California Content Standard	Number	Eccontials for Algobra
California Content Standard		Essentials for Algebra
	of Test	(lesson.exercise)
	Items	
Grade 6 – Statistics, Data Analysis,	8 I t ems	-
& Probability	Tot al	
1.0 St udent s comput e & analyze		-
statistical measurements for data sets:		
1.1 Compute the mean, median & mode of		
dat a set s	1 0	T
	0	
1.3 Under st and how the inclusion or	0	
exclusion of outliers affects measures		
of central tendency		
1.4 Know why a specific measure of	0	•
central tendency (mean, median, mode)		
provides the most useful information in		
a given cont ext	1	
		•
2.1 Compare different complex of a	0	
2.1 Compare different samples of a population with the datafrom the entire		
population and identify a situation in		
which it makes sense to use a sample		
2.2 I dentify different ways of selecting	0	
a sample (e.g, convenience sampling,		
responses to a survey random sampling)		
and which met hod makes a sample more		
represent at ive f or a population		
2.3 Analyze dat a displays and explain	0	
why the way in which the question was		
asked might have influenced the results		
obtained and why the way in which the results were displayed might have		
influenced the conclusions reached		
2.4 I dent if y dat a t hat represent	0	
sampling errors and explain why the		
sample (and the display) might be biased		
2.5 I dent if y claims based on statistical	1	119.9;119.10;120.7;Practice Test 1; Practice Test 2
dat a and, in simple, cases, evaluat e the		
validity of the claims.		

3.0 Students determine theoretical and experimental probabilities and use these to make predictions about events:	-	-
3.1 Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome	1	84.1;85.1;86.2;87.1;88.3;89.5;90.3;91.1;92.5; 93.4;103.3;104.4;105.3;106.5;107.1;108.2;109.5;110.3
3.2 Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven)	0	

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3.3 Represent probabilities as ratios,	2	84.1;85.1;86.2;87.1;88.3;89.5;90.3;91.1;92.5;
proportions, decimals between 0 and 1, and		93.4;103.3;104.4;105.3;106.5;107.1;108.2;109.5;110.3
percent ages bet ween 1 and 100 and verify		
that the probabilities computed are		
reasonable; know that if Pisthe probability		
of an even, 1-Pis the probability of an event		
not occurring		
3.4 Understand that the probability of	0	
either of two disjoint events occurring is		
the sum of the two individual probabilities		
and that the probability of one event		
f ollowing another, in independent trials, is		
the product of the two probabilities		
3.5 Underst and the difference between	1	84.1; 85.1; 86.2; 87.1; 88.3; 89.5; 90.3; 91.1; 92.5;
independent and dependent events		93.4; 103.3; 104.4; 105.3; 106.5; 107.1; 108.2; 109.5;
		110.3;
Crada 7 Number Canas	1.1	110.0,
Grade 7 – Number Sense	14	
	I t ems	
	Tot al	
1.0 Students know the properties of, and	-	-
compute with, rational numbers expressed		
iun a variety of forms:		
1.1 Read, write, and compare rational	1	89.1; 90.2; 91.2; 92.1; 93.1; 94.2; 95.5; 96.2; 97.3;
numbers in scientific notation (positive and		98.1; 99.5; 104.3; 105.2; 107.4; 108.4; 109.1; 110.1;
negative powers of 10) with approximate		111.2; 112.5
numbers using scientific not ation		
1.2 Add, subtract, multiply, and divide	3	16.2; 17.3, 19.6; 19.7; 24.5; 24.6; 25.5; 30.1; 30.1(w);
rational numbers (integers, fractions, and		30.2; 30.3; 30.4; 31.2(w); 32.1(w); 33.5; 34.5; 35.2;
terminating decimals) and take positive		36.4;37.2(w); 38.1(w); 39.6; 42.1; 43.2; 44.2;
rational numbers to whole-number powers		35.2(w); 36.1(w); 36.1; 36.2; 37.6; 38.2; 39.2; 40.2;
		42.3; 43.3; 44.1; 45.5; 46.1; 46.2; 47.3; 48.4; 49.3;
		50.1; 50.2; 51.5; 52.1; 52.2; 53.6; 54.9; 57.3; 57.4;
		57.5; 58.1; 59.2(w); 60.2; 63.2; 104.1 & 105.4 &
		106.3 & 107.5(combining t erms); 108.3 & 112.2 &
		113.3& 114.2 & 115.5 & 116.5(complex base); 109.4 &
		110.2 & 111.5(negative base); 48.1; 48.1(w); 49.4;
		50.5; 51.1; 52.3; 53.3; 54.2; 54.3;55.3; 56.5;
		72.1(multiplying 3 values); 72.5(rational);57.1;
		58.2(w); 59.3(w); 60.3; 73.2; 61.5; 62.5; 65.3; 66.6;
12 Convert frontions to desired and	2	69.1; 70.3; 77.2; 78.6; 74.5; 75.2; 76.4;
1.3 Convert fractions to decimals and	2	17.5;17.6;18.2; 19.4; 20.1; 20.2; 21.1; 21.3; 21.4;
per cent s and use these representations in		22.1(w); 22.5; 23.5; 19.5; 20.3; 20.4; 22.6; 23.2;
estimation, computations, and applications		26.1; 27.1; 27.2; 28.4; 29.6; 30.5; 51.4; 52.5; 106.1;
AA Differential 1 to 1 to 1		107.2; 108.1; 109.3; 110.6; 111.4; 112.1; 113.2; 4; 114
1.4 Differentiate between rational and	0	
irrational numbers	-	
1.5 Know that every rational number is	0	
either aterminating or repeating decimal		
and be able to convert terminating decimals	1	

int o reduced fractions.		
1.6 Calculate the percentage of increases and decreases of a quantity	1	106.1; 107.2; 108.1; 109.3; 110.6; 111.4; 112.1; 113.2; 114
1.7 Solve problems that involve discounts, markups, commissions, and profit, and compute simple and compound interest	2	106.1; 107.2; 108.1; 109.3; 110.6; 111.4; 112.1; 113.2; 114
2.0 St udent s use exponent s, powers, and roots, and use exponent s in working with fractions:	-	-
2.1 Under st and negative whole-number exponents. Multiply and divide expressions involving exponents with a common base	1	46.1; 46.2; 47.3; 48.4; 49.3; 50.1; 50.2; 51.5; 52.1; 52.2; 53.6; 54.9; 57.3; 57.4; 57.5; 58.1; 59.2(w); 60.2; 63.2; 104.1 & 105.4 & 106.3 & 107.5(combining terms); 108.3 & 112.2 & 113.3 & 114.2 & 115.5 & 116.5(complex base); 109.4 & 110.2 & 111.5(negative base);
2.2 Add and subtract fractions by using factoring to find common denominators	1	Not Covered
2.3 Multiply, divide, and simplify rational numbers by using exponent rules	1	46.1; 46.2; 47.3; 48.4; 49.3; 50.1; 50.2; 51.5; 52.1; 52.2; 53.6; 54.9; 57.3; 57.4; 57.5; 58.1; 59.2(w); 60.2; 63.2; 104.1 & 105.4 & 106.3 & 107.5(combining terms); 108.3 & 112.2 & 113.3& 114.2 & 115.5 & 116.5(complex base); 109.4 & 110.2 & 111.5(negative base);

2.4 Use the inverse relationship between raising to a power and extracting the root of a perfect square integer; for an integer that is not square, determine without a calculator the two integers between which its square root lies and explain why	1	78.3; 79.3; 81.5; 82.1 & 83.1 & 84.2(bt wn whole numbers); 82.3(calculat or); 88.4;
2.5 Underst and the meaning of the absolute value of a number; interpret the absolute value as the distance of the number from zero on a number line; and determine the absolute value of real numbers	1	30.1;30.1(w)
Grade 7 – Algebra & Functions	17 I t ems Tot al	-
1.0 Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs	-	-
1.1 Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A)	2	Note: These standards are exceeded as students work extensively with two-variable equations generated from situations expressed as word problems. Two-variable examples are therefore provided. See below for assessments as lessons covering this standard are numerous. a. Test 4 part 9; Test 8 part 9. (one variable examples: Lesson 118 TB parts 4 and 5) b. Test 6 part 6; Lesson 119 # 41,42,53, 54; Lesson 120 part 7 # 18,19 c. Test 3 parts 3 and 6; Lesson 118 part 18; Lesson 119 part 16 d. Test 6 part 5 (y in terms of x) e. Test 3 parts 5 and 9, Test 4 part 9,Test 6 parts 4 and 9
1.2 Use the correct order of operations to evaluate algebraic expressions such as 3(2x+5)2	1	35.2(w); 36.1(w);
1.3 Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse, distributive, associative, commutative) and justify the process used	0	
1.4 Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly	0	
1.5 Represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in the situation represented by the graph	3	102.1; 103.4; 104.5; 105.6; 106.4; 117.1; 118.1;

2.0 Students interpret and evaluate expressions involving integer powers and simple roots:	-	-
2.1 Interpret positive whole-number powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents	1	46.1; 46.2; 47.3; 48.4; 49.3; 50.1; 50.2; 51.5; 52.1; 52.2; 53.6; 54.9; 57.3; 57.4; 57.5; 58.1; 59.2(w); 60.2; 63.2; 104.1 & 105.4 & 106.3 & 107.5(combining terms); 108.3 & 112.2 & 113.3& 114.2 & 115.5 & 116.5(complex base); 109.4 & 110.2 & 111.5(negative base);
2.2 Multiply and divide monomials; extend the process of taking powers and extracting roots to monomials when the latter results in a monomial with an integer exponent	1	46.1; 46.2; 47.3; 48.4; 49.3; 50.1; 50.2; 51.5; 52.1; 52.2; 53.6; 54.9; 57.3; 57.4; 57.5; 58.1; 59.2(w); 60.2; 63.2; 104.1 & 105.4 & 106.3 & 107.5(combining terms); 108.3 & 112.2 & 113.3& 114.2 & 115.5 & 116.5(complex base); 109.4 & 110.2 & 111.5(negative base);
3.0 St udent's graph and interpret linear and some nonlinear functions:	-	-
3.1 Graph functions of the form y=nx3	1	55.1; 55.2; 55.1(w); 56.1; 57.1(w); 57.2(w); 58.1(w); 59.2; 59.1(w); 60.1(w); 61.4(slope); 62.1; 63.4; 64.4; 65.5; 66.1; 67.2; 68.4; 69.4; 70.4; 74.2; 75.1; 76.1; 77.5; 78.5; 79.2; 80.1; 81.2; 85.2; 86.3; 103.1; 104.2; 105.5; 106.2;

3.2 Plot the values from the	0	
volumes of three-dimensional		
shapes for various values of the		
edge lengths (e.g., cubes with		
varying edge lengths or a triangle		
prism with a fixed height and an		
equilateral triangle base of		
varying lengths)		
3.3 Graph linear functions, noting	2	106.6; 114.1; 115.2; 116.3; 117.3; 118.3
that the vertical change (change		
in y value) per unit of horizontal		
change (change in x-value) is		
always the same and know that		
the ratio ("rise over run") is		
called the slope of a graph		
3.4 Plot the values of quantities	1	102.1; 103.4; 104.5; 105.6; 106.4;
whose ratios are always the same		
(e.g., cost to the number of an		
it em, f eet to inches,		
circumference to diameter of a		
circle). Fit a line to the plot and		
understand that the slope of a		
line equals the quantities		
4.0 St udent s solve simple linear	-	•
equations and inequalities over		
the rational numbers		
4.1 Solve t wo-st ep linear	3	82.2;83.2;84.3;85.5
equations and inequalities in one		
variable over the rational number,		
interpret the solution or solutions		
in the context from which they		
arose, and verify the		
reasonableness of the results		
4.2 Solve mult ist ep problems	2	30.2(w);31.4; 32.1; 33.1; 34.2; 34.6; 65.1; 66.4; 67.3; 68.3;
involving rate, average speed,		67.4; 68.1; 69.3; 70.1; 71.1; 72.4; 73.5; 74.3; 75.5; 76.3;
distance, and time or a direct		77.3; 82.2; 83.2; 84.3; 85.5; 88.2; 89.2; 90.5; 91.4; 92.2;
variation		93.3; 103.2; 104.6; 105.1;
Grade 7 - Measurement and	17 I t ems	-
Geometry	Tot al	
1.0 St udent s choose appropriat e	-	
units of measure and use ratios		
to convert within and between		
measurement systems to solve		
problems:		

cubic inches to cubic centimeters)		
1.2 Construct and read drawings and models made to scale	1	102.1; 103.4; 104.5; 105.6; 106.4

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2.3 Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids.

Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and volume is multiplied by the cube of the scale factor

3.2 Understand and use coordinate graphs to plot simple figures, determine lengths and areas related to them, and determine their image under translations and reflections	2	28.1; 28.2; 29.4; 30.3; 31.1(w); 32.2(w); 33.1(w); 34.3(w); 35.1(w); 36.2(w); 37.3; 37.1(w); 38.2(w); 39.3; 40.2(w); 41.2(w); 43.1; 43.1(w); 44.3(w); 45.2(w); 114.1; 115.2; 116.3; 117.3; 118.3;
3.3 Know and understand the Pythagorean theorem and its converse and use it to find the length of the missing side of a right triangle and the lengths of other line segments and, in some situations, empirically verify the Pythagorean theorem by direct measurement	2	86.1; 87.2; 88.5; 89.4; 90.1; 91.3; 92.4; 93.5; 94.1; 95.1; 96.1; 97.2; 98.3; 99.1; 100.3; 101.3; 102.5;
3.4 Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures	1	85.4; 86.5; 87.4; 88.1; 89.3; 90.4; 91.5; 92.3; 93.2; 95.4; 96.3; 97.4; 98.4; 99.3; 100.1; 100.2; 101.2; 101.4; 102.4;
3.5 Construct two-dimensional patterns for three-dimensional models, such as cylinders, prisms, and cones	0	

3.6 I dentify elements of three-dimensional geometric objects (e.g., diagonals of rectangular solids) and describe how two or more objects are related in space (e.g., skew lines, the possible ways three planes might intersect)

0

1.3 Understand the meaning of, and be able to compute the minimum, the lower quartile, the median, the upper quartile, and the maximum of a data set Grade 7 – Mathematical Reasoning	8 I t ems Total Plus Integrate d into Other Strands	-
1.0 Students make decisions about how to approach problems:	-	-
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns	2	Lessons 1-120 - Throughout Essentials for Algebra, students are required to demonstrate and show their mathematical reasoning through a variety of well-articulated
1.2 Formulat e and j ust if y mat hematical conject ures based on a general description of the mat hematical question or problem posed	1	strategies, logical steps, and algebraic representations and
1.3 Determine when and how to break a problem into simpler parts	0	solutions. Students are sometimes required to estimate then test their solutions to verify that the solution
2.0 St udent s use st rat egies, skills, and concept s in finding solutions:	-	yields a true statement in the original
2.1 Use estimation to verify the reasonableness of calculated results	2	equation. Daily, students in <i>Essentials for</i>
2.2 Apply strategies and results from simpler problems to more complex problems	0	Algebra are asked to respond verbally to questions and tasks
2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques	1	presented by the teacher. Students are held to high expectations for
2.4 Make and test conjectures by using both inductive and deductive reasoning	1	communicating their thinking, problem solving, analysis and strategies using precise mathematical vocabulary and language. Teachers of <i>Essentials for Algebra</i> are trained to provide corrective feedback and reinforcement in this area on an ongoing basis.
2.5 Use a variety of methods, such as words, number, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning	0	
2.6 Express the solution clearly and logically by using the appropriate mathematical not ation and terms and clear language; support	0	

solutions with evidence in both verbal and symbolic work

2.7 I ndicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy

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4.0 St udents simplify expressions before solving linear equations and inequalities in one variable, such as 3(2x5)+4(x-2)=12	2	54.6; 54.7; 55.5
5.0 Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step	1	30.2(w);31.4; 32.1; 33.1; 34.2; 34.6; 34.4; 35.3; 37.1; 37.2; 38.1; 39.1; 39.5; 40.1; 40.3; 40.4; 41.3; 42.1(w); 43.2(w); 44.1(w); 46.4; 47.1(w); 48.2; 48.2(w); 49.6; 50.6; 51.3; 52.2(w); 53.7; 64.2; 54.6; 54.7; 55.5; 55.4; 56.3; 56.4; 57.7; 61.3; 56.2; 57.6; 59.3; 79;5; 94.4; 95.2; 96.5; 62.4; 63.5; 71.4; 72.6; 73.4; 78.1; 102.3; 65.1; 66.4; 67.3; 68.3; 67.4; 68.1; 69.3; 70.1; 71.1; 72.4; 73.5; 74.3; 75.5; 76.3; 77.3; 77.4; 78.4; 82.2; 83.2; 84.3; 85.5; 88.2; 89.2; 90.5; 91.4; 92.2; 93.3; 103.2; 104.6; 105.1;
6.0 St udents graph a linear equation and compute the x and y intercepts (e.g., graph 2x+6y=4)	2 (1 graphing it em; 1 comput ing it em)	106.6; 114.1; 115.2; 116.3; 117.3; 118.3
7.0 Students verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations.	1	39.3; 40.2(w); 41.2(w);
8.0 St udent s under st and the concept s of parallel lines and how their slopes are related.	1	In <i>Essentials</i> , students work with parallel lines primarily in the context of the coordinate system and nested similar triangles.
 9.0 Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to	1	55.1; 55.2; 55.1(w); 56.1; 57.1(w); 57.2(w); 58.1(w); 59.2; 59.1(w); 60.1(w); 61.4(slope); 62.1; 63.4; 64.4; 65.5; 66.1; 67.2; 68.4; 69.4; 70.4; 74.2; 75.1; 76.1; 77.5; 78.5; 79.2; 80.1; (lop

sketch the solution sets.

11.0 St udents apply basic factoring techniques to second-	0	
and simple third- degree polynomials. These techniques		
include finding a common factor for all terms in a		
polynomial, recognizing the difference of two squares, and		
recognizing perfect squares of binomials.		
12.0 Students simplify fractions with polynomials in the	0	
numer at or and denominat or by fact oring bot h and reducing		
them to the lowest terms.		
13.0 Students add, subtract, multiply, and divide rational	0	
expressions and functions. Students solve both		
comput at ionally and concept ually challenging problems by		
using these techniques.		
14.0 Students solve a quadratic equation by factoring or	0	
completing the square		

15.0 Students apply algebraic techniques to solve rate problems, work problem, and percent mixture problems

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24.0 St udent s use and know simple aspect s of a logical	-	-
argument		
24.1 St udent s explain the difference between inductive	0	
and deductive reasoning and identify and provide examples		
of each		

24.2 Students identify the hypothesis and conclusion in logical deduction	0	
24.3 Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute and assertion	0	