



Algebra 1 QCC Correlation

| | Quality Core Curriculum Standards | Lesson Number | Lesson Title |
|---|---|-------------------|---|
| 1 | Solve problems throughout this course that involve: | | |
| | – selecting appropriate approaches and tools, | <i>Throughout</i> | |
| | – using estimating strategies to predict computational results, and | MPA-003 | Using Four-Step Plan for Problem Solving |
| | | MPA-004 | Using Rounding to Estimate |
| | | MPA-005 | Estimating Products and Quotients Using Patterns |
| | | MPA-007 | Solving Problems Using Logical Reasoning Skills |
| | | MPA-116 | Solving Real-Life Problems by Using Guess-and-Check and Working Backwards |
| | – judging reasonableness of results. | MPA-006 | Determining Reasonableness of Answers and Appropriate Method of Computation |
| 2 | Solves problems that link concepts to one another and to practical applications using tools such as scientific or graphing calculators, computers, and manipulatives. | HA1-291 | Factoring Quadratic Equations Using the Graphing Calculator |
| | | HA1-382 | Solving Linear Equations Using the Graphing Calculator |
| | | HA1-416 | Graphing Linear Inequalities with Two Variables Using the Graphing Calculator |
| | | HA1-536 | Solving Quadratic Equations Using the Graphing Calculator |
| | | HA1-806 | Solving Systems of Linear Equations Using the Graphing Calculator |
| | | HA1-892 | Data Analysis Using the Graphing Calculator |
| | | <i>Throughout</i> | |
| 3 | Communicates mathematical ideas by using language and symbolism: | | |
| | – reflects upon and clarifies thinking about mathematical ideas and relationships. | <i>Throughout</i> | |
| | – formulates mathematical definitions and expresses generalizations discovered throughout investigations. | <i>Throughout</i> | |
| | – expresses mathematical ideas both orally and in writing. | <i>Throughout</i> | |
| | – interprets written presentations of mathematics, and asks clarifying and extending questions related to mathematics about which they have read or heard. | <i>Throughout</i> | |
| 4 | Reviews the following algebraic topics: | | |
| | – expresses rational numbers in equivalent forms | HA1-485 | Writing Rational Numbers as Decimals or Fractions |
| | | MPA-029 | Converting Fractions and Decimals |
| | | MPA-032 | Converting Improper Fractions and Mixed Numbers |
| | | MPA-081 | Converting Fractions, Decimals, and Percents I |
| | | MPA-082 | Converting Fractions, Decimals, and Percents II |
| | – simplifies numerical and algebraic expressions | HA1-030 | Using Opposites and Absolute Values |
| | | HA1-035 | Adding Real Numbers Using a Number Line |
| | | HA1-040 | The Addition Rule for Real Numbers |
| | | HA1-045 | Subtracting Real Numbers |
| | | HA1-050 | Multiplying Real Numbers |

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|----|---|---------------|--|
| | | HA1-055 | Dividing Real Numbers |
| | | HA1-062 | Adding, Subtracting, Multiplying, and Dividing Real Numbers |
| | | HA1-075 | Simplifying Algebraic Expressions by Combining Like Terms |
| | | HA1-076 | Basic Distributive Property |
| | | HA1-080 | Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols |
| | | HA1-085 | Simplifying Expressions Using the Properties of Real Numbers |
| | | HA1-090 | Simplifying Expressions Using the Property of -1 |
| | | HA1-860 | Using the Laws of Exponents |
| | | HA1-861 | Simplifying Expressions with Negative and Zero Exponents |
| | – evaluates simple algebraic expressions and formulas | HA1-005 | Evaluating Algebraic Expressions |
| | | HA1-060 | Evaluating Expressions Using the Order of Operations |
| | | HA1-065 | Evaluating Expressions Containing Exponents |
| | | HA1-070 | Evaluating Formulas for Given Values of the Variables |
| | | HA1-135 | Evaluating Formulas |
| | – translates words into algebraic expressions and equations | HA1-095 | Translating Word Phrases into Algebraic Expressions |
| | | HA1-104 | Translating Word Statements into Equations |
| | | HA1-150 | Writing an Equation to Solve Word Problems |
| | | HA1-155 | Writing an Equation to Solve Consecutive Integer Problems |
| | | HA1-160 | Writing an Equation to Solve Distance, Rate, and Time Problems |
| | | HA1-165 | Using Equations to Solve Percent Problems |
| | – represents problem situations with algebraic expressions and equations | HA1-095 | Translating Word Phrases into Algebraic Expressions |
| | | HA1-104 | Translating Word Statements into Equations |
| | – identifies subsets of the real numbers, such as whole numbers, integers, rational, and irrational numbers | HA1-020 | Classifying Numbers into Subsets of Real Numbers |
| | | MPA-124 | Classifying Numbers in the Real Number System |
| | – graphs real numbers on a number line | HA1-015 | Graphing Real Numbers Using a Number Line |
| | – adds, subtracts, multiplies, and divides rational numbers, and determines their absolute value | HA1-030 | Using Opposites and Absolute Values |
| | | HA1-035 | Adding Real Numbers Using a Number Line |
| | | HA1-040 | The Addition Rule for Real Numbers |
| | | HA1-045 | Subtracting Real Numbers |
| | | HA1-050 | Multiplying Real Numbers |
| | | HA1-055 | Dividing Real Numbers |
| | | HA1-062 | Adding, Subtracting, Multiplying, and Dividing Real Numbers |
| 5 | Connects patterns to the concept of function and uses patterns, relations, and functions to solve problems. | HA1-439 | Using Function Notation |
| | | HA1-447 | Identifying Number Patterns |
| | | HA1-448 | Finding the n th Term of a Pattern |
| 6 | Distinguishes between relations and functions, and identifies the domain and range. | HA1-436 | Identifying Relations |
| | | HA1-437 | Identifying Relations as Functions |
| | | HA1-438 | Finding the Domain and Range of Functions |
| | | HA1-867 | Identifying Domain and Range of Relations Given Graphs, Tables, or Sets of Ordered Pairs |
| 7 | Identifies and applies properties of the real number system. | HA1-076 | Basic Distributive Property |
| | | HA1-085 | Simplifying Expressions Using the Properties of Real Numbers |
| | | HA1-090 | Simplifying Expressions Using the Property of -1 |
| 8* | Solves linear equations using a variety of methods such as manipulatives and technology. | HA1-115 | Using the Addition and Subtraction Properties for Equations |
| | | HA1-120 | Using the Multiplication and Division Properties for Equations |
| | | HA1-125 | Solving Equations Using More Than One Property |
| | | HA1-140 | Solving Equations by Combining Like Terms |
| | | HA1-145 | Solving Equations with Variables on Both Sides |

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|-----|---|---------------|--|
| | | HA1-382 | Solving Linear Equations Using the Graphing Calculator |
| 9 | Solves problems involving linear equations. | HA1-800 | Solving Equations |
| | | HA1-115 | Using the Addition and Subtraction Properties for Equations |
| | | HA1-120 | Using the Multiplication and Division Properties for Equations |
| | | HA1-125 | Solving Equations Using More Than One Property |
| | | HA1-140 | Solving Equations by Combining Like Terms |
| | | HA1-145 | Solving Equations with Variables on Both Sides |
| | | HA1-150 | Writing an Equation to Solve Word Problems |
| | | HA1-155 | Writing an Equation to Solve Consecutive Integer Problems |
| | | HA1-160 | Writing an Equation to Solve Distance, Rate, and Time Problems |
| | | HA1-165 | Using Equations to Solve Percent Problems |
| | | HA1-170 | Solving Percent of Change Problems |
| | | HA1-382 | Solving Linear Equations Using the Graphing Calculator |
| 10 | Identifies polynomial expressions and determines the degree, leading coefficients, constant, and number of terms of a polynomial | HA1-800 | Solving Equations |
| 11* | Adds, subtracts, and multiplies polynomials. | HA1-240 | Identifying the Degree of Polynomials and Simplifying by Combining Like Terms |
| | | HA1-245 | Adding and Subtracting Polynomials |
| | | HA1-255 | Multiplying Two Binomials Using the FOIL Method |
| | | HA1-260 | Squaring a Binomial and Finding the Product of a Sum and Difference |
| | | HA1-920 | Simplifying Algebraic Expressions Using the Distributive Property |
| 12* | Simplifies expressions containing integral exponents using the laws of exponents. | HA1-065 | Evaluating Expressions Containing Exponents |
| | | HA1-225 | Dividing Monomials and Simplifying Expressions Having an Exponent of Zero |
| | | HA1-230 | Raising a Monomial or Quotient of Monomials to a Power |
| | | HA1-860 | Using the Laws of Exponents |
| | | HA1-861 | Simplifying Expressions with Negative and Zero Exponents |
| 13 | Determines monomial factors of polynomials and divides a polynomial by a monomial. | HA1-225 | Dividing Monomials and Simplifying Expressions Having an Exponent of Zero |
| | | HA1-270 | Factoring the Greatest Common Monomial Factor from a Polynomial |
| | | HA1-355 | Dividing Polynomials |
| 14* | Factors simple quadratic expressions such as trinomials, perfect trinomials, difference of two squares, and polynomials with common factors. | HA1-275 | Factoring the Difference Between Two Squares and Perfect Trinomial Squares |
| | | HA1-276 | Factoring Sums and Differences of Cubes |
| | | HA1-280 | Factoring $x^2 + bx + c$ When c is Greater Than Zero |
| | | HA1-285 | Factoring $x^2 + bx + c$ When c is Less Than Zero |
| | | HA1-291 | Factoring Quadratic Equations Using the Graphing Calculator |
| | | HA1-295 | Factoring by Removing a Common Factor and Grouping |
| | | HA1-300 | Factoring a Polynomial Completely |
| | | HA1-802 | Factoring |
| 15* | Solves quadratic equations using factoring. | HA1-305 | Solving Polynomial Equations by Factoring |
| | | HA1-310 | The Practical Use of Polynomial Equations |
| | | HA1-525 | Solving Quadratic Equations Involving Perfect Square Expressions |
| | | HA1-536 | Solving Quadratic Equations Using the Graphing Calculator |
| 16 | Graphs points (ordered pairs of numbers) in the coordinate plane and identifies the coordinates of given points in the plane. | HA1-370 | Graphing Ordered Pairs on a Coordinate Plane |
| 17 | Defines slope as rate of change and calculates the slope given the change of the two variables. | HA1-385 | Finding the Slope of a Line from its Graph or from the Coordinates of Two Points |
| 18 | Interprets and makes predictions from data displayed in line graphs or scatter plots, by examining patterns and recognizing algebraic concepts such as rate of change (slope), intercepts, range, and domain. | HA1-877 | Drawing Inferences and Making Predictions from Tables and Graphs |
| | | HA1-955 | Analyzing Linear Functions |
| | | HA1-960 | Real-World Applications of Linear Functions |

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|-----|---|---------------|--|
| 19 | Identifies the slope and intercepts of a linear equation. | HA1-965 | Determining the Best-Fitting Line |
| | | HA1-380 | Graphing Linear Equations |
| | | HA1-385 | Finding the Slope of a Line from its Graph or from the Coordinates of Two Points |
| 20* | Sketches the graph of a linear equation in two variables given appropriate information, such as slope, x-intercept, y-intercept, two points, and the linear equation. | HA1-380 | Graphing Linear Equations |
| | | HA1-395 | Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel |
| | | HA1-398 | Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point |
| | | HA1-401 | How Variations of "m" and "b" Affect the Graph of $y = mx + b$ |
| | | HA1-866 | Drawing a Line Using Slope-Intercept Form and Determining if Two Lines are Parallel or Perpendicular |
| 21 | Graphs linear equations in two variables and identifies graphs of lines, including special cases such as vertical, horizontal, parallel, and perpendicular lines. | HA1-380 | Graphing Linear Equations |
| | | HA1-395 | Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel |
| | | HA1-398 | Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point |
| | | HA1-401 | How Variations of "m" and "b" Affect the Graph of $y = mx + b$ |
| | | HA1-866 | Drawing a Line Using Slope-Intercept Form and Determining if Two Lines are Parallel or Perpendicular |
| 22* | Writes the equation of a line given appropriate information such as slope, x-intercept, y-intercept, two points, and the graph. | HA1-385 | Finding the Slope of a Line from its Graph or from the Coordinates of Two Points |
| | | HA1-405 | Determining an Equation of a Line Given the Slope and Coordinates of One Point |
| 23* | Solves a system of linear equations by a variety of methods including graphing. | HA1-410 | Determining an Equation of a Line Given the Coordinates of Two Points |
| | | HA1-455 | Solving Systems of Linear Equations by Graphing |
| | | HA1-460 | Solving Systems of Linear Equations by the Substitution Method |
| | | HA1-465 | Solving Systems of Linear Equations by the Addition/Subtraction Method |
| | | HA1-470 | Solving Systems of Linear Equations by the Multiply/Add/Subtract Method |
| | | HA1-475 | Graphing the Solution Set of a System of Linear Inequalities |
| | | HA1-803 | Solving Systems of Equations |
| | | HA1-804 | Solving Systems of Equations by Graphing |
| | | HA1-806 | Solving Systems of Linear Equations Using the Graphing Calculator |
| | | HA1-870 | Solving Problems with Systems of Linear Equations and Inequalities |
| 24 | Solves problems using systems of linear equations. | HA1-455 | Solving Systems of Linear Equations by Graphing |
| | | HA1-460 | Solving Systems of Linear Equations by the Substitution Method |
| | | HA1-465 | Solving Systems of Linear Equations by the Addition/Subtraction Method |
| | | HA1-470 | Solving Systems of Linear Equations by the Multiply/Add/Subtract Method |
| | | HA1-475 | Graphing the Solution Set of a System of Linear Inequalities |
| | | HA1-806 | Solving Systems of Linear Equations Using the Graphing Calculator |
| | | HA1-870 | Solving Problems with Systems of Linear Equations and Inequalities |
| 25 | Solves simple and compound inequalities in one variable and graphs the solution set on the number line. | HA1-180 | Graphing Equations and Inequalities on the Number Line |
| | | HA1-185 | Solving Inequalities Using the Addition and Subtraction Properties |
| | | HA1-190 | Solving Inequalities Using the Multiplication and Division Properties |
| | | HA1-801 | Solving Inequalities |
| | | HA1-195 | Solving Inequalities Using More Than One Property |
| | | HA1-200 | Combined Inequalities |
| | | HA1-205 | Solving Combined Inequalities |
| | | HA1-415 | Graphing Linear Inequalities with Two Variables |
| 26 | Solves problems involving linear inequalities and graphs the solution on a coordinate plane. | HA1-416 | Graphing Linear Inequalities with Two Variables Using the Graphing Calculator |
| 27 | Simplifies simple algebraic fractions. | HA1-350 | Simplifying Complex Fractions |
| 28 | Solves simple rational equations. | HA1-365 | Solving Rational Equations |

| | Quality Core Curriculum Standards | Lesson Number | Lesson Title |
|-----|--|---------------|--|
| 29 | Solves problems involving direct and inverse variation. | HA1-450 | Solving Problems Involving Direct Variation |
| | | HA1-453 | Solving Problems Involving Inverse Variation |
| 30 | Solves problems involving ratios, proportions, and percents. | HA1-858 | Finding Inverse Relations and Determining if They are Functions |
| | | HA1-165 | Using Equations to Solve Percent Problems |
| | | HA1-170 | Solving Percent of Change Problems |
| | | HA1-360 | Expressing Ratios in Simplest Form and Solving Equations Involving Proportions |
| 31 | Finds the square roots of rational numbers and decimal approximations of irrational numbers, by simplifying radicals and by using a calculator. | HA1-480 | Finding the Square Roots of Rational Numbers |
| | | HA1-485 | Writing Rational Numbers as Decimals or Fractions |
| | | HA1-490 | Simplifying Square Roots |
| | | HA1-871 | Simplifying Radical Expressions |
| 32* | Multiplies, divides, adds, and subtracts radicals with index of two. | HA1-495 | Simplifying Sums and Differences of Radicals |
| | | HA1-500 | Simplifying Products of Radicals |
| | | HA1-505 | Simplifying Quotients of Radicals |
| | | HA1-872 | Simplifying Sums and Differences of Radicals |
| | | HA1-873 | Simplifying Products of Radicals |
| 33 | Applies the Pythagorean Theorem and its converse in problem-solving situations. | HA1-515 | Using the Pythagorean Theorem |
| 34 | Solves simple radical equations and solves problems involving simple radical equations. | HA1-516 | Applications of the Pythagorean Theorem |
| | | HA1-510 | Solving Radical Equations |
| | | HA1-515 | Using the Pythagorean Theorem |
| | | HA1-516 | Applications of the Pythagorean Theorem |
| | | HA1-520 | Finding the Distance Between Two Points on a Coordinate Plane |
| 35* | Summarizes data in various ways, including mean, median, mode, and range. | HA1-540 | Finding the Mean, Median, and Mode from Data and Frequency Distribution Tables |
| | | HA1-541 | Analyzing Data Using the Measures of Central Tendency and the Range |
| 36 | Identifies possible outcomes of simple experiments and predicts or describes the probability of a given event expressed as a rational number from 0 through 1. | HA1-879 | Applying Counting Techniques to Permutations and Combinations |
| | | MPA-089 | Using Tree Diagrams |
| | | MPA-091 | Finding the Number of Combinations of a Set of Objects |
| | | MPA-090 | Finding the Probability of Simple Real-Life Events |
| 37 | Conducts and interprets a compound probability experiment. | HA1-560 | Determining Probability of an Event and Complementary Event from a Random Experiment |
| | | MPA-113 | Finding the Probability of Compound Events Through Experimentation |

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

Note: Standards were taken from the Georgia QCC Standards document and will be updated in 2008 to reflect the Georgia Performance Standards for 9th-12th Grade as adopted by the Georgia State Board of Education in 2005.