Welcome to Algebra I! Algebra I provides the basic foundation needed for Geometry, Algebra II, and other higher level math courses. The main concepts to be learned are algebraic expressions, including polynomials, exponents, and radicals; equations and inequalities; linear and quadratic functions; problem solving; and critical-thinking skills.

Course Description:

Algebra 1 provides students with the material outlined in the Maryland Core Learning Goals in Algebra 1 and Data Analysis. These goals include indicators that require experiences with problem solving and patterns, graphing linear equations, finding rates of change, solving equations and inequalities, working with polynomials and rational expressions, and examining quadratics and other non-linear functions. Students will take the Algebra/Data Analysis High School Assessment at the end of this course as a part of the high school graduation requirement if they have not passed the assessment prior to being enrolled in the Algebra 1 course.

Typically in a Math class, to understand the majority of the information it is necessary to continuously practice your skills. Some hints for success in a Math class include: attending class daily, asking questions in class, and thoroughly completing all homework problems with detailed solutions as soon as possible after each class session.

<table>
<thead>
<tr>
<th>Teacher Information:</th>
<th>Course Website:</th>
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<tbody>
<tr>
<td>Mike Bauer</td>
<td><a href="https://onenessfamilymoodle.com">https://onenessfamilymoodle.com</a></td>
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<tr>
<td><a href="mailto:mike@onenessfamily.org">mike@onenessfamily.org</a></td>
<td>Select Algebra 1</td>
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Technology

This course uses Moodle, an online space for course materials. Here you will find sources such as practice problems, notes, instructional materials, supplemental readings, assignment/project descriptions, rubrics, and extra instructional resource links, etc. Moodle may also be used for submission of many assignments.

Electronics

NO use of headphones, iPods, cell phones, ear buds, or other electronics in classroom, unless otherwise specified by me (i.e. for instructional purposes). When students enter the classroom, all electronic devices must be put away. I reserve the right to remove any disruptions to learning, including but not limited to, students’ cell phones.

Course Units:

First Quarter at a Glance

Understanding Functions
Interpret, sketch, and analyze graphs from situations
Identify relations and functions
Evaluate functions
Model functions using rules, tables and graphs
Write function rule given table or real-world situation
Use inductive reasoning in counting number patterns
Write rules for arithmetic sequences
Model arithmetic sequence as linear function
Translate and solve real world situations into algebraic equations
Find input value given the output value, and vice versa

Second Quarter at a Glance

Solving Equations
Represent an unknown amount when writing equations from a verbal sentence
Use properties of equality to solve equations
Solve one step equations
Solve two step equations
Solve multi-step equations
Utilize the working backwards strategies to solve multi-step equations
Solve equations with variables on both sides
Using distributive property of equality to solve equations with the variable on each side
Write ratio and proportion to solve real world problems
Explain and justify algebraic procedures and solutions for solving equations
Define vocabulary
Solve open sentences
Solve uniform motion problems
Solve literal equations using formulas

Linear Functions and Equations
Find rates of change/slope from tables and graphs
Write and graph linear equations using slope-intercept form, standard form and point-slope form
Use x- and y-intercepts to graph linear equations
Write linear equations using data
Determine whether lines are parallel, perpendicular or neither
Write equations for trend line/line of best fit
Use line of best fit to make predictions

Linear Inequalities
Identify solution sets for inequalities
Graph linear inequalities
Solve one step inequalities
Solve two step inequalities
Solve multi-step inequalities
Solve compound inequalities
Define absolute value
Solve absolute value inequalities

Third Quarter at a Glance
Systems of Linear Equations and Inequalities
Analyze special types of systems
Solve system of equations by graphing
Solve system of equations by substitution
Solve system of equations by elimination
Solve system of equations using inverse matrices
Identify the boundary line and solution region of system of inequalities
Solve system of inequalities by graphing
Solve system of inequalities by substitution
Solve system of inequalities by elimination

Non-Linear Functions
Model geometric sequence as functions
Define non-linear functions
Describe non-linear graphs using the concepts of maxima, minima, zeros, domain, range and continuity
Use graphing calculator to view tables, graphs and equation of non-linear functions
Graph non-linear functions
Interpret graph of non-linear functions
Relate real world problems to special functions
Translate graphs of absolute value equations
Translate and solve real world situations into algebraic equations

Exponents and Exponential Functions
Define and describe exponents and exponential functions
Expand exponential expressions
Utilize laws of exponents to simplify algebraic expressions
Use Properties of Exponents (commutative, associative and distributive property) to simplify exponential expressions and functions
Convert scientific notation to decimal form and vice versa
Explore the calculator notation to work with very large or very small numbers
Apply the rules for multiplying powers of 10
Construct understanding of exponential function relationships
Graph exponential growth and decay
Apply exponential growth and decay to solve real world problems
Solve problems involving percent increase and percent decrease

Fourth Quarter at a Glance
Polynomials and Applications
Use all types of adding, subtracting, multiplying, and dividing polynomials in real world applications
Use FOIL method and distributive property to multiply polynomials
Factor cbxax2 and special cases
Factor polynomials by grouping
Model real world situation using polynomials
Quadratic Equations and Functions (Unit 10)
Solve quadratic equations by factoring, completing the square, and the quadratic formula
Use Zero property to solve quadratic equations
Transform the parent function of quadratic, f(x) = x^2
Understand the use of the discriminant
Graph quadratic functions by hand using the following properties: X and Y Intercepts, axis of symmetry, vertex
Graph quadratic functions using the calculator

Essential Agreements

1. Follow the policies outlined in the student/family handbook, as they all apply to this classroom. You know what actions are appropriate for a classroom setting and what actions are not.
2. Help create a classroom atmosphere of respect. The study of the past requires us to investigate numerous topics and consider varied opinions and perspectives. Every individual in this classroom should feel free to express his/her ideas without fear of ridicule or judgment. Respect yourselves, your peers, and your school.
3. Be responsible. It is up to you to take charge of your own learning and behavior.
4. Come to class prepared. Please bring your folder/notebook, pen/pencil, textbook(s), and completed assignments to class each day.
5. Be aware. Before leaving class for the day, make sure you have recorded information regarding homework and long-term assignments as well as other important announcements.
6. Actively participate in classroom activities and lessons.
7. Be confident. Each of you is capable of achieving great success in this course. Believe in your abilities and your potential to be a successful learner!
8. Come talk to me! If you ever have any questions or need help, do not hesitate to stop by and see me. I will be available both before and after school to discuss any issues or questions. We may also set up a time that is convenient for all involved. I can be reached at mike@onenessfamily.org

Here is what you should expect of me:
1. To provide you with timely, detailed, and constructive feedback regarding your work.
2. To maintain organized grades and classroom materials.
3. To respect your ideas, opinions, viewpoints, and needs.
4. To provide you with clear directions, rules, and expectations to guide your learning.
5. To be available for communication and collaboration with you and your parents/guardians.

Discipline

When the school’s behavior guidelines or agreements are violated, the following general steps are followed:
1. There is communication with the student
2. There is communication with the parent
3. A written record is kept as a marker; and a conference with a parent is set up if necessary
4. A discipline slip serves as a more serious marker.
5. Suspension, Expulsion and/or Recommended Withdrawal

Grading Policy

Your grade for this course will be earned based on a variety of assessments including, but not limited to, quizzes, tests, homework, writing assignments, in-class activities, projects, etc. Please make sure you turn in all of your work on time. Submitting late work will significantly impact your grade. Students will not be tested or required to hand in assignments on the day the student returns from school if they were assigned on the day the student was absent. Students shall adhere to deadlines for tests and projects that were established/assigned prior to the absence.

*Students have equal to the number of days absent for make-up work, test, assignments, reports, etc., up to a maximum of five (5) days without penalty.*

Late Policy:

There will be a 10% deduction from the score of an assignment, when an assignment is submitted late. An assignment is considered late if it is not submitted at the time of collection.
Grading Scale:

A= 90-100
B= 80-89
C= 70-79
D= 60-69
E= 0-59

Academic Honesty

Your grade is a reflection of your skills, knowledge, and understanding of the course content. Therefore, *any work that is not your own will not be accepted or assessed.* Cheating or plagiarism of any kind will result in a 0% for the assignment. This includes homework, daily-in class assignments, writing assignments projects, quizzes, and tests. Assignments that required you to use additional resources (books, websites, photographs, etc.) must be properly cited to submit with your work.

Attendance

Attendance is important to student success. All work (in-class and homework) must be made up when a student misses school for any reason—including excused trips. Students going on excused trips must get the assignments BEFORE leaving on their trip, and it is due the day they return to school from their trip. It is the expectation of the teacher that she will be notified of the trip at least a **week** in advance. Students who are absent from class for ANY reason (field trip, vacation, sports, etc.) are responsible for talking with me to find out what they missed. If a student is in school, but misses history class (sport, appointment, etc.), the student MUST see me beforehand to submit that day’s homework and to find out what he/she will be missing in class. If the student doesn’t do this, the assignments given and collected on that day will be considered late.

The student will need to arrange to make-up missed assessments. (tests, quizzes, etc.)

Formative & Summative Assessments

*Formative Assessments:* Formative assessments are those that need to be completed to demonstrate progress and/or the need for additional practice or instruction. *Failure to complete formative assessments will be reflected in a student’s overall grade.*
**Summative Assessments:** Summative assessments are those that need to be completed to demonstrate mastery of the subject, content, or skill. *Failure to complete summative assessments will be reflected in a student’s overall grade.*

*The late policy (10% deduction) applies to ALL assessments/assignments, this includes both formative and summative work.*

**Grade Percentages**

*Marking period grades are calculated for this course using the following categories and percentages.*

**Homework:**
*Daily (in-class) Assignments/Activities: 40%
Tests/Quizzes/Exams: 40%

**Final Exam (20%)**

*This course also includes a final course examination, which is cumulative, encompassing all subjects and topics studied from throughout the course.*

I am looking forward to a great year! :)
