CALIFORNIA STANDARDS TEST ALGEBRA II

(Blueprint adopted by the California State Board of Education 10/02)

CALIFORNIA CONTENT STANDARDS: Algebra II	# of Items	%
Algebra II	60	92%
Probability and Statistics	5	8%
TOTAL	65	100%

CALIFORNIA CONTENT STANDARDS ALGEBRA II: This discipline complements and expands the mathematical content and concepts of Algebra I and Geometry. Students who master Algebra II will gain experience with algebraic	
solutions of problems in various content areas, including the solution of systems of quadratic equations, logarithmic and exponential functions, the binomial theorem, and the	
complex number system.	# of Items
ALG II 7.0* Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator.	6
ALG II 2.0* Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices.	5
ALG II 3.0* Students are adept at operations on polynomials, including long division.	4
ALG II 8.0* Students solve and graph quadratic equations by factoring, completing the square, or using the quadratic formula. Students apply these techniques in solving word problems. They also solve quadratic equations in the complex number system.	4
ALG II 10.0* Students graph quadratic functions and determine the maxima, minima, and zeros of the function.	4
ALG II 15.0* Students determine whether a specific algebraic statement involving rational expressions, radical expressions, or logarithmic or exponential functions is sometimes true, always true, or never true.	
ALC II 4.0* Studente fector polynemicle representing the	4
difference of squares, perfect square trinomials, and the sum and difference of two cubes.	3
ALG II 6.0* Students add, subtract, multiply, and divide complex numbers.	3

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

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

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^{**} 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

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ALG II 11.1* Students understand the inverse relationship between exponents and logarithms, and use this relationship to solve problems involving logarithms and exponents	
	3
ALG II 12.0* Students know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay.	3
ALG II 11.2* Students judge the validity of an argument according to whether the properties of real numbers, exponents, and logarithms have been applied correctly at each step.	2 1/2**
ALG II 5.0* Students demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically. In particular, they can plot complex numbers as points in the plane.	2
ALG II 9.0* Students demonstrate and explain the effect that changing a coefficient has on the graph of quadratic functions; that is, students can determine how the graph of a parabola changes as <i>a</i> , <i>b</i> , and <i>c</i> vary in the equation $y = a(x-b)^2 + c$.	2
ALG II 14.0 Students understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values.	2
ALG II 18.0* Students use fundamental counting principles to compute combinations and permutations.	2
ALG II 19.0* Students use combinations and permutations to compute probabilities.	2
ALG II 20.0* Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers.	2
ALG II 22.0 Students find the general term and the sums of arithmetic series and of both finite and infinite geometric series.	2
PS 2.0 Students know the definition of <i>conditional probability</i> and use it to solve for probabilities in finite sample spaces.	2
PS 7.0 Students compute the variance and the standard deviation of a distribution of data.	2
ALG II 1.0* Students solve equations and inequalities involving absolute value.	1
ALG II 13.0 Students use the definition of logarithms to translate between logarithms in any base.	1

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ALG II 17.0 Given a quadratic equation of the form $ax^2 + by^2 + cx$	
square to put the equation into standard form and can recognize	
whether the graph of the equation is a circle, ellipse, parabola, or	
hyperbola. Students can then graph the equation.	1
PS 1.0 Students know the definition of the notion of <i>independent</i> events and can use the rules for addition multiplication and	
complementation to solve for probabilities of particular events in	
finite sample spaces.	1
ALG II 24.0 Students solve problems involving functional	
concepts, such as composition, defining the inverse function and	
penorming antimetic operations on functions.	
	1/2**
ALG II 16.0 Students demonstrate and explain how the geometry of the graph of a conic section (e.g., asymptotes, foci	
eccentricity) depends on the coefficients of the quadratic equation	
representing it.	1/3**
ALG II 21.0 Students apply the method of mathematical induction	
to prove general statements about the positive integers.	1/3**
ALG II 25.0 Students use properties from number systems to	
justify steps in combining and simplifying functions.	1/3**
ALG II 23.0* Students derive the summation formulas for	
arithmetic series and for both finite and infinite geometric series.	NA***

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