

Hopkins Middle School
8th Grade Power Standards - Algebra I

	HSKE	Verbal Description	Chapter
1	A1.1.1	Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.	1
2	L1.1.3	Explain how the properties of associativity, commutativity, and distributivity, as well as identity and inverse elements, are used in arithmetic and algebraic calculations.	1
3	L1.1.1	Know the different properties that hold in different number systems and recognize that the applicable properties change in the transition from the positive integers to all integers, to the rational numbers, and to the real numbers.	2
4	L1.1.2	Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign.	2
5	L1.1.4	Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.	2
6	L1.1.5	Justify numerical relationships.	2
7	A.1.2.8	Solve an equation involving several variables (with numerical or letter coefficients) for a designated variable. Justify the steps in the solution.	3
8	A1.2.1	Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.	3
9	A2.4.2	Adapt the general symbolic form of a function to situation by using the information to replace arbitrary constants with numbers.	3
10	L2.1.1	Explain the meaning and uses of weighted averages.	3
11	A2.1.1	Determine whether a relationship (given in contextual, symbolic, tabular, or graphical form) is a function and identify its domain and range.	4
12	A2.1.2	Read, interpret, and use function notation and evaluate a function at a value in its domain.	4
13	A2.1.3	Represent functions in symbols, graphs, tables, diagrams, or words and translate among representations.	4
14	A2.3.2	Describe the tabular pattern associated with functions having a constant rate of change (linear); or variable rates of change.	4
15	L1.2.4	Organize and summarize a data set in a table, plot, chart, or spreadsheet; find patterns in a display of data; understand and critique data displays in the media.	4
16	A3.1.1	Write the symbolic forms of linear functions (standard, point-slope, and slope-intercept) given appropriate information and convert between forms.	5
17	A3.1.2	Graph lines (including those of the form $x = h$ and $y = k$) given appropriate information.	5
18	A3.1.3	Relate the coefficients in a linear function to the slope and x - and y - intercepts of its graph.	5
19	S2.1.2	Given a scatterplot, identify patterns, clusters, and outliers. Recognize no correlation, weak correlation, and strong correlation.	5
20	A2.1.7	Identify and interpret the key features of a function from its graph or its formula(s).	5,10,11
21	A1.2.3	Solve linear and quadratic equations and inequalities including systems of up to three linear equations with three unknowns. Justify steps in the solution, and apply the quadratic formula appropriately.	7,10
22	A1.1.2	Know the properties of exponents and roots and apply them in algebraic expressions.	8
23	L2.1.2	Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.	8
24	A1.1.3	Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.	9
25	A3.2.1	Write the symbolic form and sketch the graph of an exponential function given appropriate information.	10
26	A3.2.4	Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and how base affects the rate of growth or decay.	10
27	A3.3.1	Write the symbolic form and sketch the graph of a quadratic function given appropriate information.	10

28	A3.3.2	Identify the elements of a parabola (vertex, axis of symmetry, direction of opening) given its symbolic form or its graph, and relate these elements to the coefficient(s) of the symbolic form of the function.	10
29	A3.3.4	Relate the number of real solutions of a quadratic equation to the graph of the associated quadratic function.	10