



Algebra I Correlation to Mathematics Framework

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
NUMBER SENSE AND OPERATIONS			
AI.N.1	Identify and use the properties of operations on real numbers, including the associative, commutative, and distributive properties; the existence of the identity and inverse elements for addition and multiplication; the existence of n th roots of positive real numbers for any positive integer n ; the inverse relationship between taking the n th root of and the n th power of a positive real number; and the density of the set of rational numbers in the set of real numbers. (10.N.1)	HA1-003	Order of Operations
		HA1-020	Classifying Numbers into Subsets of Real Numbers
		HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-130	Identifying Postulates, Theorems, and Properties
		HA1-480	Finding the Square Roots of Rational Numbers
		HA1-860	Using the Laws of Exponents
AI.N.2	Simplify numerical expressions, including those involving positive integer exponents or the absolute value, e.g., $3(24 - 1) = 45$, $4 3 - 5 + 6 = 14$; apply such simplifications in the solution of problems. (10.N.2)	HA1-060	Evaluating Expressions Using the Order of Operations
		HA1-076	Basic Distributive Property
		HA1-030	Using Opposites and Absolute Values
AI.N.3	Find the approximate value for solutions to problems involving square roots and cube roots without the use of a calculator. (10.N.3)	HA1-480	Finding the Square Roots of Rational Numbers
		HA1-492	Simplifying Square and Cube Roots
AI.N.4	Use estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers. (10.N.4)	Throughout	
PATTERNS, RELATIONS, AND ALGEBRA STRAND			
AI.P.1	Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative, recursive (e.g., Fibonacci Numbers), linear, quadratic, and exponential functional relationships. (10.P.1)	HA1-447	Identifying Number Patterns
		HA1-448	Finding the n th Term of a Pattern
AI.P.2	Use properties of the real number system to judge the validity of equations and inequalities, to prove or disprove statements, and to justify every step in a sequential argument.	HGM-027	Identifying Counterexamples and Using Proof by Contradiction
		HGM-035	Using Deductive Reasoning: Algebraic Proof
		HA1-449	Applying Inductive and Deductive Reasoning
AI.P.3	Demonstrate an understanding of relations and functions. Identify the domain, range, dependent, and independent variables of functions.	HA1-436	Identifying Relations
		HA1-437	Identifying Relations as Functions
		HA1-438	Finding the Domain and Range of Functions
		HA1-439	Using Function Notation
AI.P.4	Translate between different representations of functions and relations: graphs, equations, point sets, and tabular.	HA1-402	Translating Among Multiple Representations of Functions

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		HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-442	Interpreting Graphs of Functions in Real-Life Situations
AI.P.5	Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line. Find a linear equation describing a line from a graph or a geometric description of the line, e.g., by using the "point-slope" or "slope y-intercept" formulas. Explain the significance of a positive, negative, zero, or undefined slope. (10.P.2)	HA1-380	Graphing Linear Equations
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		HA1-395	
		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 $y = mx + b$
		HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
AI.P.6	Find linear equations that represent lines either perpendicular or parallel to a given line and through a point, e.g., by using the "point-slope" form of the equation. (10.G.8)	HA1-395	Finding the Equation of a Line Parallel or Perpendicular to a Given Line
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
AI.P.7	Add, subtract, and multiply polynomials. Divide polynomials by monomials. (10.P.3)	HA1-220	Identifying and Multiplying Monomials
		HA1-225	Dividing Monomials and Simplifying Expressions Having an Exponent of Zero
		HA1-230	Raising a Monomial or Quotient of Monomials to a Power
		HA1-240	Identifying the Degree of Polynomials and Simplifying by Combining Like Terms
		HA1-245	Adding and Subtracting Polynomials
		HA1-920	Simplifying Algebraic Expressions Using the Distributive Property
		HA1-355	Dividing Polynomials
		HA1-255	Multiplying Two Binomials Using the FOIL Method
		HA1-260	Squaring a Binomial and Finding the Product of a Sum and Difference
AI.P.8	Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms, factoring (e.g., $a^2 - b^2 = (a + b)(a - b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^4 + 10x^3 - 5x^2 = 5x^2(x^2 + 2x - 1)$), identifying and canceling common factors in rational expressions, and applying the properties of positive integer exponents. (10.P.4)	HA1-270	Factoring the Greatest Common Monomial Factor from a Polynomial
		HA1-271	Factoring Trinomials and the Differences of Squares Using Algebra Tiles
		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
		HA1-290	Factoring $ax^2 + bx + c$
		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
		HA1-315	Defining Rational Expressions and Determining the Restricted Values
		HA1-320	Simplifying Rational Expressions
		HA1-325	Multiplying Rational Expressions
		HA1-330	Dividing Rational Expressions
		HA1-335	Finding the LCD of Rational Expressions and Changing Fractions to Equivalent Fractions
		HA1-340	Adding and Subtracting Rational Expressions
		HA1-345	Adding and Subtracting Polynomials and Rational Expressions
AI.P.9	Find solutions to quadratic equations (with real roots) by factoring, completing the square, or using the quadratic formula. Demonstrate an understanding of the equivalence of the methods. (10.P.5)	HA1-305	Solving Polynomial Equations by Factoring

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		HA1-310	The Practical Use of Polynomial Equations
		HA1-525	Solving Quadratic Equations Involving Perfect Square Expressions
		HA1-530	Solving Quadratic Equations by Completing the Square
		HA1-535	Developing the Quadratic Formula and Using it to Solve Equations
		HA1-536	Solving Quadratic Equations Using the Graphing Calculator
AI.P.10	Solve equations and inequalities including those involving absolute value of linear expressions (e.g., $ x - 2 > 5$) and apply to the solution of problems. (10.P.6)	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
		HA1-382	Solving Linear Equations Using the Graphing Calculator
		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
		HA1-135	Evaluating Formulas
		HA1-175	Solving Literal Equations
		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
		HA1-195	Solving Inequalities Using More Than One Property
		HA1-200	Combined Inequalities
		HA1-205	Solving Combined Inequalities
		HA1-210	Solving Equations Involving Absolute Value
		HA1-215	Solving Absolute Value Inequalities
AI.P.11	Solve everyday problems that can be modeled using linear, reciprocal, quadratic, or exponential functions. Apply appropriate tabular, graphical, or symbolic methods to the solution. Include compound interest, and direct and inverse variation problems. Use technology when appropriate. (10.P.7)	HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-442	Interpreting Graphs of Functions in Real-Life Situations
		HA1-450	Solving Problems Involving Direct Variation
		HA1-453	Solving Problems Involving Inverse Variation
		HA1-955	Analyzing Linear Functions
		HA1-960	Real-World Applications of Linear Functions
		HA1-965	Determining the Best-Fitting Line
		HA1-887	Applications of Absolute Value, Step, and Constant Functions
		HA1-935	Analyzing Graphs of Quadratic Functions
		HA1-940	Applications of Quadratic Equations
		HA1-945	Real-World Applications of Quadratic Functions
		HA1-855	Solving Exponential Equations
AI.P.12	Solve everyday problems that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution. Use technology when appropriate. Include mixture, rate, and work problems. (10.P.8)	HA1-870	Solving Problems with Systems of Linear Equations and Inequalities
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-362	Solving Work Problems
		New lesson in development	HA1-472 Mixture Problems

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DATA ANALYSIS, STATISTICS, AND PROBABILITY STRAND			
AI.D.1	Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data. (10.D.1)	HA1-545	Making a Frequency Distribution Table
		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
		HA1-965	Determining the Best-Fitting Line
		HA1-892	Data Analysis Using the Graphing Calculator
AI.D.2	Approximate a line of best fit (trend line) given a set of data (e.g., scatterplot). Use technology when appropriate. (10.D.2)	HA1-965	Determining the Best-Fitting Line
AI.D.3	Describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data. (10.D.3)	MPA-840	Interpreting Data

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

HGM-Geometry

Note: Standards were taken from the Massachusetts Mathematics Curriculum Framework for Grade 6 for Massachusetts Department of Education - PreK - 6 standards document adopted by the Massachusetts State Board of Education in 2000.