Course Syllabus
in
Algebra 1

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Course Description

This course covers the basics of algebra with an emphasis on mathematics seen in the real world. Sprinkled throughout are geometry, combinatorics and probability, as well as statistics in order to give foundations for the scope of mathematics needed in high school. Students will engage in reading mathematics, developing skills, and using technology, too.

Required Materials
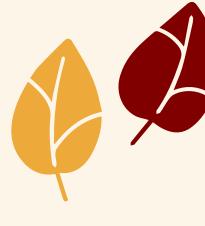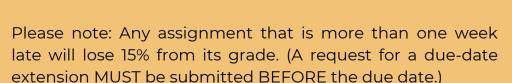
- UCSMP **Algebra** 3rd Ed., ISBN 978-0076213863
- Graphing Calculator
- Scanner or smart phone
- Computer (not tablet) with Web cam, sound card, and microphonne

Evaluation and Grading

Grading Scale

Homework: 20%
Quizzes: 20%
Tests: 40%
Projects:10%
Participation: 10%

Please note: Any assignment that is more than one week late will lose 15% from its grade. (A request for a due-date extension MUST be submitted BEFORE the due date.)

Assignments

Homework: Daily work includes exercises from the text and/or practice in the Delta Math app. These assignments may be attempted as many times as needed to achieve a desired score.

Quizzes: Each chapter module will include 1-2 quizzes. Although there is only one attempt allowed for quizzes, they are open-note assignments.

Tests: All are closed book and closed notes. These are taken through Canvas, however, handwritten work is still expected. At the end of each, there is a place to upload that work.

Projects: There will be two project assignments, one per semester, for the school year. Take special care to follow instructions for these assignments. Grading rubrics will be given with each so that expectations for the projects are clear.

Participation

Be prepared: Come to class ready to discuss the topics of the day, to ask questions about problems you do not understand, and to help others if they need it.
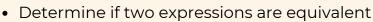
Be respectful: Have your webcam turned on and noise in the background turned off. Pay close attention to those speaking in class, including fellow students.

Be responsible: Your participation grade will reflect your contribution to answering questions, asking questions, and class tone.

Course Objectives

Expressions

- Evaluate numerical and algebraic expressions, including absolute value
- Determine if two expressions are equivalent
- Create expressions to model real-world situations
- Graph ordered pairs from expressions
- Identify and apply Associative, Commutative, Transitive, Opposite, Identity, Inverse, Zero, and Equality Properties to expressions

Proportions and Rates

- Use language of proportions and the Means-Extremes Property
- Convert units and use reciprocal rates
- Interpret the meaning of percentile

Linear Equations, Inequalities, and Systems

- Solve and check equations, inequalities, and systems of equations
- Graph equations, inequalities, and systems
- Find equivalent forms of formulas and equations
- Determine if linear systems have one solution, no solution, or infinite solutions
- Find and use slope and properties of slope to interpret real-world situations

Exponential Functions

- Evaluate functions and use the language of functions
- Graph, evaluate, and compare exponential growth or decay

Powers and Roots

- Simplify and evaluate products, quotients, and powers of powers
- Simplify fractional powers
- Identify properties of powers

Quadratic Equations and Functions

- Solve quadratic equations using various methods
- Identify and use the properties of solutions to quadratic equations
- Use quadratic equations to model real-world situations
- Graph and interpret the graphs of quadratic equations
- Apply the Factor Theorem when possible
- Find and use properties of quadratic functions

Polynomials

- Perform basic operations on polynomials
- Find GCF of polynomials
- Classify polynomials by degree and number of terms

Statistics and Probability

- Calculate range, mean absolute deviation, and spread of a distribution
- Create a scatterplot from a table or expression
- Use chi-square statistic to determine whether or not statistics support a conclusion
- Calculate relative frequencies and probabilities for a finite number of equally likely outcomes
- Understand the Multiplication Counting Principle
- Determine numbers of permutations

Logic

- Identify antecedent and consequent of an if-then statement
- Determine whether if-then and if-and-only-if statements in algebra, geometry, or real-world situations are true or false

Course Schedule

Chapter 1 Using Algebra to Describe
.... Ch1 Test

Chapter 2 Using Algebra to Explain
.... Ch2 Test

Chapter 3 Linear Equations & Inequalities
.... Cumulative Ch3 Test

Chapter 4 More Linear Equations & Inequalities
.... Ch4 Test

Chapter 5 Division and Proportion in Algebra
.... Ch5 Test

Chapter 6 Slopes & Lines
.... Cumulative Ch6 Test

Project #1 Linear Equations Are All around Us

Chapter 7 Using Algebra to Describe Patterns of Change
.... Ch7 Test

Chapter 8 Powers & Roots
.... Ch8 Test

Chapter 9 Quadratic Equations & Functions
.... Cumulative Ch9 Test

Project #2 Tic-Tac-Toe 3 in a Row
....

Chapter 10 Linear System
.... Ch10 Test

Chapter 11 Polynomials
.... Ch11 Test

Chapter 12 More Work with Quadratics
.... Final Exam