

Algebra II (Mathematics)

Elective – Year – 10/11/12

Prerequisites: Geometry (can be concurrent) and/or department recommendation

Course Description

The philosophy of Algebra II revolves around the ability of math to describe quantitatively the wonders of God's creation. This course in Algebra reviews and strengthens the equation solving skills learned in Algebra I. Quadratics and equations of higher degree are introduced along with conics, circular functions, and trigonometry. In addition, the course will develop students' problem-solving and group collaboration skills.

Course Goal

The Christian teacher will:

1. Review the concepts learned in previous math courses.
2. Present several techniques to solve linear equations simultaneously.
3. Introduce the algebra of matrices, relations and functions.
4. Teach the use of the quadratic formula in solving second degree functions and functions of higher degree.
5. Present conic sections analytically.
6. Extend the study of roots and powers to logarithms with various bases.
7. Teach how to view trigonometry as several circular functions.

Course Objectives

The successful student will be able to:

1. Solve an equation or inequality.
2. Translate a problem into an equation or a system of equations.
3. Solve systems of equations using several techniques.
4. Solve quadratics using several methods.
5. Analyze and sketch elementary conics.
6. Find both real and imaginary roots of higher degree functions.
7. Approximate irrational roots of functions.
8. Use logarithms in solving exponential equations.
9. Solve problems using trigonometric equations.

Course Outline

Semester 1

- Chapter 1 – Solving Equations and Inequalities
- Chapter 2 – Linear Relations and Functions
- Chapter 3 – Systems of Equations and Inequalities
- Chapter 4 – Matrices
- Chapter 5 – Polynomials
- Chapter 6 – Quadratic Functions and Inequalities
- Chapter 7 – Polynomial Functions

Semester 2

- Chapter 8 – Conic Sections
- Chapter 9 – Rational Expressions and Equations
- Chapter 10 – Exponential and Logarithmic Relations
- Chapter 11 – Sequences and Series
- Chapter 12 – Probability and Statistics
- Chapter 13 – Trigonometric Functions
- Chapter 14 – Trigonometric Graphs and Identities

Instructional Strategies

Teaching strategies include lecture/demonstration, group activities, and daily practice.

Student Materials

Glencoe – Algebra 2, 2003; scientific calculator (graphing calculator is suggested); notebook OR loose-leaf paper; 3-ring binder

Grading

Your semester grade is broken into the following percentages:

Chapter Tests	(40%)
Quizzes	(30%)
Semester Exam	(15%)
Daily Work	(10%)
Participation/Behavior	(5%)

Classroom Procedures

Assignments – All daily work from the text should be done in the student’s notebook or on loose-leaf paper. Daily work will be handed in and graded. Each assignment will be worth 5 points. Daily work can be redone for full credit. Quizzes and Chapter Tests may also be redone, but the final score will be an average of the first and second scores.

Late/missing work – Late work is inconvenient for both the student and the teacher, but will not result in deductions. Missing work will count as a zero. Missing Quizzes and Chapter Tests should be made up as soon as possible. It is the student’s responsibility to get assignments when class is missed and to set up make up times for quizzes and tests.

Attendance – Attendance is critical to the learning experience. Students are expected to be in the classroom when the bell rings or they will be marked as tardy. Students will not be allowed to use the restroom during lessons, excepting emergencies (USE YOUR PASSING PERIODS!). All materials should be brought to class so that trips to lockers are not necessary.

Phone use – Since everything the student will need to accomplish assignments can be done with Chromebooks, phones will not be allowed during class unless express permission is given by the teacher. Phones should remain silent and out of sight from bell to bell. The first violation will result in the phone sitting on the teacher’s desk for the duration of the period. The second violation will result in the phone sitting on the teacher’s desk for the rest of the school day. Further violations will result in a detention.