OVERALL CLAIM: Students can demonstrate progress toward college and career readiness in mathematics.	*POLICY ALD: The Level 1 student demonstrates minimal understanding of and ability to apply the mathematics knowledge and skills needed for success in college and careers, as specified in the Common Core State Standards.*	*POLICY ALD: The Level 2 student demonstrates partial understanding of and ability to apply the mathematics knowledge and skills needed for success in college and careers, as specified in the Common Core State Standards.*	*POLICY ALD: The Level 3 student demonstrates adequate understanding of and ability to apply the mathematics knowledge and skills needed for success in college and careers, as specified in the Common Core State Standards.*	*POLICY ALD: The Level 4 student demonstrates thorough understanding of and ability to apply the mathematics knowledge and skills needed for success in college and careers, as specified in the Common Core State Standards.*
CLAIM 1: Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.	*CONTENT ALD: The Level 1 student can minimally explain and in a minimal way apply mathematical concepts. The Level 1 student interprets and carries out mathematical procedures with minimal precision and fluency.*	*CONTENT ALD: The Level 2 student can partially explain and partially apply mathematical concepts. The Level 2 student interprets and carries out mathematical procedures with partial precision and fluency.*	*CONTENT ALD: The Level 3 student can adequately explain and adequately apply mathematical concepts. The Level 3 student interprets and carries out mathematical procedures with adequate precision and fluency.*	*CONTENT ALD: The Level 4 student can thoroughly explain and accurately apply mathematical concepts. The Level 4 student interprets and carries out mathematical procedures with high precision and fluency.*
Concepts and Procedures: Domain #1				
Expressions and Equations				
RANGE ALD **Target B:** Work with radicals and integer exponents. 8.EE.1-4	Level 1 students should be able to identify and calculate square roots of familiar perfect squares and calculate the square of integers. They should be able to translate between standard form and scientific notation.	Level 2 students should be able to identify and calculate the cube root of familiar perfect cubes and calculate the cube of integers. They should be able to use appropriate tools (e.g., calculator, pencil and paper) to translate large or small numbers from scientific to standard notation. They should be able to work with and apply the properties of integer exponents of degree 2 or less in order to produce or identify equivalent numerical expressions.	Level 3 students should be able to identify that the square root of 2 is irrational, calculate or approximate to an appropriate degree of precision the square or cube of a rational number, solve quadratic and cubic monomial equations, and represent the solution as a square or cube root, respectively. They should be able to work with and perform operations with scientific notation and work with and apply the properties of integer exponents in order to produce or identify equivalent numerical expressions.	Level 4 students should be able to use scientific notation and choose units of appropriate size for realistic measurements, solve binomial quadratic and cubic equations, and represent the solution as a square or cube root, respectively.
RANGE ALD **Target C:** Understand the connections between proportional relationships, lines, and linear equations. 8.EE.5-8	Level 1 students should be able to graph a proportional relationship on a coordinate plane.	Level 2 students should be able to compare two different proportional relationships represented in different ways. They should also be able to calculate the slope of a line and identify the *y*-intercept of a line.	Level 3 students should understand that slope is a unit rate of change in a proportional relationship and convert proportional relationships to linear equations in slope-intercept form while also understanding when and why the *y*-intercept is zero. They should also be able to use repeated reasoning to observe that they can use any right triangle to find the slope of a line.	Level 4 students should be able to use similar triangles to explain why the slope is the same between any two distinct points on a nonvertical line in a coordinate plane.
RANGE ALD **Target D:** Analyze and solve linear equations and pairs of simultaneous linear equations. 8.EE.7-8	Level 1 students should be able to solve linear equations in one variable with integer coefficients.	Level 2 students should be able to analyze and solve systems of linear equations graphically by understanding that the solution of a system of linear equations in two variables corresponds to the point of intersection on a plane. They should be able to solve and produce examples of linear equations in one variable with rational coefficients with one solution, infinitely many solutions, or no solution.	Level 3 students should be able to classify systems of linear equations as intersecting, collinear, or parallel; solve linear systems algebraically and estimate solutions using a variety of approaches; and show that a particular linear equation has one solution, no solution, or infinitely many solutions by successively transforming the given equation into simpler forms until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). They should be able to solve and produce examples of linear equations in one variable, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Level 4 students should be able to analyze and solve problems leading to two linear equations in two variables in multiple representations.

THRESHOLD ALD **Expressions and Equations Targets B, C, and D**		The student who just enters Level 2 should be able to: • Find the cube of one-digit numbers and the cube root of perfect cubes (less than 1,000). • Use appropriate tools (e.g., calculator, pencil and paper) to translate large numbers from scientific to standard notation. • Identify the *y*-intercept and calculate the slope of a line from an equation or graph. • Graph a system of linear equations and identify the solution as the point of intersection.	The student who just enters Level 3 should be able to: • Solve simple quadratic monomial equations and represent the solution as a square root. • Work with and perform operations with scientific notation of large numbers. • Identify unit rate of change in linear relationships (i.e., slope is the rate of change). • Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms and equations with infinitely many solutions or no solution. • Solve a system of linear equations with integer coefficients using an algebraic strategy.	The student who just enters Level 4 should be able to: • Write a system of two linear equations with two variables to represent a context.
Functions				
RANGE ALD **Target E:** Define, evaluate, and compare functions.	Level 1 students should be able to identify whether or not a relationship that is represented graphically, in a table, or algebraically is a function. They should be able to compare the properties of two linear functions represented in the same way (graphically or in a table).	Level 2 students should be able to produce input and output pairs for a given function and identify whether an input/output pair satisfies a function. They should be able to compare properties of two functions represented in the same way (algebraic, graphic, tabular, or verbal). They should be able to classify functions as linear or nonlinear on the basis of their graph.	Level 3 students should be able to classify functions as linear or nonlinear in different forms (e.g., graphical, algebraic, verbal description, and/or tabular) and should know linear equations of the form $y = mx + b$ are functions. They should also be able to define a function as a rule that assigns to each input exactly one output. They should be able to compare properties of two functions represented in different ways (algebraic, graphic, tabular, or verbal).	Level 4 students should be able to give examples of functions that are not linear and be able to compare properties of two nonlinear functions represented in different ways (algebraic, graphic, tabular, or verbal).
RANGE ALD **Target F:** Use functions to model relationships between quantities. 8.F.1-3	Level 1 students should be able to identify a function that models a linear relationship between two quantities.	Level 2 students should be able to construct a graphical or tabular model to represent a linear relationship between two quantities and should be able to find the rate of change of a linear relationship displayed in a graph or table. They should be able to analyze a graph of a linear function to qualitatively describe it.	Level 3 students should be able to construct a function to represent a linear relationship between two quantities and a graph to represent verbally described qualitative features and determine the rate of change and initial value of a function from a graph, a verbal description of a relationship, or from two sets of *xy*-values given as coordinate pairs or displayed in a table. They should be able to analyze a graph of a linear or nonlinear function to qualitatively describe it.	Level 4 students should be able to interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.
THRESHOLD ALD **Functions Targets E and F** 8.F.4-5		The student who just enters Level 2 should be able to: • Identify whether an input/output pair satisfies a function. • Compare properties of two linear functions represented in the same way (algebraically, graphically, or in a table). • Construct a table to represent a linear relationship between two quantities. • Qualitatively describe a graph of a linear function.	The student who just enters Level 3 should be able to: • Classify functions as linear or nonlinear on the basis of the algebraic representation. • Determine the rate of change and the initial value of a function. • Know linear equations of the form $y = mx + b$ are functions. • Compare properties of two linear functions represented in different ways (algebraically, graphically, or in a table).	The student who just enters Level 4 should be able to: • Interpret the rate of change and initial value of a linear function in terms of its graph.

Geometry				
RANGE ALD **Target G:** Understand congruence and similarity using physical models, transparencies, or geometry software. 8.G.1-5	Level 1 students should be able to identify reflections, rotations, and translations and the result of these rigid motions on figures.	Level 2 students should be able to construct reflections and translations of figures in a coordinate plane and identify dilations and the results of dilations on figures.	Level 3 students should be able to understand and describe the impact of a transformation on a figure and its component parts with or without coordinates. They should be able to use or describe a sequence of transformations to determine or exhibit the congruence of two figures. They should also be able to construct rotations and dilations of figures in a coordinate plane.	Level 4 students should be able to describe a sequence that exhibits the similarity between two shapes and understand that the angle measures are unchanged.
RANGE ALD **Target H:** Understand and apply the Pythagorean theorem. 8.G.6-8	Level 1 students should be able to identify the hypotenuse and the legs of a right triangle given the side lengths or an image of a right triangle.	Level 2 students should be able to apply the Pythagorean theorem to determine whether or not a given triangle is a right triangle, given its side lengths. They should be able to find the distance between two points on a horizontal or vertical line in a two-dimensional coordinate system.	Level 3 students should be able to apply the Pythagorean theorem to determine the unknown side lengths of right triangles and to find the distance between two points in a coordinate system in two dimensions.	Level 4 students should be able to apply the Pythagorean theorem to find the distance between two points in a coordinate system in three dimensions.
THRESHOLD ALD **Geometry Targets G and H**		The student who just enters Level 2 should be able to: • Construct reflections across an axis and translations of figures in a coordinate plane.	The student who just enters Level 3 should be able to: • Predict the location of point P after a transformation. • Know that sequences of translations, rotations, and reflections on a figure always result in a congruent figure. • Construct rotations of figures in a coordinate plane.	The student who just enters Level 4 should be able to: • Describe the impact of two transformations, including a dilation, on a figure. • Identify or draw the relevant right triangle in a three-dimensional figure, given coordinates or a diagram.
Concepts and Procedures: Domain #2				
The Number System				
RANGE ALD **Target A:** Know that there are numbers that are not rational and approximate them by rational numbers.8.NS.1-2	Level 1 students should be able to identify square roots of numbers less than 100; identify pi as not rational; and understand that every rational number has a decimal expansion.	Level 2 students should be able to identify approximate locations of familiar irrational numbers on a number line; identify numbers as rational or irrational; and convert between fractions and terminating decimals.	Level 3 students should be able to use rational approximations of irrational numbers to locate them on a number line and to make numerical comparisons; convert between fractions and repeating decimals; and compare rational numbers.	Level 4 students should be able to approximate irrational numbers to a specified level of precision and should be able to use the approximations to solve problems or estimate the value of an expression.
THRESHOLD ALD **The Number System Target A**		The student who just enters Level 2 should be able to: • Identify numbers as rational or irrational.	The student who just enters Level 3 should be able to: • Convert from fractions to repeating decimals. • Use rational approximations of familiar irrational numbers to make numerical comparisons.	The student who just enters Level 4 should be able to: • Approximate irrational numbers between two integers to a specified level of precision.

Geometry				
RANGE ALD **Target I:** Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. 8.G.9	Level 1 students should be able to identify the key dimensions (i.e., radii, heights, circumferences, and diameters) of cones, cylinders, and spheres.	Level 2 students should be able to identify the appropriate formula for the volumes of a cone, a cylinder, and a sphere and should be able to connect the key dimensions to the appropriate locations in the formula.	Level 3 students should be able to calculate the volumes of cones, cylinders, and spheres in direct and familiar mathematical and real-world problems.	Level 4 students should be able to solve unfamiliar or multi-step problems involving volumes of cones, cylinders, and spheres.
THRESHOLD ALD **Geometry Target I**		The student who just enters Level 2 should be able to: • Identify the appropriate formula for the volume of a cylinder and connect the key dimensions to the appropriate location in the formula.	The student who just enters Level 3 should be able to: • Calculate the volume of a cylinder in direct and familiar mathematical and real-world problems.	The student who just enters Level 4 should be able to: • Solve unfamiliar or multi-step problems involving volumes of cylinders.
Statistics and Probability				
RANGE ALD **Target J:** Investigate patterns of association in bivariate data. 8.SP.1-4	Level 1 students should be able to investigate a scatter plot for clustering between two quantities and construct a scatter plot from given data. They should be able to construct a two-way frequency table of given categorical data.	Level 2 students should be able to investigate a scatter plot for positive, negative, and linear association and informally fit a line to data for a given scatter plot that suggests a linear association. They should be able to calculate frequencies from categorical data in a two-way frequency table.	Level 3 students should be able to investigate a scatter plot for patterns such as outliers and nonlinear association. They should be able to write an equation for the trend line or line of best fit for a given scatter plot with a linear association. They should also be able to interpret and use relative frequencies from a two-way table to describe possible association between two variables.	Level 4 students should be able to use scatter plots, trend lines, and associations between variables in two-way frequency tables to make predictions in real-world situations.
THRESHOLD ALD **Statistics and Probability Target J**		The student who just enters Level 2 should be able to: • Identify what a linear pattern looks like from a given scatter plot.	The student who just enters Level 3 should be able to: • Describe outliers for a given scatter plot.	The student who just enters Level 4 should be able to: • Use the trend line or line of best fit to make predictions in real-world situations.

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