Grade 9 - Algebra 1 Course Syllabus

[course # 05031 & 05032]

Teacher Contact Information

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Office Hours: By appointment: Monday, Wednesday, Friday 2:30-2:50pm
& Tuesday, Thursday 7:00-7:20 am

Course Description

During this class the student will have the opportunity to clarity the structure of the number system and to give added meaning to the study of relations, equation solving, and the solving of inequalities. This will all be blended with a deeper understanding of applications, connections, and critical thinking, which will help to prepare students for the three dimensional math and further critical thinking that geometry includes.

Students will learn to become even more independent learners with the continued depth of these concepts and applications. This will derive from the use of having and maintaining a notebook and being responsible for a variety of activities in which they direct the activity. Examples include but are not limited to projects or online journals and resources. Once the student is ready to move on to geometry, the student will be able to manage their own math abilities and critical thinking to be able to apply the knowledge they are taught during a class period.

Course Pre-Requisite(s)

Student has a grade of "C" or higher in 8th grade Pre-Algebra or Basic Algebra

Pre-requisites include doing numeric computations with fractions (sum, difference, product, or quotient) and converting to decimals or percents. Being able to work with percents and percent proportion. Being able to display/interpret data in graphs and tables. Be able to identify two-dimensional figures, find perimeter and area of rectangles, and find the area and circumference of circles.

Student Learning Objectives/Outcomes

The daily objectives are stated in each day's lessons provided to each student.

The objectives in class model the Student Learning Objective of Equations, which targets the following algebra standards from the State Standards: Ohio Academic Content Standards. The following standards are critical to the academic growth of the students as they are important to

equations, which is one of the main topics in an algebra 1 class.

A.CED – Create equations that describe numbers or relationships

A.CED.1 Create equations and inequalities in one variable and use them to solve problems

A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales

A.CED. 3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.

A.CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

A.REI - Reasoning with equations and inequalities

A.REI.1 Understand solving equations as a process of reasoning and explain the reasoning. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

A.REI.3 Solve equation and inequalities in one variable. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

A.REI.4B Solve quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a $\pm$ bi for real numbers a and b.

A.REI.5 Solve systems of equations. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

A.REI.6 Solve systems of linear equations exactly and approximately (ie. With graphs), focusing on pairs of linear equations in two variables.

A.REI.10 Represent and solve equations and inequalities graphically. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve(which could be a line).

A.SSE – Seeing structure in expressions

A.SSE.2 Use the structure of an expression to identify ways to rewrite it.

A.SSE.3a Write expressions in equivalent forms to solve problems. Choose and produce an equivalent form or an expression to reveal and explain properties of the quantity represented by the expression. Factor a quadratic expression to reveal the zeros of the function it defines.

N.Q - Quantities

N.Q.1 Reason quantitatively and use units to solve problems. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Required Textbooks and Materials

Class textbook: Algebra 1 by Glencoe 2012 Ohio Edition. Once enrolled in this class the students will have access to the online version of the text also.

- ✓ 1-1.5 inch binder for class notes
- ✓ At least 2 dividers for binder
- ✓ Pencils & erasers/ Pens
- ✓ A plan to access the internet – home, school, library (to access resources)
- ✓ Constructive attitude & Homework!!!

Classroom Materials

Students should bring the following to class with them each day:

- ✓ 1-1.5 inch binder for class notes
- ✓ At least 2 dividers for binder
- ✓ Pencils & erasers/ Pens
- ✓ Paper

Activities and Assignments

The following is a tentative guideline of the activities and assignments for each quarter. This is subject to change.

First Quarter

Chapter 0 Preparing for Algebra
Chapter 1 Expression, Equations, and Functions
Chapter 2 Linear Equations

Second Quarter

Chapter 3 Linear Functions
Chapter 4 Equations of Linear Functions
Chapter 5 Linear Inequalities

Third Quarter

Chapter 5 Linear Inequalities
Chapter 6 Systems of Linear Equations and Inequalities
Chapter 7 Exponents and Exponential Functions

Fourth Quarter

Chapter 7 Exponents and Exponential Functions
Chapter 8 Quadratic Expressions and Equations
Chapter 9 Quadratic Functions and Equations
Chapter 10 Radical Functions and Geometry

Assignments are weighted as follows:

75% for graded assignments & 25% for homework or in class work

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Academic Policies

Homework: Homework will be given daily, and will count as 25% of your grade. All assignments are due at the beginning of class or at the time of collection or it is a zero. Any late work will count for ½ credit, and must be turned in by Friday of the same week. (Thursday's homework will not be accepted late)

*Any assignment submitted to Mrs. Kaufman without a name will lose points.

Graded Assignments: Graded assignments will count for 75% of your grade. These assignments range from tests, quizzes, notebook checks (every quarter), and projects. All assignments are due at the beginning of class or at the time of collection or it is a zero. Any late work will not be accepted, unless otherwise stated.

Classroom Policies

All students' are expected to come to class prepared to learn. This includes class materials and an open mind to the topic at hand – even if one does not "like math." All students' will show respect, utilize manners, and be honest with his or her classmates and teacher. The hindering of a peers education is not accepted. When a positive atmosphere is obtained the ability to learn is elevated for all students.
