

Grade 7 Mathematics Standards of Learning - 2023 Overview of Revisions

This overview includes a summary of the content embedded in five content strands.

Number and Number Sense: *There are multiple representations of numbers and relationships among numbers that provide meaning and structure and allow for sense-making.*

- Describe the concept of exponents for powers of ten and compare and order numbers greater than zero written in scientific notation
- Compare and order rational numbers
- Recognize and describe the relationship between square roots and perfect squares

Computation and Estimation: *Estimation and the operations of addition, subtraction, multiplication, and division, allow us to model, represent, and solve different types of problems with rational numbers.*

- Solve multistep contextual problems with rational numbers
- Solve problems involving proportional relationships

Measurement and Geometry: *Analyzing and describing geometric objects, the relationships and structures among them, or the space that they occupy can be used to classify, quantify, measure, or count one or more attributes.*

- Solve problems involving volume and surface area of rectangular prisms and right cylinders
- Solve problems and justify relationships of similarity using proportional reasoning
- Compare and contrast quadrilaterals based on their properties and determine unknown side lengths and angle measures
- Apply dilations of polygons in the coordinate plane

Probability and Statistics: *The world can be investigated through posing questions and collecting, representing, analyzing, and interpreting data to describe and predict events and real-world phenomena.*

- Use statistical investigation to determine experimental and theoretical probability
- Apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on histograms

Patterns, Functions, and Algebra: *Proportional relationships can be described, and generalizations can be made using patterns, relations, and functions. Algebraic Equations and Inequalities can be used to represent and solve real world problems.*

- Analyze proportional relationships between two quantities using verbal descriptions, tables, equations in $y = mx$ form, and graphs
- Simplify and generate equivalent numerical and algebraic expressions, and evaluate algebraic expressions given replacement values
- Create and solve two-step linear equations in one variable
- Create and solve one and two-step linear inequalities in one variable

Comparison of Grade 7 Mathematics *Standards of Learning* – 2016 to 2023

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Number and Number Sense * On the state assessment, items measuring this objective are assessed without the use of a calculator.	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Number and Number Sense (NS) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
7.1 The student will a) investigate and describe the concept of negative exponents for powers of ten; b) compare and order numbers greater than zero written in scientific notation;* ● Recognize powers of 10 with negative exponents by examining patterns. (a) ● Represent a power of 10 with a negative exponent in fraction and decimal form. (a) ● Convert between numbers greater than 0 written in scientific notation and decimals. (b) ● Compare and order no more than four numbers greater than 0 written in scientific notation. Ordering may be in ascending or descending order. (b)	7.NS.1 The student will investigate and describe the concept of exponents for powers of ten and compare and order numbers greater than zero written in scientific notation. a) Investigate and describe powers of 10 with negative exponents by examining patterns. b) Represent a power of 10 with a negative exponent in fraction and decimal form. c) Convert between numbers greater than 0 written in scientific notation and decimals.* d) Compare and order no more than four numbers greater than 0 written in scientific notation. Ordering may be in ascending or descending order.*
7.1 The student will c) compare and order rational numbers;* ● Compare and order no more than four rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions and mixed numbers may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place. Ordering may be in ascending or descending order. (c)	7.NS.2 The student will reason and use multiple strategies to compare and order rational numbers. a) Use multiple strategies (e.g., benchmarks, number line, equivalency) to compare (using symbols $<$, $>$, $=$) and order (a set of no more than four) rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals, and percents. Fractions and mixed numbers may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place. Ordering may be in ascending or

2016 Standards of Learning Essential Knowledge and Skills (EKS) Number and Number Sense * On the state assessment, items measuring this objective are assessed without the use of a calculator.	2023 Standards of Learning Knowledge and Skills (KS) Number and Number Sense (NS) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
	descending order. Justify solutions orally, in writing or with a model.*
7.1 The student will d) determine square roots of perfect squares;* and - Identify the perfect squares from 0 to 400. (d) - Determine the positive square root of a perfect square from 0 to 400. (d)	7.NS.3 The student will recognize and describe the relationship between square roots and perfect squares. a) Determine the positive square root of a perfect square from 0 to 400.* b) Describe the relationship between square roots and perfect squares.*
7.1 The student will e) identify and describe the absolute value of rational numbers. Demonstrate absolute value using a number line. (e)	[Included in Grade 6 and 7.PFA.2]

2016 Standards of Learning Essential Knowledge and Skills (EKS) Computation and Estimation	2023 Standards of Learning Knowledge and Skills (KS) Computation and Estimation (CE)
7.2 The student will solve practical problems involving operations with rational numbers. Solve practical problems involving addition, subtraction, multiplication, and division with rational numbers expressed as integers, fractions (proper or improper), mixed numbers, decimals,	7.CE.1 The student will estimate, solve, and justify solutions to multistep contextual problems involving operations with rational numbers. a) Estimate, solve, and justify solutions to contextual problems involving addition, subtraction, multiplication, and division with

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Computation and Estimation	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Computation and Estimation (CE)
and percents. Fractions may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place.	rational numbers expressed as integers, fractions (proper or improper), mixed numbers, and decimals. Fractions may be positive or negative. Decimals may be positive or negative and are limited to the thousandths place.
7.3 The student will solve single-step and multistep practical problems, using proportional reasoning. - Given a proportional relationship between two quantities, create and use a ratio table to determine missing values. - Write and solve a proportion that represents a proportional relationship between two quantities to find a missing value. - Apply proportional reasoning to convert units of measurement within and between the U.S. Customary System and the metric system when given the conversion factor. - Apply proportional reasoning to solve practical problems, including scale drawings. Scale factors shall have denominators no greater than 12 and decimals no less than tenths. [Moved to 7.MG.2] - Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% of a given whole number. - Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% in a practical situation such as tips, tax, and discounts. [Included in Grade 8] - Solve problems involving tips, tax, and discounts. Limit problems to only one percent computation per problem. [Included in Grade 8]	7.CE.2 The student will solve problems, including those in context, involving proportional relationships. - Given a proportional relationship between two quantities, create and use a ratio table to determine missing values. - Write and solve a proportion that represents a proportional relationship between two quantities to find a missing value, including problems in context. - Apply proportional reasoning to solve problems in context, including converting units of measurement, when given the conversion factor. - Estimate and determine the percentage of a given whole number, including but not limited to the use of benchmark percentages.

2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry	2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)
7.4 The student will a) describe and determine the volume and surface area of rectangular prisms and cylinders; and b) solve problems, including practical problems, involving the volume and surface area of rectangular prisms and cylinders. • Determine the surface area of rectangular prisms and cylinders using concrete objects, nets, diagrams, and formulas. (a) • Determine the volume of rectangular prisms and cylinders using concrete objects, diagrams, and formulas. (a) • Determine if a practical problem involving a rectangular prism or cylinder represents the application of volume or surface area. (b) • Solve practical problems that require determining the surface area of rectangular prisms and cylinders. (b) • Solve practical problems that require determining the volume of rectangular prisms and cylinders. (b).	7.MG.1 The student will investigate and determine the volume formula for right cylinders and the surface area formulas for rectangular prisms and right cylinders and apply the formulas in context. a) Develop the formulas for determining the volume of right cylinders and solve problems, including those in contextual situations, using concrete objects, diagrams, and formulas. b) Develop the formulas for determining the surface area of rectangular prisms and right cylinders and solve problems, including those in contextual situations, using concrete objects, two-dimensional diagrams, nets, and formulas. c) Determine if a problem in context, involving a rectangular prism or right cylinder, represents the application of volume or surface area. d) Describe how the volume of a rectangular prism is affected when one measured attribute is multiplied by a factor of $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, 2, 3, or 4, including those in contextual situations. [Moved from Grade 8] e) Describe how the surface area of a rectangular prism is affected when one measured attribute is multiplied by a factor of $\frac{1}{2}$ or 2, including those in contextual situations. [Moved from Grade 8] [Volume of rectangular prisms included in Grade 5]

2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry	2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)
7.5 The student will solve problems, including practical problems, involving the relationship between corresponding sides and corresponding angles of similar quadrilaterals and triangle • Identify corresponding sides and corresponding congruent angles of similar quadrilaterals and triangles. • Given two similar quadrilaterals or triangles, write similarity statements using symbols. • Write proportions to express the relationships between the lengths of corresponding sides of similar quadrilaterals and triangles. • Solve a proportion to determine a missing side length of similar quadrilaterals or triangles. • Given angle measures in a quadrilateral or triangle, determine unknown angle measures in a similar quadrilateral or triangle.	7.MG.2 The student will solve problems and justify relationships of similarity using proportional reasoning. - Identify corresponding congruent angles of similar quadrilaterals and triangles, through the use of geometric markings. - Identify corresponding sides of similar quadrilaterals and triangles. - Given two similar quadrilaterals or triangles, write similarity statements using symbols. - Write proportions to express the relationships between the lengths of corresponding sides of similar quadrilaterals and triangles. - Recognize and justify if two quadrilaterals or triangles are similar using the ratios of corresponding side lengths. - Solve a proportion to determine a missing side length of similar quadrilaterals or triangles. - Given angle measures in a quadrilateral or triangle, determine unknown angle measures in a similar quadrilateral or triangle. - Apply proportional reasoning to solve problems in context including scale drawings. Scale factors shall have denominators no greater than 12 and decimals no less than tenths
7.6 The student will compare and contrast quadrilaterals based on their properties; and determine unknown side lengths or angle measures of quadrilaterals.	7.MG.3 The student will compare and contrast quadrilaterals based on their properties and determine unknown side lengths and angle measures of quadrilaterals. - Compare and contrast properties of the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid: - parallel/perpendicular sides and diagonals;

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Measurement and Geometry	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Measurement and Geometry (MG)
● Compare and contrast properties of the following quadrilaterals: parallelogram, rectangle, square, rhombus, and trapezoid. (a) ● Sort and classify quadrilaterals, as parallelograms, rectangles, trapezoids, rhombi, and/or squares based on their properties. (a) ● Given a diagram, determine an unknown angle measure in a quadrilateral, using properties of quadrilaterals. (b) ● Given a diagram, determine an unknown side length in a quadrilateral using properties of quadrilaterals. (b)	ii) congruence of angle measures, side, and diagonal lengths; and iii) lines of symmetry b) Sort and classify quadrilaterals, as parallelograms, rectangles, trapezoids, rhombi, and/or squares based on their properties: i) parallel/perpendicular sides and diagonals; ii) congruence of angle measures, side, and diagonal lengths; and iii) lines of symmetry. c) Given a diagram, determine an unknown angle measure in a quadrilateral, using properties of quadrilaterals. d) Given a diagram, determine an unknown side length in a quadrilateral using properties of quadrilaterals.
7.7 The student will apply translations and reflections of right triangles or rectangles in the coordinate plane. ● Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or rectangle that has been translated either vertically, horizontally, or a combination of a vertical and horizontal translation. ● Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or a rectangle that has been reflected over the x- or y-axis. ● Given a preimage in the coordinate plane, identify the coordinates of the image of a right triangle or rectangle that has been translated and reflected over the x- or y-axis or reflected over the x- or y-axis and then translated.	[Included in Grade 8]

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Measurement and Geometry	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Measurement and Geometry (MG)
• Sketch the image of a right triangle or rectangle that has been translated vertically, horizontally, or a combination of both. • Sketch the image of a right triangle or rectangle that has been reflected over the x- or y-axis. • Sketch the image of a right triangle or rectangle that has been translated and reflected over the x- or y-axis or reflected over the x- or y-axis and then translated.	
[Moved from Grade 8]	7.MG.4 The student will apply dilations of polygons in the coordinate plane. a) Given a preimage in the coordinate plane, identify the coordinates of the image of a polygon that has been dilated. Scale factors are limited to $\frac{1}{4}$, $\frac{1}{2}$, 2, 3, or 4. The center of the dilation will be the origin. b) Sketch the image of a dilation of a polygon limited to a scale factor of $\frac{1}{4}$, $\frac{1}{2}$, 2, 3, or 4. The center of the dilation will be the origin. c) Identify and describe dilations in context including, but not limited to, scale drawings and graphic design.

2016 Standards of Learning Essential Knowledge and Skills (EKS) Probability and Statistics	2023 Standards of Learning Knowledge and Skills (KS) Probability and Statistics (PS)
7.8 The student will a) determine the theoretical and experimental probabilities of an event; and b) investigate and describe the difference between the experimental probability and theoretical probability of an event. • Determine the theoretical probability of an event. (a) • Determine the experimental probability of an event. (a) • Describe changes in the experimental probability as the number of trials increases. (b) • Investigate and describe the difference between the probability of an event found through experiment or simulation versus the theoretical probability of that same event. (b)	7.PS.1 The student will use statistical investigation to determine the probability of an event and investigate and describe the difference between the experimental and theoretical probability. a) Determine the theoretical probability of an event. b) Given the results of a statistical investigation, determine the experimental probability of an event. c) Describe changes in the experimental probability as the number of trials increases. d) Investigate and describe the difference between the probability of an event found through experiment or simulation versus the theoretical probability of that same event.
7.9 The student, given data in a practical situation, will a) represent data in a histogram; b) make observations and inferences about data represented in a histogram; and c) compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs. • Collect, organize, and represent data in a histogram. (a) • Make observations and inferences about data represented in a histogram. (b) • Compare data represented in histograms with the same data represented in line plots, circle graphs, and stem-and-leaf plots. (c)	7.PS.2 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on histograms. a) Formulate questions that require the collection or acquisition of data with a focus on histograms. b) Determine the data needed to answer a formulated question and collect the data (or acquire existing data) using various methods (e.g., observations, measurement, surveys, experiments). c) Determine how sample size and randomness will ensure that the data collected is a sample that is representative of a larger population. d) Organize and represent numerical data using histograms with and without the use of technology

2016 Standards of Learning Essential Knowledge and Skills (EKS) Probability and Statistics	2023 Standards of Learning Knowledge and Skills (KS) Probability and Statistics (PS)
	e) Investigate and explain how using different intervals could impact the representation of the data in a histogram. f) Compare data represented in histograms with the same data represented in other graphs, including but not limited to line plots (dot plots), circle graphs, and stem-and-leaf plots, and justify which graphical representation best represents the data. g) Analyze data represented in histograms by making observations and drawing conclusions. Determine how histograms reveal patterns in data that cannot be easily seen by looking at the corresponding given data set.

2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra	2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
7.10 The student will a) determine the slope, m, as a rate of change in a proportional relationship between two quantities and write an equation in the form $y = mx$ to represent the relationship; b) graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in $y = mx$ form, where m represents the slope as rate of change; e) make connections between and among representations of a proportional or additive relationship between two quantities using verbal descriptions, tables, equations, and graphs.	7.PFA.1 The student will investigate and analyze proportional relationships between two quantities using verbal descriptions, tables, equations in $y = mx$ form, and graphs, including problems in context. a) Determine the slope, m, as the rate of change in a proportional relationship between two quantities given a table of values, graph, or contextual situation and write an equation in the form $y = mx$ to represent the direct variation relationship. Slope may include positive or negative values (slope will be limited to positive values in a contextual situation).

2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra	2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
- Determine the slope, m, as rate of change in a proportional relationship between two quantities given a table of values or a verbal description, including those represented in a practical situation, and write an equation in the form $y = mx$ to represent the relationship. Slope will be limited to positive values. (a) - Graph a line representing a proportional relationship, between two quantities given an ordered pair on the line and the slope, m, as rate of change. Slope will be limited to positive values. (b) - Graph a line representing a proportional relationship between two quantities given the equation of the line in the form $y = mx$, where m represents the slope as rate of change. Slope will be limited to positive values. (b) - Make connections between and among representations of a proportional or additive relationship between two quantities using verbal descriptions, tables, equations, and graphs. (e)	b) Identify and describe a line with a slope that is positive, negative, or zero (0), given a graph. c) Graph a line representing a proportional relationship, between two quantities given an ordered pair on the line and the slope, m, as rate of change. Slope may include positive or negative values. d) Graph a line representing a proportional relationship between two quantities given the equation of the line in the form $y = mx$, where m represents the slope as rate of change. Slope may include positive or negative values. e) Make connections between and among representations of a proportional relationship between two quantities using problems in context, tables, equations, and graphs. Slope may include positive or negative values (slope will be limited to positive values in a contextual situation).
7.10 The student will c) determine the y-intercept, b, in an additive relationship between two quantities and write an equation in the form $y = x + b$ to represent the relationship; d) graph a line representing an additive relationship between two quantities given the y-intercept and an ordered pair, or given the equation in the form $y = x + b$, where b represents the y-intercept; and Determine the y-intercept, b, in an additive relationship between two quantities given a table of values or a verbal description,	[Included in Grade 8]

2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra	2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
including those represented in a practical situation, and write an equation in the form $y = x + b$, $b \neq 0$, to represent the relationship. (c) Graph a line representing an additive relationship ($y = x + b$, $b \neq 0$) between two quantities, given an ordered pair on the line and the y-intercept (b). The y-intercept (b) is limited to integer values and slope is limited to 1. (d)	
7.11 The student will evaluate algebraic expressions for given replacement values of the variables. - Represent algebraic expressions using concrete materials and pictorial representations. Concrete materials may include colored chips or algebra tiles. - Use the order of operations and apply the properties of real numbers to evaluate expressions for given replacement values of the variables. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers. Expressions should not include braces { } but may include brackets [] and absolute value . Square roots are limited to perfect squares. Limit the number of replacements to no more than three per expression.	7.PFA.2 The student will simplify numerical expressions, simplify and generate equivalent algebraic expressions in one variable, and evaluate algebraic expressions for given replacement values of the variables. - Use the order of operations and apply the properties of real numbers to simplify numerical expressions. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers. Expressions should not include braces { } but may include brackets [] and absolute value bars . Square roots are limited to perfect squares.* [Moved from Grade 6] - Represent equivalent algebraic expressions in one variable using concrete manipulatives and pictorial representations (e.g., colored chips, algebra tiles). - Simplify and generate equivalent algebraic expressions in one variable by applying the order of operations and properties of real numbers. Expressions may require combining like terms to simplify. Expressions will include only linear and numeric terms. Coefficients and numeric terms may be positive or negative rational numbers.* [Moved from Grade 8]

2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra	2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
	d) Use the order of operations and apply the properties of real numbers to evaluate algebraic expressions for given replacement values of the variables. Exponents are limited to 1, 2, 3, or 4 and bases are limited to positive integers. Expressions should not include braces { } but may include brackets [] and absolute value bars . Square roots are limited to perfect squares. Limit the number of replacements to no more than three per expression. Replacement values may be positive or negative rational numbers.
7.12 The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable. • Represent and solve two-step linear equations in one variable using a variety of concrete materials and pictorial representations. • Apply properties of real numbers and properties of equality to solve two-step linear equations in one variable. Coefficients and numeric terms will be rational. • Confirm algebraic solutions to linear equations in one variable. • Write verbal expressions and sentences as algebraic expressions and equations. • Write algebraic expressions and equations as verbal expressions and sentences. • Solve practical problems that require the solution of a two-step linear equation.	7.PFA.3 The student will write and solve two-step linear equations in one variable, including problems in context, that require the solution of a two-step linear equation in one variable. a) Represent and solve two-step linear equations in one variable using a variety of concrete materials and pictorial representations. b) Apply properties of real numbers and properties of equality to solve two-step linear equations in one variable. Coefficients and numeric terms will be rational. c) Confirm algebraic solutions to linear equations in one variable. d) Write a two-step linear equation in one variable to represent a verbal situation, including those in context. e) Create a verbal situation in context given a two-step linear equation in one variable. f) Solve problems in context that require the solution of a two-step linear equation.

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA) * On the state assessment, items measuring this knowledge and skill are assessed without the use of a calculator.
7.13 The student will solve one- and two-step linear inequalities in one variable, including practical problems, involving addition, subtraction, multiplication, and division, and graph the solution on a number line. ● Apply properties of real numbers and the multiplication and division properties of inequality to solve one-step inequalities in one variable, and the addition, subtraction, multiplication, and division properties of inequality to solve two-step inequalities in one variable. Coefficients and numeric terms will be rational. ● Represent solutions to inequalities algebraically and graphically using a number line. ● Write verbal expressions and sentences as algebraic expressions and inequalities. ● Write algebraic expressions and inequalities as verbal expressions and sentences. ● Solve practical problems that require the solution of a one- or two-step inequality. ● Identify a numerical value(s) that is part of the solution set of a given inequality.	7.PFA.4 The student will write and solve one- and two-step linear inequalities in one variable, including problems in context, that require the solution of a one- and two-step linear inequality in one variable. - Apply properties of real numbers and the addition, subtraction, multiplication, and division properties of inequality to solve one- and two-step inequalities in one variable. Coefficients and numeric terms will be rational. - Investigate and explain how the solution set of a linear inequality is affected by multiplying or dividing both sides of the inequality statement by a rational number less than zero. - Represent solutions to one- or two-step linear inequalities in one variable algebraically and graphically using a number line. - Write one- or two-step linear inequalities in one variable to represent a verbal situation, including those in context. - Create a verbal situation in context given a one or two-step linear inequality in one variable - Solve problems in context that require the solution of a one- or two-step inequality. - Identify a numerical value(s) that is part of the solution set of as given one- or two-step linear inequality in one variable. - Describe the differences and similarities between solving linear inequalities in one variable and linear equations in one variable.

2023 Grade 7 Mathematics SOL – Summary of Changes

Grade 7 (2016 SOL to 2023 SOL Numbering)	Parameter Changes/Clarifications (2023 SOL)
● 7.1a,b → 7.NS.1 ● 7.1c → 7.NS.2 ● 7.1d → 7.NS.3 ● 7.1e → [Included in Grade 6 and 7.PFA.2] ● 7.2 → 7.CE.1 ● 7.3 → 7.CE.2 ● 7.4a-b → 7.MG.1 ● 7.5 → 7.MG.2 ● 7.6a-b → 7.MG.3 ● 7.7 → [Included in Grade 8] ● [Dilations moved from Grade 8] → 7.MG.4 ● 7.8a-b → 7.PS.1 ● 7.9a-c → 7.PS.2 ● 7.10a,b,e → 7.PFA.1 ● 7.10c,d → [Moved to Grade 8] ● 7.11 → 7.PFA.2 ● 7.12 → 7.PFA.3 ● 7.13 → 7.PFA.4	● 7.NS.2d - Use multiple strategies to compare and order rational numbers ● 7.NS.3b- Describe the relationship between square roots and perfect squares ● 7.CE.1 -Estimate, solve, and justify solutions ● 7.CE.2d – Estimate and determine percentage of a whole number, including but not limited to benchmark percentages. ● 7.MG.1a,b - Develop the formula for volume of right cylinders and for surface area of rectangular prisms and right cylinders ● 7.MG.2e - Recognize and justify if two figures are similar using ratios of corresponding sides ● 7.PS.2d,e,f - Include the use of technology to represent histograms; explain how using different intervals impacts the representation of data in a histogram; justify which graphical representation best represents the data ● 7.PFA.1a - Include determining slope given a table of values, graph, or contextual situation and write an equation in the form $y = mx$ to represent the direct variation relationship ● 7.PFA.1c,d - Slope may include positive or negative values when writing an equation or graphing a line give a proportional relationship ● 7.PFA.3d,e - Create a verbal situation in context given a two-step linear equation in one variable and write a two-step equation to represent a problem in context ● 7.PFA.4b,d,e– Explain how the solution set of a linear inequality if affected by multiplying or dividing both sides of the inequality by a rational number less than zero; create a verbal situation in context given a one or two-step linear inequality in one variable; write a one or two-step inequality to represent a problem in context

Deletions from Grade 7 (2016 SOL)	Additions (2023 SOL)
● 7.1e – Absolute Value [Included in Grade 6 and 7.PFA.2] ● 7.3 EKS - Sales tax, tip, and discount [Included in 8.CE.1] ● 7.4a EKS – Determining volume of rectangular prisms [Included in 5.MG.2] ● 7.7 – Translations and reflections of polygons [Included in 8.MG.3] ● 7.10 c, d, e- Additive relationships and y-intercept [Embedded in 8.PFA.3]	● 7.MG.1d,e - Change in attribute with volume and surface area of rectangular prisms [Moved from Grade 8] ● 7.MG.4 - Dilations [Moved from Grade 8] ● 7.PS.2 [KS] - Additional data analysis knowledge and skills representing the data cycle have been included ● 7.PFA.1b - Identify and describe a line with a positive, negative, or zero slope [Moved from Grade 8] ● 7.PFA.2a – Simplify Numerical Expressions without a calculator [moved from Grade 6] ● 7.PFA.2c – Simplify and generate equivalent algebraic expressions that may require combining like terms [Moved from Grade 8] ● 7.PFA.4h- Describe the differences and similarities between solving equations and inequalities

KEY: NS = Number and Number Sense; CE = Computation and Estimation; MG = Measurement and Geometry; PS = Probability and Statistics; PFA = Patterns, Functions, and Algebra; EKS = Essential Knowledge and Skills (2016); KS = Knowledge and Skills (2023); US = Understanding the Standard