CALIFORNIA STANDARDS TEST
ALGEBRA I
(Blueprint adopted by the California State Board of Education 10/02)

CALIFORNIA CONTENT STANDARDS: Algebra I	# of Items	%
Algebra I	**65**	**100%**
TOTAL	**65**	**100%**

CALIFORNIA CONTENT STANDARDS ALGEBRA I: Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.	**# of Items**
5.0* Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.	**6**
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 sketch the solution sets.	**5**
2.0* Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and rising to a fractional power. They understand and use the rules of exponents.	**4**
6.0* Students graph a linear equation and compute the *x*- and y-intercepts (e.g., graph $2x + 6y = 4$). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $2x + 6y < 4$).	**4**
7.0* Students verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations using the point-slope formula.	**4**
10.0* Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.	**4**
13.0* Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.	**4**

* Key standards (*Mathematics Framework for California Public Schools*, chapter 3) comprise a minimum of 70% of the test

** Fractional values indicate rotated standards (e.g., 1/2 = rotated every two years; 1/3 = rotated every three years)

*** Not assessable in a multiple-choice format

Embedded: Content of standard is embedded within items in other strands.

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15.0* Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.	**4**
4.0* Students simplify expressions prior to solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.	**3**
12.0* Students simplify fractions with polynomials in the numerator and denominator by factoring both and reducing them to the lowest terms.	**3**
14.0* Students solve a quadratic equation by factoring or completing the square.	**3**
20.0* Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.	**3**
21.0* Students graph quadratic functions and know that their roots are the *x*-intercepts.	**3**
23.0* Students apply quadratic equations to physical problems, such as the motion of an object under the force of gravity.	**3**
11.0 Students apply basic factoring techniques to second-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.	**2**
19.0* Students know the quadratic formula and are familiar with its proof by completing the square.	**2**
3.0 Students solve equations and inequalities involving absolute values.	**1**
8.0 Students understand the concepts of parallel lines and perpendicular lines and how those slopes are related. Students are able to find the equation of a line perpendicular to a given line that passes through a given point.	**1**
17.0 Students determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs, or a symbolic expression.	**1**
22.0 Students use the quadratic formula or factoring techniques or both to determine whether the graph of a quadratic function will intersect the x-axis in zero, one, or two points.	**1**
1.1 Students use properties of numbers to demonstrate whether assertions are true or false.	**1/2****

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16.0 Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.	**1/2****
25.1 Students use properties of numbers to construct simple, valid arguments (direct and indirect) for, or formulate counterexamples to, claimed assertions.	**1/2****
25.2 Students judge the validity of an argument according to whether the properties of the real number system and the order of operations have been applied correctly at each step.	**1/2****
25.3 Given a specific algebraic statement involving linear, quadratic, or absolute value expressions or equations or inequalities, students determine whether the statement is true sometimes, always, or never.	**1/2****
18.0 Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.	**1/2****
24.1 Students explain the difference between inductive and deductive reasoning and identify and provide examples of each.	**1/3****
24.2 Students identify the hypothesis and conclusion in logical deduction.	**1/3****
24.3 Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion.	**1/3****

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