

<u>Days</u>	<u>Key Topics</u>	<u># of Questions on CST</u>	<u>Released CST Questions</u>	<u>CA Standards Addressed & Learning Goals</u> * Bold Standards should be mastered by the end of this unit. Others are addressed, but not yet mastered. * An asterisk indicates a key standard.
1 & 2	Class Business			
3 & 4	Benchmark #1			
5-17	1: Tools of Algebra Properties of Real Numbers Algebraic Expressions Solving Equations Solving & Graphing Inequalities Absolute Value Equations Absolute Value Inequalities	1	#1, 2	* Students understand properties and subsets of real numbers. * Students simplify and evaluate algebraic expressions. * Students solve linear equations. * Students find and graph the solutions to linear inequalities. 1.0* : Students solve absolute value equations. 1.0* : Students find and graph the solutions to absolute value inequalities.
18-33	2: Functions & Systems of Equations/Inequalities Graphing Lines Review Solving Linear Systems by: 1. Graphing 2. Substitution 3. Elimination Systems of Inequalities (Linear Programming) Solving Three Variable Systems	5	#3-9	2.0* : Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices

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34-60	3: Quadratics & Complex Numbers Factoring Solving Quadratic Equations by: 1. Factoring 2. Graphing 3. Quadratic Formula 4. Completing the Square Graphing Parabolas Finding Maxima & Minima Operations with Complex Numbers	Std. 5: 2 Std. 6: 3 Std. 8: 4 Std. 9: 2 Std. 10: 4 Total: 15	#29-48	4.0*: Students factor polynomials representing the difference of squares and perfect square trinomials. 5.0* & 6.0* : Students add, subtract, multiply, divide, and graph complex numbers. 8.0* : Students solve and graph quadratic equations (with real and/or imaginary solutions) by factoring, completing the square, or using the quadratic formula. 8.0* : Students apply these techniques in solving word problems. 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 a, h, and k vary in the equation $y = a(x - h)^2 + k$. 10.0* : Students graph quadratic functions and determine the maxima, minima, and zeros of the function.
61-68	4: Polynomials Operations on Polynomials Factoring Solving polynomial equations	Std. 3: 4 Std. 4: 3 Total: 7	#10-20	3.0* : Students add, subtract, multiply, and divide polynomials. 4.0* : Students factor polynomials representing the sum and difference of cubes.
69 & 70	Benchmark #2			
71-82	5: Rational Expressions Operations on Rational Expressions Solving Rational Equations	Std. 7: 6 Std. 15: 4 Total: 10	#21-28, 71, 72, 74, 75	7.0* : Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify rational expressions. 7.0* : Students perform these operations with both positive and negative exponents. 15.0*: Students determine whether a specific algebraic statement involving rational expressions is sometimes true, always true, or never true.
Took a break to review for First Semester Final, and then to review Quadratic Functions (specifically, graphing)				
100-116	6: Exponents & Logarithms Fractional Exponents Exponential Functions Properties of Logarithms Solving exponential and logarithmic equations	Std. 12: 3 Std. 11.1: 3 Std. 13: 1 Std. 14: 2 Total: 9	#53-70, 73, 76	12.0* : Students know the laws of fractional exponents. 12.0* : Students understand exponential functions, and use these functions in problems involving exponential growth and decay. 11.1* : Students understand the inverse relationship between exponents and logarithms, and use this relationship to solve problems involving logarithms and exponents. 13.0 & 14.0 : Students use the properties and definitions of logarithms.

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117-127 Benchmark #3: 128, 129, 130-133	7: Conic Sections Parabolas, Ellipses, Hyperbolas, Circles * No essential standards	Std. 16: 1 every 3 years Std. 17: 1	#49-52	16.0: Students demonstrate and explain how the geometry of the graph of a conic section depends on the coefficients of the quadratic equation representing it. 17.0: Students graph equations of the form $ax^2 + by^2 + cx + dy + e = 0$. 8.0* & 17.0: Students use the method of completing the square to write these equations in standard form and can recognize whether the graph of the equation is a circle, ellipse, parabola, or hyperbola.
134-144	8: Sequences, Series, & Combinatorics Arithmetic Sequences & Series Geometric Sequences & Series Permutations & Combinations Binomial Expansion	Std. 18: 2 Std. 19: 2 Std. 20: 2 Std. 22: 2 Std. 23: n/a Total: 8	#77-86	22.0: Students find the general term and the sums of arithmetic series and of both finite and infinite geometric series. 23.0*: Students derive the summation formulas for arithmetic series and for both finite and infinite geometric series. 18.0*: Students use fundamental counting principles to compute combinations and permutations. 19.0*: Students use combinations and permutations to compute probabilities. 20.0*: Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers.
145-152	CST Review			
153-156	CST Tests			
157-168	Final Projects			
169-175	Review for Final			
176-180	Finals			

	9: Probability & Statistics Probability Rules Standard Deviation & Variance	Std. 1.0: 1 Std. 2.0: 2 Std. 7.0: 2 Total: 5	#90-96	P/S 1.0: Students know the definition of the notion of <i>independent events</i> and can use the rules for addition, multiplication, and complementation to solve for probabilities of particular events in finites spaces. P/S 2.0: Students know the definition of <i>conditional probability</i> and use it to solve for probabilities in finite samples spaces. P/S 7.0: Students compute the variance and the standard deviation of a distribution of data.
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*** #87-89 on CST Released Questions are about function stuff (incorporated throughout the course)