Quarter 1

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	Math Framework
Review of 7th grade skills/concepts	Medium	3	8.NS.1 Give examples of rational and irrational numbers and explain the difference between them. Understand that every number has a decimal expansion; for rational numbers, show that the decimal expansion terminates or repeats, and convert a decimal expansion that repeats into a rational number.	*I can classify rational and irrational numbers. *I can show that every number has a decimal equivalent. *I can show that the decimal equivalent eventually repeats for rational numbers. *I can change every repeating decimal into a rational number.	8.NS.1	8.NS.1
Ch 1: variables, expressions, ordering numbers, order of operations	High	2	8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, plot them approximately on a number line, and estimate the value of expressions involving irrational numbers.	*I can estimate irrational numbers with rational approximations. *I can use estimate values to compare two or more irrational numbers. *I can plot irrational numbers on a number line using rational approximations. *I can estimate the value of expressions that use irrational numbers. *I can estimate the square root of non-perfect squares.	8.NS.2	8.NS.2
Ch 2: Two-step equations, multi-step equations using distributive property	Medium	3	8.NS.3 Given a numeric expression with common rational number bases and integer exponents, apply the properties of exponents to generate equivalent expressions.	*I can apply the product of powers property to simplify expressions with integer exponents. *I can apply the power of a product property to simplify expressions with integer exponents. *I can apply the power to a power rule to simplify expressions with integer exponents. *I can apply the quotient of powers to simplify expressions with integer exponents. *I can apply the negative exponent rule to simplify expressions with integer exponents. *I can apply the zero-exponent rule to simplify expressions with integer exponents. *I can use the properties of integer exponents to simplify expressions. *I can identify equivalent expressions. *I can generate equivalent expressions using the properties of exponents.	8.NS.3	8.NS.3
	High	3	8.C.1 Solve real-world problems with rational numbers by using multiple operations.	*I can solve real-world problems by adding, subtracting, multiplying, and dividing rational numbers.	8.C.1	8.C.1
	High	2	8.AF.1 Solve linear equations with rational number coefficients fluently, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	*I can solve linear equations and inequalities with one variable. *I can solve a linear equation and inequalities by using the distributive property and combining like terms. *I can write and solve equations and inequalities in one variable to represent real-world problems.	8.AF.1	8.AF.1

Quarter 2

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Ch 3 Multi-step equations	Medium	3	8.NS.3 Given a numeric expression with common rational number bases and integer exponents, apply the properties of exponents to generate equivalent expressions.	*I can apply the product of powers property to simplify expressions with integer exponents. *I can apply the power of a product property to simplify expressions with integer exponents. *I can apply the power to a power rule to simplify expressions with integer exponents. *I can apply the quotient of powers to simplify expressions with integer exponents. *I can apply the negative exponent rule to simplify expressions with integer exponents. *I can apply the zero-exponent rule to simplify expressions with integer exponents. *I can use the properties of integer exponents to simplify expressions. *I can identify equivalent expressions. *I can generate equivalent expressions using the properties of exponents.	8.NS.3	8.NS.3
Ch 4 Rules of exponents/scientific notation	High	3	8.C.1 Solve real-world problems with rational numbers by using multiple operations.	*I can solve real-world problems by adding, subtracting, multiplying, and dividing rational numbers.	8.C.1	8.C.1
Ch 5 Solving and graphing inequalities	Low	2	8.C.2 Solve real-world and other mathematical problems involving numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology, such as a scientific calculator, graphing calculator, or excel spreadsheet.	*I can write an estimation of a large quantity by expressing it as the product of a single-digit number and a positive power of ten. *I can write an estimation of a very small quantity by expressing it as the product of a single-digit number and a negative power of ten. *I can compare quantities written in scientific notation. *I can compute with two numbers expressed in scientific notation. *I can interpret scientific notation that has been generated by technology.	8.C.2	8.C.2
	High	2	8.AF.1 Solve linear equations with rational number coefficients fluently, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	*I can solve linear equations and inequalities with one variable. *I can solve a linear equation and inequalities by using the distributive property and combining like terms. *I can write and solve equations and inequalities in one variable to represent real-world problems.	8.AF.1	8.AF.1
	High	2	8.AF.2 Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by transforming a 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).	*I can simplify a linear equation to determine whether it has one solution, no solutions, or infinitely many solutions. *I can give examples of linear equations with one solution, no solutions, or infinitely many solutions.	8.AF.2	8.AF.2

Quarter 3

Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Ch. 6 Functions and Linear Equations	Medium	2	8.AF.3 Understand that a function assigns to each x-value (independent variable) exactly one y-value (dependent variable), and that the graph of a function is the set of ordered pairs (x,y).	*I can define a function as a rule, where for each input there is exactly one output. *I can identify the independent and dependent variables. *Given a graph or table, I can determine whether the relation is a function. *I can show the relationship between inputs and outputs of a function by graphing them as ordered pairs on a coordinate grid.	8.AF.3	8.AF.3
Ch. 7 Solving systems of equations	High	2	8.AF.4 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear, has a maximum or minimum value). Sketch a graph that exhibits the qualitative features of a function that has been verbally described.	*I can identify where a graph is increasing or decreasing. *I can classify a graph as linear or nonlinear. *I can locate maximum and minimum values on a graph, when present. *I can match the graph of a function to a given situation. *I can sketch a graph that exhibits the qualitative features of a function that has been described verbally.	8.AF.4	8.AF.4
Ch. 8 Pythagorean theorem/distance on the coordinate plane	High	2	8.AF.5 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. Describe similarities and differences between linear and nonlinear functions from tables, graphs, verbal descriptions, and equations.	*I can explain that an equation in the form of y = mx + b represents the graph of a linear relationship. *I can give examples of relationships and create a table of values that can be defined as non-linear. *I can compare and contrast linear and nonlinear functions from tables, graphs, equations, and verbal descriptions.	8.AF.5	8.AF.5
	High	3	8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	*I can write a linear equation given a table of values. *I can write a linear equation given a graph. *I can write a linear equation given a verbal description. *I can explain why the equation y = mx + b represents a linear function. *I can find the slope and y-intercept in a linear function. *Given an equation in slope-intercept form, I can interpret the slope and y-intercept in context.	8.AF.6	8.AF.6
	Medium	3	8.AF.7 Compare properties of two linear functions given in different forms, such as a table of values, equation, verbal description, and graph (e.g., compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed).	*I can compare the properties of two linear functions that are represented differently (as equations, tables, graphs, or verbal). *I can interpret and analyze distance-time graphs and equations.	8.AF.7	8.AF.7
	Medium	3	8.AF.8 Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.	*I can explain the solution to a system of two linear equations in two variables as the point of intersection of their graph. *I can describe the point of intersection between two lines as the point that satisfies both equations at the same time. *I can estimate the solution to a system of linear equations and assess the reasonableness of my approximation.	8.AF.8	8.AF.8

	High	2	8.GM.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and other mathematical problems in two dimensions.	*I can draw a diagram and use the Pythagorean Theorem to solve real world problems involving right triangles. *I can apply the Pythagorean Theorem to find an unknown side length of a right triangle.	8.GM.8	8.GM.8
	High	2	8.GM.9 Apply the Pythagorean Theorem to find the distance between two points in a coordinate plane.	*I can create a right triangle given two points on a coordinate grid. *I can apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	8.GM.9	8.GM.9
	Quarter 4					
Unit	Standard Item Range	Depth of Knowledge	Standards	I Can	Item Specs	
Ch 9: Transformations On the coordinate plane	Medium	2	8.GM.1 Identify, define and describe attributes of three-dimensional geometric objects (right rectangular prisms, cylinders, cones, spheres, and pyramids). Explore the effects of slicing these objects using appropriate technology and describe the two-dimensional figure that results.	*I can identify three-dimensional figures based on specific attributes. *I can define three-dimensional figures based on specific attributes. *I can describe three-dimensional figures based on specific attributes. *I can make predictions regarding the two-dimensional figure formed when slicing a three-dimensional solid.	8.GM.1	8.GM.1
Ch 10: Surface area/volume of 3 dimensional shapes	High	2	8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	*I can state and apply the formulas for the volumes of cones, spheres and pyramids. *I can state and apply the formula for surface area of a sphere. *I can solve real-world problems involving the volume of cones, spheres, and pyramids.	8.GM.2	8.GM.2
Ch 11: Simple probability/compound probability/fundamental counting principle	Medium	2	8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines.	*I can verify the properties of rotated, reflected or translated geometric figures by measuring and comparing lengths of segments and measures of angles. *I can prove that lines and line segments remain the same length following a rotation, reflection, or translation. *I can confirm that angles have the same measure following a rotation, reflection, or translation. *I can verify that parallel lines remain parallel following a rotation, reflection, or translation.	8.GM.3	8.GM.3
	Medium	2	8.GM.4 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations. Describe a sequence that exhibits the congruence between two given congruent figures.	*I can explain that a two-dimensional figure is congruent to another after performing a series of rotations, reflections and translations. *I can describe a sequence of transformations that shows the congruence between two figures.	8.GM.4	8.GM.4
	Medium	2	8.GM.5 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. Describe a sequence that exhibits the similarity between two given similar figures.	*I can explain how transformations can be used to prove that two figures are similar. *I can describe a sequence of transformations that either prove or disprove that two figures are similar. *I can describe attributes of similar figures.	8.GM.5	8.GM.5
	Medium	3	8.GM.6 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	*I can describe the changes to the size and shape of a figure after a dilation in the coordinate plane. *I can explore translations in the coordinate plane. *I can use coordinate notation to describe a translation. *I can use vector notation to describe a translation. *I can explore a reflection across the x-axis, y-axis or the lines y = x or y = -x in the coordinate plane. *I can explore a rotation about the origin in the coordinate plane.	8.GM.6	8.GM.6
	Medium	2	8.DSP.4 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Understand and use appropriate terminology to describe independent, dependent, complementary, and mutually exclusive events.	*I can find the sample space for a compound event. *I can find the probability of a compound event. *I can describe events as independent or dependent. *I can identify events as mutually exclusive. *I can identify the complement of an event.	8.DSP.4	8.DSP.4
	Medium	2	8.DSP.5 Represent sample spaces and find probabilities of compound events (independent and dependent) using methods, such as organized lists, tables, and tree diagrams.	*I can represent the sample space of independent and dependent events. *I can create a tree diagram to show the sample space of a compound event. *I can find the probability of a compound event using an organized list. *I can find the probability of a compound event using a table. *I can find the probability of a compound event using a tree diagram.	8.DSP.5	8.DSP.5
	Medium	2	8.DSP.6 For events with a large number of outcomes, understand the use of the multiplication counting principle. Develop the multiplication counting principle and apply it to situations with a large number of outcomes.	*I can apply the multiplication counting principle to situations with a large number of outcomes. *I can develop the multiplication counting principle through exploration.	8.DSP.6	8.DSP.6