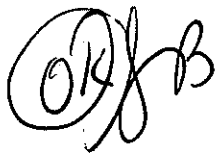
Grade 8 Mathematics
Common Assessment 1 & 2
Mastery Standards



Midterm (Common Assessment 1)

A.REI.A1 [M] Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. • Solving Equations by Adding or Subtracting • Solving Equations by Multiplying or Dividing • Solving Two-Step and Multi-Step Equations • Solving Equations with Variables on Both Sides

A.CED.A4 [M] Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R. • Solving for a Variable A.CED.A1 [M] Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. • Solving Absolute-Value Equations

A.REI.B3 [M] Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. • Graphing and Writing Inequalities • Solving Inequalities by Adding or Subtracting • Solving Inequalities by Multiplying or Dividing • Solving Two-Step and Multi-Step Inequalities • Solving Inequalities with Variables on Both Sides • Solving Compound Inequalities • Solving Absolute-Value Inequalities

F.IF.A3 [M] Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$. • Arithmetic Sequences

F.IF.B5[M] Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. • Graphing Functions

8.F.A1 [M] 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.A2 [M] Compare properties (e.g. rate of change, intercepts, domain and range) of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

8.F.A3 [M] 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. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line

A.CED.A2 [M] Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. • Direct Variation • Slope-Intercept Form • Point-Slope Form

A.REI.C5 [M] 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.C6 [M] Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. • Solving Systems by Graphing • Solving Systems by Substitution • Solving Systems by Elimination

A.REI.D12[M] 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 as the intersection of the corresponding half-planes. • Solving Linear Inequalities • Solving Systems of Linear Inequalities

Final: Common Assessment 2

A.SSE.A1a[M] Interpret parts of an expression, such as terms, factors, and coefficients. • Polynomials

A.REI.D11[M] Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. • Solving Quadratic Equations by Graphing

8.G.B6 [M] Explain a proof of the Pythagorean Theorem and its converse.

8.G.B7 [M] Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

8.G.B8 [M] Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

A.REI.B4a[M] Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)2 = q$ that has the same solutions. Derive the quadratic formula from this form. • Completing the Square

A.REI.B46[M] Solve quadratic equations by inspection (e.g., for x2 = 49), 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 $a \pm bi$ for real numbers a and b. • Solving Quadratic Equations by Factoring • Solving Quadratic Equations by Using Square Roots • The Quadratic Formula and the Discriminant

F.IF.A3 [M] Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$. • Geometric Sequences

S.I.D. A1[M] Represent data with plots on the real number line (dot plots, histograms, and box plots). • Organizing and Displaying Data • Frequency and Histograms

S.I.D.A2[M] Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. • Data Distributions