Page (in Final Version)	Original Language	New Language
Page 2, Line 3	"While this is written especially for the secondary mathematics teachers, it should be useful for anyone who is concerned about the preparation of California's students for college."	"While parts of this Statement were written with certain audiences in mind, the document as a whole should be useful for anyone who is concerned about the preparation of California's students for college."
Page 2, Line 8 (second paragraph)	*Inserted new, original language*	"Entering College Students" in general refers to students who enter a California postsecondary institution with the goal of receiving a bachelor's degree. However, it is important that students who plan to enter a California community college be aware that a wide variety of courses exist to help them transition from lower mathematical skill levels to the competencies described in this document. Most community colleges offer a wide range of mathematics courses including some as elementary as arithmetic.
Page 3, line 1	"This section enumerates characteristics of entering freshmen college students who have the mathematical maturity to be successful in a first college mathematics course, and in other college courses that are quantitative in their approach."	"This section enumerates characteristics of entering freshmen college students who have the mathematical maturity to be successful in their first college mathematics course, and in other college courses that are quantitative in their approach. A student's first college mathematics course will depend upon the student's goals and preparation"
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Page 3 – 4, last bullet point	*Deleted language* - "An openness to the use of appropriate technology, such as graphing calculators and computers, in solving mathematical problems and the attendant awareness of the limitations of this technology-students should be able to make effective use of the technology, which includes the ability to determine when technology will be useful and when it will not be useful."	*Replaced with* – "While proficiency in the use of technology is not a substitute for mathematical competency, students should be familiar with and confident in the use of computational devices and software to manage and display data, to explore functions, and to formulate and investigate mathematical conjectures."
Page 4, line 10	*Inserted new, original language*	"Various technologies can be used to develop students' understanding, stimulate their interest, and increase their proficiency in mathematics. When strategically used, technology can improve student access to mathematics."
Page 7 Page 7 (cont)	*Deleted language* – Section 2: **Technology** The pace at which advances are made in technology, and the surprising ways in which mathematics pedagogy and curriculum change in response to those advances, make it impossible to anticipate what technological experiences and skills students will need for success in college in the coming years. Also, the diversity of responses to technology among the college mathematics courses in California further impede the development of a clear statement on the appropriate technological background for entering college students. But the general directions are discernible. The past has shown us that scientific calculators make many problems accessible to students that previously were not because of excessive computation. More recently, we've seen that students can use the graphing capabilities of calculators to deepen their understanding of functions. And now the advent of hand-held calculators that perform symbolic algebra computations will certainly have a major impact on the instruction in algebra and more advanced courses. From all of this, it is clear that entering college students must have availed	*Refer to the language inserted on page 4, line 10. The intent of the committee was that this brief mention of technology would be adequate in 2010 for what needed much more discussion in 1997.*

	themselves of opportunities presented by technology. The kind of graphing calculator or computer software preferred at different institutions, by different instructors, in different courses, at different times will of course vary. So, student experiences should not focus on the intricacies of a specific device so much as on the use of technology as a valuable tool in many aspects of their mathematics courses. Entering college students should have considerable experience in the following areas: • Deciding when to use technology. Students should be able to determine what algebraic or geometric manipulations are necessary to make best use of the calculator. At the same time, they should also be able to determine for themselves when using a calculator, for example, might be advantageous in solving a problem. • Dealing with data. Students should work on problems posed around real data and involving significant calculations. With repeated applications requiring computation, they can gain skill in estimation, approximation, and the ability to tell if a proposed solution is reasonable. Students should find opportunities to work with data in algebra, geometry, and statistics. • Checking their Calculations. Whenever possible students should use a calculator with a multi-line screen so that they are able to review the input to the calculator and to determine whether any errors have been made. • Representing problems geometrically. Students should be able to use graphing calculators as a tool to represent functions and to develop a deeper understanding of domain, range, arithmetic operations on functions, inverse functions, and function composition. • Experimenting, making conjectures, and finding counterexamples. Students should be comfortable using technology to check their guesses, to formulate revised guesses, and to make conjectures based on these results. They should also challenge conjectures, and find counterexamples. Where possible, they should use tools such as geometric graphing utilities to make and test geometric conjectures and to provide counter examples.	
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Page 7	Section 2: Technology	Section 2: Subject Matter
Page 7, line 22	*Inserted new, original language*	"Students who lack these skills on leaving high school may acquire them through some community college courses."
Page 7, line 25	*Deleted language* –"Relative to traditional practice, topics and perspectives are described here as appropriate for increased emphasis (which does not mean paramount importance) and for decreased emphasis (which does not mean elimination)."	*No replacement language*
Page 7, line 29	"Increased emphasis should be placed on algebra both as a language for describing mathematical relationships and as a means for solving problems, while decreased emphasis should be placed on interpreting algebra as merely a set of rules for manipulating symbols."	"Emphasis should be placed on algebra both as a language for describing mathematical relationships and as a means for solving problems; algebra should not merely be the implementation of a set of rules for manipulating symbols."
Page 8, line 11	"Increased emphasis should be placed on various representations of functions-using graphs, tables, variables, words and on the interplay among the graphical and other representations, while decreased emphasis should be placed on repeated manipulations of algebraic expressions."	"Emphasis should be placed on various representations of functions- using graphs, tables, variables, and words- and on the interplay among the graphical and other representations; repeated manipulations of algebraic expressions should be minimized."
Page 9, line 4	"Increased emphasis should be placed on developing an understanding of geometric concepts sufficient to solve unfamiliar problems and an understanding of the need for compelling geometric arguments, while decreased emphasis should be placed on memorization of terminology and formulas.	"Emphasis should be placed on developing an understanding of geometric concepts sufficient to solve unfamiliar problems and an understanding of the need for compelling geometric arguments; mere memorization of terminology and formulas should receive as little attention as possible."
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Page 10, line 1	"Probability: Counting (permutations and combinations, multiplication principle); sample spaces; expected value; conditional probability; area representations of probability. Increased emphasis should be placed on a conceptual understanding of discrete probability, while decreased emphasis should be placed on aspects of probability that involve memorization and rote application of formulas."	"Probability: Counting (permutations and combinations, multiplication principle); sample spaces; expected value; conditional probability; independence; area representations of probability. Emphasis should be placed on a conceptual understanding of discrete probability; aspects of probability that involve student memorization and rote application of formulas should be minimized.
Page 10, line 18	"Five friends line up at a movie theater. What is the probability that Mary and Mercedes are standing next to each other?"	"Ashley, Frank, Jose, Mercedes, and Wade will line up in random order at a movie theater. What is the probability that Ashley and Mercedes stand next to each other?"
Page 10, line 20	"Data Analysis and Statistics: Presentation and analysis of data; mean, median and standard deviation; representative samples; using lines to fit data and make predictions. Increased emphasis should be placed on organizing and describing data and making predictions based on the data, with common sense as a guide, while decreased emphasis should be placed on aspects of statistics that are learned as algorithms without an understanding of the underlying ideas."	"Data Analysis and Statistics: Presentation and analysis of data; measures of center such as mean and median, and measures of spread such as standard deviation and interquartile range; representative samples; using lines to fit data and make predictions. Emphasis should be placed on organizing and describing data, interpreting summaries of data, and making predictions based on the data, with common sense as a guide; algorithms should be learned with an understanding of the underlying ideas."
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Page 11, line 3	The table at the right shows the population of the USA in each of the last five censuses. Make a scatter plot of this data and draw a line on your scatter plot that fits this data well. Find an equation for your line, and use this equation to predict what the population might be in the year 2000. Plot that predicted point on your graph and see if it seems reasonable. What is the slope of your line? Write a sentence that describes to someone who might not know about graphs and lines what the meaning of the slope is in terms involving the USA population.	The table at the right shows the population of the USA in each of the last five censuses. Make a scatter plot of this data and draw a line on your scatter plot that fits this data well. Find an equation for your line, and use this equation to predict what the population was in the year 1975. Plot that predicted point on your graph and see if it seems reasonable. What is the slope of your line? Write a sentence that describes to someone who might not know about graphs and lines what the meaning of the slope is in terms involving the USA population.
Page 11, line 24	"Find the mean and standard deviation of the following seven numbers: 4 12 5 6 8 5 9"	"Jane was on her computer every day one week for the number of hours listed. Find the mean and standard deviation of the time she was on the computer that week. 12, 4, 5, 6, 8, 5, 9"
Page 12, line 1	"Argumentation and Proof: Mathematical implication; hypotheses and conclusions; direct and indirect reasoning; inductive and deductive reasoning. Increased emphasis should be placed on constructing and recognizing valid mathematical arguments, while decreased emphasis should be placed on mathematical proofs as formal exercises."	Argumentation and Proof: Logical implication; hypotheses and conclusions; inductive and deductive reasoning. Emphasis should be placed on constructing and recognizing valid mathematical arguments; mathematical proofs should not be considered primarily as formal exercises.
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Page 12, line 19	"Discrete Mathematics: Graph theory; coding theory; voting systems; game theory; decision theory."	"Discrete Mathematics: Topics such as set theory, graph theory, coding theory, voting systems, game theory, and decision theory."
Page 12, line 22	"Geometry: Transformational geometry, including rotations, reflections, translations, and dilations; tessellations; solid geometry; three-dimensional coordinate geometry, including lines and planes."	"Geometry: Right triangle trigonometry; transformational geometry including dilations; tessellations; solid geometry; three-dimensional coordinate geometry, including lines and planes."
Page 13, line 5	"What follows is a brief summary of the mathematical subjects that are an **essential** part of knowledge base and skill base for students to be adequately prepared for quantitative majors. Students are best served by deep mathematical experiences in these areas.	"What follows is a brief summary of the mathematical subjects that are an **essential** part of the knowledge base and skill base for students to be adequately prepared for science, technology, engineering, and mathematics (STEM) majors. At the very least, any entering college student considering a STEM major should be well prepared to begin a calculus sequence for physical sciences and engineering majors. Students are best served by deep experiences in these mathematical subjects."
Page 13, line 12	"Variables, Equations, and Algebraic Expressions: Solutions to systems of equations, and their geometrical interpretation; solutions to quadratic equations, both algebraic and graphical; the correspondence between roots and factors of polynomials; the binomial theorem."	"Variables, Equations, and Algebraic Expressions: Solutions to systems of equations, and their geometrical interpretation; solutions to quadratic equations, both algebraic and graphical; complex numbers and their arithmetic; the correspondence between roots and factors of polynomials; rational expressions; the binomial theorem."
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Page 14, line 1	"Functions: Logarithmic functions, their graphs, and applications; trigonometric functions of real variables, their graphs, properties including periodicity, and applications; basic trigonometric identities; operations on functions, including addition, subtraction, multiplication, reciprocals, division, composition, and iteration; inverse functions and their graphs; domain and range.:	"Functions: Rational functions; logarithmic functions, their graphs, and applications; trigonometric functions of real variables, their graphs, properties including periodicity, and applications to right triangle trigonometry; basic trigonometric identities; operations on functions, including addition, subtraction, multiplication, reciprocals, division, composition, and iteration; inverse functions and their graphs; domain and range."
Page 14, line 17	"A cellular phone system relay tower is located atop a hill. You have a transit and a calculator. "	"A cellular phone system relay tower is located atop a hill. You can measure angles and have a calculator."
Page 15, line 16	"Argumentation and Proof: Mathematical induction and formal proof. Attention should be paid to the distinction between plausible, informal reasoning and complete, rigorous demonstration."	"Argumentation and Proof: Mathematical implication; mathematical induction and formal proof. Attention should be paid to the distinction between plausible or informal reasoning and complete or rigorous demonstrations."
Page 15, line 29	"What follows is a brief summary of some of the mathematical subjects that are a desirable part of the mathematical experiences for students who enter higher education with the possibility of pursuing quantitative majors."	"What follows is a brief summary of some of the mathematical subjects that are a desirable part of the mathematical experiences for students who enter higher education with the possibility of pursuing STEM majors."
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Page 16, line 3	"Vectors and Matrices: Vectors in the plane; complex numbers and their arithmetic; vectors in space; dot and cross product, matrix operations and applications."	"Vectors and Matrices: Vectors in the plane; vectors in space; dot and cross product; matrix operations and applications."
Page 16, line 5	- Probability and Statistics: Continuous distributions; binomial distributions; fitting data with curves; regression; correlation; sampling."	"Probability and Statistics: Distributions as models; discrete distributions, such as the Binomial Distribution; continuous distributions, such as the Normal Distribution; fitting data with curves; correlation, regression; sampling, graphical displays of data."
Page 16, line 13	"Calculus"	"Calculus: A high school calculus course should have the same depth, rigor and content as university calculus courses designed for physical sciences and engineering majors. Prior to taking the course, students should have successfully completed four years of secondary school mathematics. Students completing the course should take one of the College Board's Advanced Placement Calculus examinations."
Page 19, line 1	**Appendix B** **Calculus in the Secondary School** **To:** Secondary School Mathematics Teachers **From:** The Mathematical Association of America The National Council of Teachers of Mathematics **Date:** September 1986 **Re:** Calculus in the Secondary School **Dear Colleagues:**	*The Appendix on Calculus in the Secondary School was deleted. Refer to the new language about Calculus as listed on page 16, line 13, for the discussion about calculus in the current document.*

	A single variable calculus course is now well established in the 12th grade at many secondary schools, and the number of students enrolling is increasing substantially each year. In this letter we would like to discuss two problems that have emerged. The first problem concerns the relationship between the calculus course offered in high school and the succeeding calculus courses in college. *The Mathematical Association of America (MAA) and the National Council of Teachers of Mathematics (NCTM) recommend that the calculus course offered in the 12th trade should be treated as a college-level course.* The expectation should be that a substantial majority of the students taking the course will master the material and will not then repeat the subject upon entrance to college. Too many students now view their 12th grade calculus course as an introduction to calculus with the expectation of repeating the material in college. This causes an undesirable attitude on the part of the student both in secondary school and in college. In secondary school all too often a student may feel "I don't have to master this material now, because I can repeat it later;" and in college, "I don't have to study this subject too seriously, because I have already seen most of the ideas." Such students typically have considerable difficulty later on as they proceed further into the subject matter. *MAA and NCTM recommend that all students taking calculus in secondary school who are performing satisfactorily in the course should expect to place out of the comparable colle2e calculus course.* Therefore, to verify appropriate placement upon entrance to college, students should either take one of the Advanced Placement (AP) Calculus Examinations of the College Board, or take a locally-administered college placement examination in calculus. Satisfactory performance on an AP examination carries with it college credit at most universities. A second problem concerns preparation for the calculus course. *MAA and NCTM recommend that students who enroll in a calculus course in secondary school should have demonstrated mastery of algebra, geometry. trigonometry. and coordinate geometry.* This means that students should have at least four full years of mathematical preparation beginning with the first course in algebra. The advanced topics in algebra, trigonometry, analytic geometry, complex numbers, and elementary functions studied in depth	

	during the fourth year of preparation are critically important for students' later courses in mathematics. It is important to note that at present many well-prepared students take calculus in the 12th grade, place out of the comparable course in college, and do well in succeeding college courses. Currently the two most common methods for preparing students for a college-level calculus course in the 12th grade are to begin the first algebra course in the 8th grade or to require students to take second year algebra and geometry concurrently. Students beginning with algebra in the 9th grade who take only one mathematics course each year in secondary school should not expect to take calculus in the 12th grade. Instead, they should use the 12th grade to prepare themselves fully for calculus as freshman in college. We offer these recommendations in an attempt to strengthen the calculus program in secondary schools. They are not meant to discourage the teaching of college-level calculus in the 12th grade to strongly prepared students.	
Page 19 - 30		*A new Appendix B was added providing detailed references to the California and National Council of Teachers of Mathematics Standards.*