

DOBBS FERRY MIDDLE SCHOOL
Dobbs Ferry, New York 10522

COURSE OUTLINE

SUBJECT: Algebra I

GRADE: 8

This is a full-year course in Common Core Algebra I that meets every day. Topics include Relationships between Quantities, Linear Relationships, Exponential and Quadratic Relationships, Advanced Functions and Equations, and Data Analysis.

Anticipated Student Outcomes:

By the end of the school year, student will be able to work with:

- Number Systems
 - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers
 - Recognize the difference between rational and irrational numbers, as well as the subsets of rational numbers
 - Perform all scientific notation operations
 - Perform all polynomial operations
 - Compute accurately and make reasonable estimates
- Number Theory
 - Identify and apply the properties of real numbers (closure, commutative, associative, distributive, identity, inverse)
- Equations and Inequalities
 - Solve real-life and mathematical problems using numerical and algebraic expressions and equations
 - Analyze and solve linear equations and pairs of simultaneous linear equations.
 - Work with radicals and integer exponents
 - Define variables and evaluate expressions
 - Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation
 - Factor expressions
 - Solve and graph one-step and multi-step inequalities
 - Plot linear equations on the coordinate grid
 - Analyze and solve verbal problems whose solution requires solving a linear equation in one variable or linear inequality in one variable
- Proportional Reasoning
 - Analyze proportional relationships and use them to solve real-world and mathematical problems

- Understand the connections between proportional relationships, lines, and linear equations
- Use percentages while problem solving
- Geometry
 - Understand and apply the Pythagorean Theorem
 - Understand geometric angle relationships and applications
 - Understand and apply transformational geometry
- Patterns, Relations, and Functions
 - Recognize, use, and represent algebraic patterns, relations, and functions

Materials Required or Used

- Chromebook
- TI-84 Plus Graphing Calculator
- One Large 3-Ring Binder
- Pencil Case with 3 Holes (to be inserted in binder)
- Binder Dividers
- Loose Leaf Paper
- Graph Paper
- One Folder with 3 Holes (to be inserted in binder)
- One Ruler with 3 Holes (to be inserted in binder)
- 5 Highlighters (different colors)
- 2 Boxes of Pens (blue or black only)
- 2 Boxes of Mechanical Pencils

Criteria for Grading

Grades will be based on the following:

- Homework
- Tests/Quizzes

Outline developed by: Math Department

Date: Spring 2017