of Logarithmic Functions
- 7-8 Attributes and Transformations of the Natural Logarithm Function
- 7-9 Exponential and Logarithmic Equations
- 7-10 Natural Logarithms

Chapter 8 – Polynomials

- 8-1 Attributes of Polynomial Functions
- 8-2 Adding, Subtracting, and Multiplying Polynomials
- 8-3 Polynomials, Linear Factors, and Zeros
- 8-4 Solving Polynomial Equations
- 8-5 Dividing Polynomials
- 8-6 Theorems About Roots of Polynomial Equations
- 8-7 The Fundamental Theorem of Algebra

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Chapter 9 – Radical Expressions

- 9-1 Roots and Radical Expressions
- 9-2 Multiplying and Dividing Radical Expressions
- 9-3 Binomial Radical Expressions
- 9-4 Rational Expressions

Chapter 10 – Cubic and Cube Root Functions and Equations

- 10-1 Attributes and Transformations of Cubic Functions
- 10-2 Attributes of Cube Root Functions
- 10-3 Transformations of Cube Root Functions
- 10-4 Cube Root Equations

Chapter 11 – Rational Functions and Equations

- 11-1 Inverse Variation
- 11-2 Transformations of Reciprocal Functions
- 11-3 Asymptotes of Rational Functions
- 11-4 Rational Expressions
- 11-5 Adding and Subtracting Rational Expressions
- 11-6 Solving Rational Equations

Academic Dishonesty

All work that you turn in is to be your work; under no circumstances shall a student attempt to turn in work that is not their own. Cheating and plagiarism are serious crime committed in the classroom and will not be tolerated. Violators will receive a grade of zero on that assignment, and an office referral.