FEDERAL WAY PUBLIC SCHOOLS

Standards-Based Education
Priority Standards

Algebra 1 Extension

Expressions Reporting Standard	
	7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
	7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
	7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.
	7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
	A.APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtract, and multiplication: add, subtract, and multiply polynomials.
	A.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients.
	A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.
	A.SSE.B.3.a Factor a quadratic expression to reveal the zeros of the function it defines.
	N.RN.A.1 Explain the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
	N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.
	N.RN.B.3 Explain why the sum or product of two rational numbers is rational: that the sum of a rational number and an irrational number is rational; and that the product of a nonzero rational number and an irrational number is irrational.
Equations and Inequalitites Reporting Standard	
	7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities.
	8.EE.C.7 Solve linear equations in one variable.
	A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.

	A.CED.A.2 Create equations in two or more variables to present relationships between quantities; graph equations on coordinate axes with labels and scales.
	A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
	A.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted a the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
	A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
	A.REI.B.4.b Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b.
Graphing and Systems Reporting Standard	
	8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
	8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx+b for a line intercepting the vertical axis at b.
	A.APR.B.3 Identify zeros of polynomials when suitable factorizations are variable and use the zeros to construct a rough graph of the function defined by the polynomial.
	A.REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
	A.REI.C.6 Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables.
	A.REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
	A.REI.D.12 Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables ad the intersection of the corresponding half-planes.
Interpreting Funcitons Reporting Standard	
	8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
	8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described.
	F.IF.A.1 Understand that a function form one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f(x)* denotes the output of *c*orresponding to the input *x*. The graph of *f* is the graph of the equation *y = f(x).*

	F.IF.A.2 Use function notation, evaluate functions for input in their domains, and interpret statements that use function notation in terms of a context.
	F.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
	F.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
	F.IF.C.7.a Graph linear and quadratic functions and show intercepts, maxima, and minima.
	F.IF.C.7.c Graph polynomial functions, identify zeros when suitable factorizations are available, and show end behavior.
	F.IF.C.7.e Graph exponential functions, showing intercepts and end behavior.
Building Funcitons Reporting Standard	
	8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically, in tables, or by verbal descriptions.
	8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
	F.BF.A.1 Write a function that describes a relationship between two quantities.
	F.BF.A.1.B Combine standard function types using arithmetic operations.
	F.BF.B.3 Identify the effect on the graph of replacing f(x) by f(x) + k, kf(x), f(kx), and f(x+k) for specific values of k (both positive and negative); find the value of k given the graphs.
	F.LE.A.1.c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
	F.LE.A.2 Construct linear and exponential functions, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
	F.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially exceeds a quantity increasing linearly, quadratic ally, or (more generally) as a polynomial function.