Analysis of *California Mathematics* standards to *Common Core* standards
Grade 4

Strand	CA Math Standard	Domain	Common Core Standard (CCS)	Alignment	Comments in Reference to CCS
Strand Number Sense	**CA Math Standard**				
1.0 Number Sense	1.0 Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.	Number and Operations in Base Ten Number and Operations - Fractions	4.NBT: Generalize place value understanding for multi-digit whole numbers (Cluster Statement). 4.NF Cluster Statement: Understand decimal notation for fractions, and compare decimal fractions).	Yes	
	1.1 Read and write whole numbers in the millions.	Number and Operations in Base Ten	4.NBT.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meaning of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Yes	CCS expectations for Grade 4 are limited to whole numbers less than or equal to 1,000,000.
	1.2 Order and compare whole numbers and decimals to two decimal places.	Number and Operations in Base Ten	4.NBT.2: Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meaning of the digits in each place, using >, =, and < symbols to record the results of comparisons. 4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, <, and justify the conclusions, e.g., by using a visual model.	Yes	
	1.3 Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred	Number and Operations in Base Ten	4.NBT.3: Use place value understanding to round multi-digit whole numbers to any place.	Yes	

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	thousand.				
	1.4 Decide when a rounded solution is called for and explain why such a solution may be appropriate.	Operations and Algebraic Thinking	4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Partial	
	1.5 Explain different interpretations of fractions, for , parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).			No	CCS does not mention fractions as parts of a set. 3.NF1: Understand a fraction *1/b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size *1/b.* 3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. 3.NF.2a: Represent a fraction *1/b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line. 3.NF.2b: Represent a fraction *a/b* on a number line diagram by marking off a lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint

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					locates the number *a/b* on the number line. 5.NF.3: Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem
	1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 or .50; 7/4 = 1 3/4 = 1.75).	Number and Operations – Fractions	4.NF.6: Use decimal notation for fractions with denominators 10 or 100.	Partial Grade 4	CCS does not specify other fractions than those with denominators of powers of 10. 3.NF.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. 3.NF.3a: Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. 3.NF.3b: **Recognize and generate simple equivalent fractions, e.g., ½ = 2/4, 4/6 = 2/3. Explain whey the fractions are equivalent, e.g., by using a visual fraction model.** 3.NF.3c: Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 3.NF.3d: Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that

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					comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
	1.7 Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.	Number and Operations – Fractions	4.NF.5: Express a fraction with denominator 10 as an equivalent fraction with a denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. Use decimal notation for fractions with denominators 10 or 100. 4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, <, and justify the conclusions, e.g., by using a visual model.	Partial	CCS does not ask students to draw a fraction. CCS does not specify other fractions than those with denominators of powers of 10.
	1.8 Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").			No	CCS states two numbers on a number line not explicitly two negative numbers. 6.NS.7: Understand ordering and absolute value of rational numbers. 6.NS.7a: **Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.** 6.NS.b7: **Write, interpret, and explain statements of order for rational numbers in real-world contexts.** 6.NS.7c: Understand the absolute

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					value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. 6.NS.7d: Distinguish comparisons of absolute value from statements about order.
	1.9 Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.	Number and Operations – Fractions	4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, <, and justify the conclusions, e.g., by using a visual model.	Partial	3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. 3.NF.2a: Represent a fraction *1/b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line. 3.NF.2b: Represent a fraction *a/b* on a number line diagram by marking off a lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.
2.0 Number Sense	2.0 Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.			No	5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

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	2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.			No	5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. CCS does not reference estimation directly. In the Mathematical Practice standards, CCS implies a thorough understanding of the concepts so students could develop strong estimation skills as a byproduct of the depth of understanding.
	2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.			No	5.NBT.4: Use place value understanding to round decimals to any place.
3.0 Number Sense	3.0 Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations.	Number and Operations in Base 10	4.NBT: (Cluster Statement) Use place value understanding and properties of operations to perform multi-digit arithmetic	Yes	
	3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi digit numbers.	Number and Operations in Base 10	4.NBT.4: Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Yes	
	3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi digit number by a two-digit number and for dividing a multi digit number by a one-digit number; use relationships between them to simplify computations and to check results.	Number and Operations in Base 10	4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Partial	5.NBT.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

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			4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		
	3.3 Solve problems involving multiplication of multi digit numbers by two-digit numbers.	Number and Operations in Base 10	4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Partial	5.NBT.5: Fluently multiply multi-digit whole numbers using the standard algorithm.
	3.4 Solve problems involving division of multi digit numbers by one-digit numbers.	Number and Operations in Base Ten	4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Partial	6.NS.2: Fluently divide multi-digit numbers using the standard algorithm.
4.0 Number Sense	4.0 Students know how to factor small whole numbers.	Operations and Algebraic Thinking	4.OA: (Cluster Statement) Gain familiarity with factors and multiples.	Yes	
	4.1 Understand that many whole numbers break down in different ways (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3).	Operations and Algebraic Thinking	4.OA.4: Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	Partial	CCS only mentions factor pairs.

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	4.2 Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.	Operations and Algebraic Thinking	4.OA.4: Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	Yes	
1.0 Algebra and Functions	1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences.		4.0A.2: Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]	Yes	
	1.1 Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	Operations and Algebraic Thinking	4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Partial	6.EE.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
	1.2 Interpret and evaluate mathematical expressions that now use parentheses.			No	5.OA.1 Use parentheses brackets, or braces in numerical expressions, and evaluate these expressions with these symbols.
	1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.			No	5.OA.1 Use parentheses brackets, or braces in numerical expressions, and evaluate these expressions with these symbols.
	1.4 Use and interpret formulas (e.g., area = length x width or *A = lw)* to answer questions about quantities and their relationships.	Measurement and Data	4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problem.	Yes	

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	1.5 Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.			No	6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
2.0 Algebra and Functions	2.0 Students know how to manipulate equations.			No	6.EE Cluster Statement -Reason about and solve one-variable equations and inequalities.
	2.1 Know and understand that equals added to equals are equal.			No	CCS see glossary Table 4.
	2.2 Know and understand that equals multiplied by equals are equal.			No	CCS see glossary Table 4.
Strand Measurement and Geometry	**CA Math Standard**				
1.0 Measurement and Geometry	1.0 Students understand perimeter and area.	Measurement and Data	4.MD: (Cluster Statement) Solve problems involving measurement and conversion of measurements from a lager unit to a smaller unit.	Yes	
	1.1 Measure the area of rectangular shapes by using appropriate units, such as square centimeter (cm^2), square meter (m^2), square kilometer (km^2), square inch (in^2), square yard (yd^2), or square mile (mi^2).	Measurement and Data	4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problem.	Yes	
	1.2 Recognize that rectangles that have the same area can have different perimeters.	Measurement and Data	4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems	Partial	CCS does not explicitly describe the area/perimeter relationship.
	1.3 Understand that rectangles that have the same perimeter can have different areas.	Measurement and Data	4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems	Partial	CCS does not explicitly describe the area/perimeter relationship.
	1.4 Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use	Measurement and Data	4.MD.3: Apply the area and perimeter formulas for rectangles in real world and mathematical problems	Partial	6.G.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by

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	those formulas to find the areas of more complex figures by dividing the figures into basic shapes.				composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
2.0 Measurement and Geometry	2.0 Students use two-dimensional coordinate grids to represent points and graph lines and simple figures.			No	5.G: Graph points on the coordinate plane to solve real-world and mathematical problems (Cluster Statement).
	2.1 Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line).			No	5.G.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. 5.OA.3: Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane..

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	2.2 Understand that the length of a horizontal line segment equals the difference of the *x*- coordinates.			No	See Introduction: Grade 8 Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or *x*-coordinate changes by an amount A, the output or *y*-coordinate changes by the amount $m \cdot A$.
	2.3 Understand that the length of a vertical line segment equals the difference of the *y*- coordinates.			No	See Introduction: Grade 8 Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or *x*-coordinate changes by an amount A, the output or *y*-coordinate changes by the amount $m \cdot A$.

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3.0 Measurement and Geometry	3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.	Geometry	4.G: (Cluster Statement) Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	Yes	
	3.1 Identify lines that are parallel and perpendicular.	Geometry	4.G.1: Draw points, lines, line segments, rays, angle (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.2: Classify two-dimensional figures based on the presence of absence of parallel or perpendicular line, or the presence or absence of angle of a specified size. Recognize right triangles as a category, and identify right triangles.	Yes	
	3.2 Identify the radius and diameter of a circle.			No	7.G.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. CCS does not explicitly identify radius and diameter.
	3.3 Identify congruent figures.			No	8.G.2: 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; given two congruent figures, describe a sequence that exhibits the congruence between them.

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	3.4 Identify figures that have bilateral and rotational symmetry.	Geometry	4.G.3: Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Yes	
	3.5 Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are associated, respectively, with 1/4, 1/2, 3/4, and full turns.	Geometry	4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 4.MD.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. **4.MD.5.a: An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.** 4.MD.5.b: An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	Partial	CCS does not specify knowing definitions of types of angles.
	3.6 Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for			No	6.G.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

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	a solid that, when cut and folded, will make a model of the solid.				
	3.7 Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.	Geometry	4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence of absence of angle of a specified size. Recognize right triangle as a category, and identify right triangles.	Partial	CCS classifies two-dimensional figures. Recognizes right triangles as a category. Does not specifically use triangle names.
	3.8 Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).	Geometry	4.G.2: Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence of absence of angle of a specified size. Recognize right triangle as a category, and identify right triangles.	Partial	CCS classifies two-dimensional figures. Recognizes right triangles as a category. Does not specifically use quadrilateral names.
Strand Statistics, Data Analysis, and Probability	**CA Math Standard**				
1.0 Statistics, Data Analysis, and Probability	1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.	Measurement and Data	4.MD: (Cluster Statement) Represent and interpret data.	Yes	
	1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.			No	6.SP.1: Recognize a statistical question as one that anticipates variability in the data related to the questions and account for it in the answers.
	1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.			No	6.SP.2: Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. 6.SP.3: Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values

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					vary with a single number.
	1.3 Interpret one-and two-variable data graphs to answer questions about a situation.	Measurement and Data	4.MD.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, ¼, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	Yes	
2.0 Statistics, Data Analysis, and Probability	2.0 Students make predictions for simple probability situations.			No	7.SP Cluster Statement: Investigate chance processes and develop use, and evaluate probability models.
	2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).			No	7.SP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
	2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3 /4).			No	7.SP.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. 7.SP.8a: **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.**

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					7.SP.8b: Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. 7.SP.8c: Design and use a simulation to generate frequencies for compound events
Strand Mathematical Reasoning	**CA Math Standard**				
1.0 Mathematical Reasoning	1.0 Students make decisions about how to approach problems.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	1.2 Determine when and how to break a problem into simpler parts.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
2.0 Mathematical Reasoning	2.0 Students use strategies, skills, and concepts in finding solutions.	Mathematical Practice Standards	MP3: Construct viable arguments and critique the reasoning of others,	Yes	
	2.1 Use estimation to verify the reasonableness of calculated results.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	2.2 Apply strategies and results from simpler problems to more complex problems.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	

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	2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.	Mathematical Practice Standards	MP6: Attend to precision.	Yes	
	2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	Mathematical Practice Standards	MP1: Make sense of problems and persevere in solving them.	Yes	
	2.6 Make precise calculations and check the validity of the results from the context of the problem.	Mathematical Practice Standards	MP7: Look for and make use of structure.	Yes	
3.0 Mathematical Reasoning	3.0 Students move beyond a particular problem by generalizing to other situations.	Mathematical Practice Standards	MP8: Look for and express regularity in repeated reasoning.	Yes	
	3.1 Evaluate the reasonableness of the solution in the context of the original situation.	Mathematical Practice Standards	MP7: Look for and make use of structure.	Yes	
	3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	Mathematical Practice Standards	MP7: Look for and make use of structure.	Yes	
	3.3 Develop generalizations of the results obtained and apply them in other circumstances.	Mathematical Practice Standards	MP7: Look for and make use of structure.	Yes	

Grade 4 Common Core Standards not found in Grade 4 CA Mathematics Standards

Domain	Common Core standard	Found in CA Math standards
Operations and Algebraic Thinking	4.OA.1: Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	No
Operations and Algebraic Thinking	4.OA.5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For , given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	Partial Grade 7 AF1.1
Number and Operations in Base Ten	4.NBT.1: Recognize that in a multi-digit whole number a digit in one place represents ten times what it represents in the place to its right. *For , recognize that 700/70 = 10 by applying concepts of place value and division.*	No
Number and Operations – Fractions	4.NF.1: Explain why a fraction a/b is equivalent to a fraction *(n x a)/(n x b)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Partial Grade 5 NS1.2
Number and Operations – Fractions	4.NF.2: Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols, =, or >, and justify the conclusions, e.g., by using a visual fraction model.	Partial Grade 5 NS2.3
Number and Operations – Fractions	4.NF.3: Understand a fraction *a/b* with *a* > *1* as a sum of fractions *1/b.*	No
Number and Operations – Fractions	4.NF.3a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	No
Number and Operations – Fractions	4.NF.3b: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *s: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	No
Number and Operations – Fractions	4.NF.3c: Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	Yes Grade 5 NS2.3
Number and Operations – Fractions	4.NF.3d: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	Yes Grade 5 NS2.3
Number and Operations – Fractions	4.NF.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	Yes Grade 5 NS 2.4

Domain	Common Core standard	Found in CA Math standards
Number and Operations – Fractions	4.NF.4a: Understand a fraction *a/b* as a multiple of *1/b*	No
Number and Operations – Fractions	4.NF.4b: Understand a multiple of *a/b* as a multiple of *1/b* and use this understanding to multiply a fraction by a whole number.	No
Number and Operations – Fractions	4.NF.4c: Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	Yes Grade 5 NS 2.5
Measurement and Data	4.MD.1: Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; l, ml, hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Partial Grade 6 MG2.1 Grade 7 MG1.1
Measurement and Data	4.MD.2: Use the four operations to solve word problems involving distance, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problem that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Yes Grade 5 MG 1.4
Measurement and Data	4.MD.5b: An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	No
Measurement and Data	4.MD.6: Measure angles in whole-number degrees using a protractor. Sketch angle of specified measure.	Yes Grade 5 MG 2.1
Measurement and Data	4.MD.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	No

Grade 4 CA Mathematics Standards not found in Grade 4 Common Core Standards

Strand	CA Math Standard	Found in Common Core Standards
1.0 Number Sense	1.5 Explain different interpretations of fractions, for, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	Yes. 3.NF1: Understand a fraction *1/b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size *1/b.* 3.NF.2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. 3.NF.2a: Represent a fraction *1/b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line. 3.NF.2b: Represent a fraction *a/b* on a number line diagram by marking off a lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line. 5.NF.3: Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem CCS does not mention fractions as parts of a set.

Strand	CA Math Standard	Found in Common Core Standards
1.0 Number Sense	1.8 Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").	Yes. 6.NS.7: Understand ordering and absolute value of rational numbers. 6.NS.a7: **Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.** 6.NS.7b: **Write, interpret, and explain statements of order for rational numbers in real-world contexts. For , write – 3 oC > –7 oC to express the fact that –3 oC is warmer than – 7 oC.** 6.NS.7c: Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. 6.NS.7d: Distinguish comparisons of absolute value from statements about order. CCS states two numbers on a number line not explicitly two negative numbers.
2.0 Number Sense	2.0 Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals.	Yes. 5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
2.0 Number Sense	2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.	Yes. 5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. CCS does not reference estimation directly. In the Mathematical Practice standards, CCS implies a thorough understanding of the concepts so students could develop strong estimation skills as a

Strand	CA Math Standard	Found in Common Core Standards
		byproduct of the depth of understanding.
2.0 Number Sense	2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.	Yes. 5.NBT.4: Use place value understanding to round decimals to any place.
1.0 Algebra and Functions	1.2 Interpret and evaluate mathematical expressions that now use parentheses.	Yes. 5.OA.1: Use parentheses brackets, or braces in numerical expressions, and evaluate these expressions with these symbols.
1.0 Algebra and Functions	1.3 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.	Yes. 5.OA.1: Use parentheses brackets, or braces in numerical expressions, and evaluate these expressions with these symbols.
1.0 Algebra and Functions	1.5 Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.	Yes. 6.EE.5: Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
2.0 Algebra and Functions	2.0 Students know how to manipulate equations.	Yes. 6.EE: Reason about and solve one-variable equations and inequalities. (Cluster Statement Grade 6)
2.0 Algebra and Functions	2.1 Know and understand that equals added to equals are equal.	No. CCS see glossary Table 4.
2.0 Algebra and Functions	2.2 Know and understand that equals multiplied by equals are equal.	No. CCS see glossary Table 4.
2.0 Measurement and Geometry	2.0 Students use two-dimensional coordinate grids to represent points and graph lines and simple figures.	Yes. 5.G: Graph points on the coordinate plane to solve real-world and mathematical problems (Cluster Statement).
2.0 Measurement and Geometry 2.0	2.1 Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation y = 3 x and connect them by using a straight line).	Yes. 5.G.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. 5.OA.3: Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence

Strand	CA Math Standard	Found in Common Core Standards
		are twice the corresponding terms in the other sequence. Explain informally why this is so.
Measurement and Geometry 2.0	2.2 Understand that the length of a horizontal line segment equals the difference of the x- coordinates.	Yes. See Introduction: Grade 8 Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$.
Measurement and Geometry 2.0	2.3 Understand that the length of a vertical line segment equals the difference of the y- coordinates.	Yes. See Introduction: Grade 8 Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$.
Measurement and Geometry 3.0	3.2 Identify the radius and diameter of a circle.	Yes. 7.G.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. CCS does not explicitly identify radius and diameter.
Measurement and Geometry 3.0	3.3 Identify congruent figures.	Yes. 8.G.2: 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; given two congruent figures, describe a sequence that exhibits the congruence between them.

Strand	CA Math Standard	Found in Common Core Standards
Measurement and Geometry 3.0	3.6 Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.	Yes. 6.G.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
Statistics, Data Analysis, and Probability 1.0	1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.	Yes. 6.SP.1: Recognize a statistical question as one that anticipates variability in the data related to the questions and account for it in the answers.
Statistics, Data Analysis, and Probability 1.0	1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	Yes. 6.SP.1: Recognize a statistical question as one that anticipates variability in the data related to the questions and account for it in the answers.
Statistics, Data Analysis, and Probability 2.0	2.0 Students make predictions for simple probability situations.	Yes. 7.SP: (Cluster Statement) Investigate chance processes and develop use, and evaluate probability models.
Statistics, Data Analysis, and Probability 2.0	2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).	Yes. 7.SP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
Statistics, Data Analysis, and Probability 2.0	2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3 /4).	Yes. 7.SP.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. 7.SP.8a: **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.** 7.S7.SP.8b: Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. 7.S7.SP.8c: Design and use a simulation to generate frequencies for compound events