



ALGEBRA I PART 1

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

Algebra I Part 1 is the first semester course of a two-semester algebra sequence. The course is designed to help students understand the basic structure of algebra and acquire proficiency in applying algebraic concepts and skills in authentic situations. The course focuses on the development of problem-solving skills and the acquisition of mathematical vocabulary and symbols. The active engagement of students along with the use of manipulatives and technology, such as calculators, computers, and spreadsheets, will allow students to develop an understanding of the mathematical principles they are learning. Facility in the use of technology will not be a substitute for students' understanding of quantitative concepts and proficiency in computations. Topics include variables and expressions; solving equations and inequalities; linear functions; and graphing and writing linear equations. Students will engage in mathematical discourse with the teacher and other students. Students cannot receive credit for both Algebra I Part 1 and Algebra I Honors (MA3220).

PREREQUISITE

Mathematics 7 or 8

OPTION FOR NEXT COURSE

Algebra I Part 2

REQUIRED STUDENT TEXTBOOK

Glencoe Algebra 1 (Virginia Edition). John A. Carter, Ph.D., Gilbert J. Cuevas, Ph.D., Roger Day, Ph.D., and Carol Malloy, Ph.D. Glencoe McGraw-Hill, 2012

RECOMMENDED CALCULATOR

TI-83 Plus or TI-84 Plus

Virginia Beach Instructional Objectives

Algebra I Part 1 – MA3216

Algebra I Part 1 Lab – MA3217

VBO #	Objective
Variables and Expressions	
A1P1.EX.1.1	The student will be able to discriminate between subsets of the real number system.
A1P1.EX.1.2	The student will estimate and express the square roots and cube roots of whole numbers. (SOL A.3)
A1P1.EX.1.3	The student will write mathematical expressions for verbal expressions and verbal expressions for mathematical expressions and evaluate the expressions for given replacement values of the variables, including real-world applications. (SOL A.1)
A1P1.EQ.1.4	The student will identify and apply the field properties and axioms of equality valid for sets of real numbers and its subsets. (SOL A.4 b)
A1P1.EX.1.5	The student will perform operations with real numbers, using order of operations to evaluate numeric and variable expressions, including real-world applications, and will simplify algebraic expressions. (SOL A.1)
Solving Equations	
A1P1.EQ.2.1	The student will solve first-degree, multi-step equations including ratios, proportions, percent of change, and variables on both sides, and apply them to real-world problems. The student will justify operations using the properties of real numbers and confirm algebraic solutions using a graphing calculator. (SOL A.4 b, d, f)
A1P1.EQ.2.2	The student will manipulate formulas and literal equations for a specified variable and apply them to real-world problems. (SOL A.4 a)
Linear Functions	
A1P1.FN.3.1	The student will investigate and analyze linear functions and their characteristics both algebraically and graphically, including determining whether a relation is a function, identifying the domain and range, and finding the values of a function for elements in its domain. Students will make connections between and among multiple representation of functions, including concrete, verbal, numeric, graphic, and algebraic. (SOL A.7 a, b, e, f)
A1P1.EQ.3.2	The student will graph linear equations in two variables using the x- and y-intercepts. Solutions to linear equations will be identified using the zeros of a related function. (SOL A.7 c, d)
A1H.EQ.3.3	The student will determine the slope of a line when given the equation of the line, the graph of the line, or two points on the line. Slope will be described as rate of change and will be positive, negative, zero, or undefined. (SOL A.6 a)
A1P1.FN.3.4	The student, given a real-world situation, will analyze a relation to determine whether a direct or inverse variation exists and represent direct and inverse variations algebraically and graphically. (SOL A.8)
A1P1.FN.3.5	The student will recognize patterns involving arithmetic sequences and write equations to generate arithmetic sequences, with applications to real-world situations.
Graphing and Writing Linear Equations	
A1P1.EQ.4.1	The student will graph linear equations in two variables, identify the slope and y-intercept of a linear graph, and use transformations of the parent function, $y = x$, to identify the graphs of transformed linear equations. (SOL A.6 a, A.7 c, d)
A1P1.EQ.4.2	The student will write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line. The student will apply writing equations of lines to real-world problems. (SOL A.6 b)
A1P1.EQ.4.3	The student will find the slope of lines to determine when two lines are parallel or perpendicular.

A1P1.ST.4.4	The student will collect and analyze data, determine the equation of a line of best fit in order to make predictions, and solve real-world problems, using mathematical models. (SOL A.11)
Solving Inequalities in One Variable	
A1P1.EQ.5.1	The student will solve first-degree, multi-step inequalities and apply them to real-world problems. The student will justify operations using the properties of real numbers and confirm algebraic solutions using a graphing calculator. Students will recognize the solution set both algebraically, using set builder notation, and graphically. (SOL A.5 a, b, c)
A1P1.EQ.5.2	The student will solve first-degree compound inequalities and apply them to real-world problems. The student will justify operations using the properties of real numbers and confirm algebraic solutions using a graphing calculator. Students will recognize the solution set algebraically, using set builder notation, and graphically.



MISSION STATEMENT

The Virginia Beach City Public Schools, in partnership with the entire community, will empower every student to become a life-long learner who is a responsible, productive and engaged citizen within the global community.

Dr. James G. Merrill, Superintendent

**DEPARTMENT OF CURRICULUM AND INSTRUCTION
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Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Curriculum and Instruction, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone (757) 263-1070 or (757) 263-1429; fax (757) 263-1424; TDD (757) 263-1240

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