Algebra II Syllabus

Teacher **Dr. Samantha Stevens**
Planning **1st Block Planning**
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Course description: Algebra II is a study of algebraic models, functions, graphs, linear relationships, matrices, linear systems, quadratic relations, equations, and functions, polynomial and polynomial functions, exponential and logarithmic functions, rational and radical functions, sequence and series, probability and statistics, periodic functions and trigonometric identities and equations.

Course prerequisite: Algebra I Credit and Geometry Credit

Grading Scale: A 100 – 93
B 92 – 85
C 84 – 76
D 75 – 70
F 69 & below

Grading: A student's grade is calculated by taking the total points earned by the student and by dividing the total by the possible total points for that grading period. The final exam and/or TNReady test will also count as a percentage of the final average.

Daily Grades: Daily grades may include bell work, class work, or homework. Point range: 5 – 20
Quiz Grades: Quizzes may be announced or unannounced. Point range: 10 – 50
Test Grades: A test is given every one to two weeks, depending on the content covered. Point range: 60 – 150
Notebook Tests: Notebook tests are given in place of notebook checks. Notebook checks will occur throughout the semester. Point range: 50-100

Notebook Requirements:

- You need dividers.
- Loose leaf notebook paper.
- Other instructions will be given in class as to the organization of the notebook.

Grading guidelines:

1. There will be one or more tests given per chapter/unit. Tests will range in point values between 60 – 100 points each. These tests are announced two or more days in advance.
2. Homework/ Classwork is assigned almost every day and is not optional. Students' success in mathematics often requires practice in the form of homework. Each

homework/ classwork assignment is worth 5 – 20 points. All written assignments are to be completed in pencil.

3. Quizzes will be given randomly to check for conceptual understanding. Quizzes are unannounced and vary in point value. Quizzes are often in the form of an exit ticket. Weekly ACT/EOC assignments may count as quiz grades.
4. Each student is required to keep an Algebra II notebook. All notes, examples, homework, class work, quizzes, bell work, and ACT/EOC review should be kept in the notebook. Tests will be kept at school for review for EOC and final exams. The notebook check will be given as a notebook test. The notebook test is unannounced so it is important to keep your notebook organized at all times and to bring it to class every day. Assignment sheets should also be kept in the front of your notebook.
5. At the end of the grading period, grades are calculated in the online grading program, Schoology. Students and parents are encouraged to use Schoology to see course materials, student progress, and final averages.

Make-up Policy: It is the student's responsibility to find out what he/she missed due to an absence and to submit it to the teacher within three days of the date of absence. In case of extended illness or special circumstances, special arrangements may be made for make-up work, but it is the student's responsibility to make such a request before or after class within the three-day window. Missing assignments for reasons other than absences or special circumstances will be recorded as a zero. Arrangements for make-up tests should be made with the teacher for assessments missed due to excused absences.

Math Fee: A math fee of $5 has been approved by the Tullahoma City School Board. The fee will help purchase extra supplies used in class.

Online Grades & Attendance: The online grade book, Schoology, will be used in the class. It is available to students and parents/guardians to check grades and class period attendance and has 24-hour access. Access information will be sent home. Referring to the THS online grade/attendance is expected for identifying missing assignments, grades, and attendance.

State Testing: The "Tennessee Ready" Algebra II test will be given during school in November/December for the fall and April/May for the spring. The score on the TNReady test will count a percentage of the student's average. Preparation for the test will be ongoing.

Attendance: This is the most important factor in Algebra II. When a student is absent, the content missed directly affects their ability to keep up with the material being taught. It is entirely up to the student to learn the missed material. Tutoring may be necessary.

Backpacks: No backpacks are allowed in class. Students should bring textbook, notebook, pencil, and other supplies to class. Students will NOT be allowed to leave class to retrieve any items. Any backpack in the room will be placed in the hallway; no passes to lockers.

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Cell Phones: Each student will be assigned a number for placement of cell phones in an organizer in the room. Any cell phone seen or heard outside the organizer will be confiscated (NO EXCEPTIONS) and referred to an administrator for disciplinary action.

Procedures and/or Rules:

1. Students will show respect to their teacher and other students at all times. Disrespectful behavior WILL NOT be tolerated. Do not interrupt others. Raise your hand if you have a question. If a visitor comes to the door or a phone call is placed to the room, students are to remain quiet and display courtesy.
2. Arrive to class early and be in your seat, with materials out and ready to start class when the bell rings. If you are tardy, please enter the room quietly and place your excuse on my desk. Materials include paper, pencil, notebook, and other materials specified as needed for the course.
3. No Cell Phones. Cell phones are to be placed into the organizer in the numbered space assigned to the student. Please see the above section, "Cell Phones."
4. The teacher dismisses you not the bell. Do not pack up prior to the bell. Students will NOT be allowed to line up at the door and wait for the bell.
5. No food or drinks allowed in the classroom. (Water bottles are allowed as long as they are disposed of in the recycling container.)
6. Please take notes and copy examples.
7. Other classroom procedures will be discussed during the first week of class.
8. School rules apply to this classroom too!

Supply List:

Notebook – No smaller than a 1.5" 3-ring binder
Dividers
Paper – college or wide rule
Pencils for homework, quizzes, and tests
Highlighter
Colored pens or colored pencils

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Course Calendar

Quarter 1

Week 1 Absolute Value Equations & Compound Inequalities

Standards: A2.A.CED.A.1

Objectives: Students will:

- Solve compound inequalities and write solutions in set and interval notations.
- Solve absolute value equations and inequalities and write solutions in set and interval notations.

Weeks 2-4 Functions

Standards: A2.F.IF.A.1, A2.F.BF.B.3, A2.F.BF.B.3, A2.F.BF.B.4a

Objectives: Students will:

- Find the domain, range, and intervals where function graphs increase, decrease, and/or remain constant.
- Graph transformations of graphs using dilations and translations.
- Determine whether the function is even, odd, or neither based upon exponents of equations and the number of zeros on the graph.
- Perform operations on graphs including composition of functions.
- Determine if the function is one-to-one and find the inverse if possible.

Weeks 5-6 Radical Expressions and Radical Functions

Standards: A2.A.REI.B.3, A2.A.A.SSE.A.1

Objectives: Students will:

- Find the domain, range, and intervals where function graphs increase, decrease, and/or remain constant.
- Graph transformations of graphs using dilations and translations.
- Determine whether the function is even, odd, or neither based upon exponents of equations and the number of zeros on the graph.
- Perform operations on graphs including composition of functions.
- Determine if the function is one-to-one and find the inverse if possible.

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Weeks 7-8 Exponential and Logarithmic Functions

Standards: A2.F.BF.A.1, A2.F.LE.A.1, A2.FIF.B.3, A2.F.LE.A.1, A2.F.LE.A.2

Objectives: Students will:

- Build contextual understanding through modeling exponential functions
- Graph exponential and logarithmic functions while identifying domain, range, and end-behavior.
- Understand growth and decay functions through problem solving and a project, "Buying a Car."
- Use logarithmic properties to simplify expressions and solve equations.
- Understand common and natural logarithms.

Week 9 Rational Functions

Standards: A2.A.APR.C.4, A2.A.SSE.A.1, A2.A.APR.C.4, A2.F.BF.B.4, A2.A.REI.A.2

Objectives: Students will:

- Simplify rational expressions and identify excluded zeros.
- Perform addition, subtraction, multiplication, and division on rational expressions.
- Simplify complex fractions.
- Solve rational equations.

Week 10 Linear Functions

Standards: A2.F.LE.A.1, A2.F.LE.B.3, AS.F.BF.A.2, A2.A.REI.C.4, A2.A.REI.D.6

Objectives: Students will:

- Construct linear models and functions using arithmetic sequences given a graph, table, a description of a relationship, or input-out-put pairs.
- Solve systems of linear equations of 2 and 3 variables and understand that $y=f(x)$ and $y=g(x)$ and the meaning of their intersection is $f(x)=g(x)$ both symbolically and graphically.

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Weeks 11-12 Quadratic Functions

Standards: A2.A.CED.A.1, A2.F.IF.A.1, A2.A.REI.B.3, A2.N.CN.A.1, A2.N.CN.A.2, A2.A.SSE.A.1

Objectives: Students will:

- Graph quadratic functions using both standard and vertex forms of the equation.
- Determine the maximum or minimum of the quadratic function using the vertex form of the equation.
- Solve quadratic equations using graphs and the methods of factoring, the quadratic formula, and the completing the square.
- Will determine the types of roots/zeros using the discriminant.
- Perform operations on complex numbers.
- Graph quadratic inequalities.

Weeks 13-14 Polynomial Functions

Standards: A2.A.SSE.A.1, A2.A.APR.A, A2.A.APR.A.2, A2.F.IF.B.3.b

Objectives: Students will:

- Graph polynomial functions and identify the range, domain, intervals of increase and decrease, and end behavior.
- Solve quadratic equations using factoring and synthetic division. Students will use the Remainder and Factor Theorems and the Rational Zero Theorem to assist them in finding zeros of a polynomial function.

Weeks 15-16 Probability and Statistics

Standards: A2.S.IC.A.1, A2.S.IC.A.2, A2.S.ID.A.1, A2.S.ID.B.2, A2.S.CP.A.1, A2.S.CP.A.2

Objectives: Students will:

- Classify experiments, surveys, and observational studies.
- Find the probability of independent and compound events.
- Find conditional probability.
- Use the normal distribution to understand probability.
- Conduct data analyses using graphs and tables.

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Week 17 Trigonometric Functions

Standards: A2.F.TF.A.1, A2.F.TF.A.2, A2.F.TF.A.3

Objectives: Students will:

- Understand the difference between degrees and radians on a unit circle.
- Find trigonometric ratios using both right triangles and in the coordinate plane using the unit circle.
- Use trigonometric identities to conduct trigonometric proofs and to solve trigonometric equations.

Week 18 Review, Wrap-up, and Final Exam

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Teacher Comments and Commitment: It is my philosophy that ALL students can learn mathematics. Successful learning of mathematics comes with diligent study, persistence to learn mathematics, and an attitude of perseverance. Though Algebra II can be a challenging course of study, with appropriate, best instructional and study practices, good attendance, daily preparation, and effective communication all students can be successful.

Dr. Samantha Stevens

Parent/Guardian & Student Acknowledgement:

I have read and understand the above information.

_____ _____

Parent/Guardian Signature Date

Parent Contact Information (Cell Phone/ Home): _____

Parent email:_____

_____ _____

Student Signature Date

Note: This syllabus must be signed and kept inside the student notebook directly behind the assignment sheet at all times. It will also be posted online for future reference.