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## Information

*Professional Services Committee*

### Authorizations to Teach Mathematics

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**Executive Summary:** This agenda item identifies and describes the different documents that authorize an individual to teach mathematics, including the level of mathematics instruction authorized by the document. In addition, the item provides data on the numbers of individuals earning credentials to teach mathematics, the mathematics subject matter requirements, the passing rates of the CSET mathematics examination, pedagogical preparation to teach mathematics, and how students in the public schools are scoring on the standardized mathematics examinations.

**Recommended Action:** For information only

**Presenters:** Rebecca Parker, Ph.D., Consultant and Teri Clark, Administrator, Professional Services Division

#### Strategic Plan Goal: 1

#### Promote educational excellence through the preparation and certification of professional educators

- ◆ Sustain high quality standards for the preparation and performance of professional educators and for the accreditation of credential programs

October 2008



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# Authorizations to Teach Mathematics

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## Introduction

Mathematics, especially Algebra I, has been the focus of much attention recently due to action of the State Board of Education (SBE) in July 2008 to assess all 8<sup>th</sup> grade students in Algebra I by the 2010-11 school year. This action was taken as a condition of entering into a compliance agreement with the U.S. Department of Education (USDE). In light of this new state policy direction, it seems appropriate to review and discuss the documents that authorize an individual to teach mathematics, since a number of the Commission's credentials and other documents authorize an individual to teach mathematics in the public schools.

This agenda item describes current credential authorizations and teacher preparation in mathematics in the context of student coursework and related evidence of student proficiency. The information presented in this item addresses a number of topics related to the preparation of individuals to teach mathematics including types of authorizations required for different levels of mathematics instruction, K-12 student proficiency in mathematics, number of mathematics credentials and other mathematics authorizations awarded, subject matter preparation to teach mathematics, including the number and passing rate of single subject candidates who satisfy the subject matter requirement through the California Subject Examination for Teachers (CSET): Mathematics Examination, and pedagogical preparation to teach mathematics.

At different points in the discussion, questions are posed about the adequacy of the preparation of professional educators who provide mathematics instruction. Finally, staff has posed a number of questions for the Commission to consider regarding the preparation and credentialing of individuals to teach mathematics and requests Commission direction as to which, if any, of the questions should be studied further.

## Background

The No Child Left Behind Act (NCLB) of 2001 is the most recent authorization of the Elementary and Secondary Education Act of 1965. Since the previous authorization, Improving America's Schools Act of 1994 (IASA), all states have been required to adopt content standards and aligned assessment systems, at least for English/Language Arts and Mathematics, for students in particular grade spans. Results of these standards-aligned assessments are reported annually to the USDE to demonstrate that students in the state are making adequate progress in becoming proficient. In 1997, California adopted the *Mathematics Content Standards* that anticipate, among other things, that 8<sup>th</sup> grade mathematics content will be Algebra I. California also adopted the Standardized Testing and Reporting system (STAR) that includes an Algebra I assessment as well as a General Mathematics assessment for 8<sup>th</sup> and 9<sup>th</sup> grade students. For the purposes of responding to the IASA and, later, the NCLB accountability requirements, California elected to report General Mathematics assessment scores for all 8<sup>th</sup> grade students. The General Mathematics assessment does not require coursework in Algebra I. Students in the 8<sup>th</sup> grade taking Algebra I take the General Mathematics assessment as well as the end-of-course Algebra I assessment, but the Algebra I scores are not included in the state's annual accountability report. The USDE, after reviewing California's assessment and accountability

activities, notified California that the state's Mathematics Content Standards should be changed to remove Algebra I as the standard for 8<sup>th</sup> grade, or the state must assess all 8<sup>th</sup> grade students in Algebra I content. In a July 8, 2008, letter addressed to Theodore Mitchell, President of the SBE, Governor Schwarzenegger encouraged the Board to designate the Algebra I assessment as the 8<sup>th</sup> grade mathematics examination for federal reporting purposes. After vigorous debate, the SBE voted to require that all 8<sup>th</sup> grade students be assessed in Algebra I rather than change California's rigorous content standards.

To support implementation of this requirement, the Superintendent of Public Instruction (SPI) developed "The California Algebra I Success Initiative: A Comprehensive Plan to Help Schools Prepare All Students for Success in Algebra I in Eighth Grade." <http://www.cde.ca.gov/nr/re/ht/algebrainitiative.asp>. This plan recommends increased recruitment and retention efforts for mathematics teachers and legislation to create a "focused and comprehensive algebra professional development plan for all teachers, paraprofessionals, and administrators in grades kindergarten through 12..." that focuses, initially, on teachers in grades four through eight.

### ***Mathematics Instruction and Assessment in California's Public Schools***

Mathematics instruction for the majority of students is provided in three different types of settings. Students in kindergarten through 5<sup>th</sup> or 6<sup>th</sup> grade are generally taught in a self-contained classroom in which one teacher is responsible for instruction in all subjects. Students in grades six through eight may be taught in self-contained classrooms, in a departmentalized setting, or in a core configuration which generally pairs math with science and English/Language Arts with social studies/history. In a core configuration, one teacher is responsible for each core (or pair) of subjects. Secondary level students, particularly those from 9<sup>th</sup> through 12<sup>th</sup> grade, are taught in departmentalized settings where a different teacher is responsible for each subject matter area. The type of credentials or authorizations needed to teach mathematics is discussed more fully throughout this agenda item, however, Appendix A includes a summary chart of the current authorizations available.

Students are assessed annually through the STAR system, a set of assessments that include the California Standards Tests (CSTs), the California High School Exit Examination (CAHSEE), the California Modified Assessment (CMA), and other tests. The tests any student will take in a given year are generally associated with their grade level (for students in 2<sup>nd</sup> through 7<sup>th</sup> grade) or with a particular academic class such as Algebra I which is taken in departmentalized classes (for students in 7<sup>th</sup> through 12<sup>th</sup> grade).

The CST results are reported as the percentage of students scoring at each of five performance levels: far below basic, below basic, basic, proficient, and advanced. Individual student scores are reported as the performance level associated with the students' numeric score. The basic performance level is generally believed to represent grade level performance. For purposes of federal accountability, however, the percent of students who score proficient or above is the critical measure since NCLB requires that all students be proficient in English/Language Arts and Mathematics by 2013-14. Students' scores on the CST are not necessarily related to their grades in classes or whether or not they pass a particular class (or promote to the next grade).

### ***Mathematics Instruction in the Self-Contained Classroom***

The multiple subject teaching credential authorization allows its holder to teach in self-contained classrooms, usually at the kindergarten through 5<sup>th</sup> or 6<sup>th</sup> levels. In addition, individuals with multiple subject credentials are often assigned to 7<sup>th</sup> or 8<sup>th</sup> grade core assignments. Multiple subject credential holders are currently authorized to teach Algebra I if the class is taught in a core configuration. However, this assignment conflicts with California's NCLB Highly Qualified Teacher requirements which are discussed below. The multiple subject credential does not authorize its holder to teach Algebra I in a departmentalized setting. More specifically, the multiple subject teaching authorization statement reads:

This credential authorizes the holder to teach all subjects in a self-contained class and, as a self-contained classroom teacher, to team teach or to regroup students across classrooms, in grades twelve and below, including preschool, and in classes organized primarily for adults. In addition, this credential authorizes the holder to teach core classes consisting of two or more subjects to the same group of students in grades five through eight, and to teach any of the core subjects he or she is teaching to a single group of students in the same grade level as the core for less than fifty percent of his or her work day.

### ***Proficiency Levels in Mathematics in Grades K-7 or 8***

Since 2003, the California Department of Education (CDE) has reported annually on the percentage of students scoring at or above the proficient level in mathematics as measured by the CST, a component of the STAR system. These data (see Table 1) reflect the results of at least 95% of all students in 2<sup>nd</sup> through 7<sup>th</sup> grade in mathematics (NCLB requires that at least 95% of all students be assessed with a standards-aligned instrument).

What level of knowledge do scores on the CST represent? CST results are reported in scale scores that range from 150 to 600 points. Students must earn a scale score of 350 or above to be in the proficient performance level. Scores associated with the basic performance level are 300-349 and are generally considered to reflect grade level performance. Students who score below proficient and are promoted to the next grade, or class, have scored between 150 and 349 on a 600 point scale; this equates roughly to missing at least 42% of the content of the standards reflected in the assessment. For example, if a student scores below the proficient level on the mathematics section of the CST but passes the mathematics class and goes on to take the next mathematics class, this is most likely an indication that the student is not prepared for that more advanced mathematics class. When this experience happens year after year, a student may develop a substantial knowledge and skill deficit in mathematics that may not express itself until the upper elementary years, or when a student takes Algebra 1 which requires more abstract cognitive abilities.

**Table 1: Percentage of Students Scoring at Proficient or Above in Mathematics, by Grade, from 2002-03 through 2007-08**

	2003 %	2004 %	2005 %	2006 %	2007 %	2008 %	Change in % 07-08	Change in % 03-08
<b>Grade 2</b>	53	51	56	58	59	59	0	6
<b>Grade 3</b>	46	48	54	57	58	61	3	15
<b>Grade 4</b>	45	45	50	54	56	61	5	16
<b>Grade 5</b>	35	38	44	48	49	51	2	16
<b>Grade 6</b>	34	35	40	42	42	44	2	10
<b>Grade 7</b>	30	33	37	41	39	41	2	11

Source: <http://www.cde.ca.gov/nr/ne/yr08/yr08rel110.asp#tab5>

A review of Table 1 reveals several things. First, the last column shows that there is an increase, at every grade level, in the percent of students who scored proficient or above between 2002-03 and 2007-08. However, reading down the table for each year, the percent proficient or above decreases for each next grade level, such that in 2008, 59% of 2<sup>nd</sup> grade students scored proficient or above, but only 41% of 7<sup>th</sup> graders did so. This pattern is observed for every year with the exception of 2008, in which 3<sup>rd</sup> and 4<sup>th</sup> graders scored better than 2<sup>nd</sup> graders. Despite the gains being made over time, the upper elementary level students (5<sup>th</sup> through 7<sup>th</sup> grade) persist in having lower performance. The greatest drop in percent proficient, across years, seems to occur between 4<sup>th</sup> and 5<sup>th</sup> grade.

Equally disturbing are the cohort scores (shown as diagonal scores, some shaded). Beginning with the 2<sup>nd</sup> grade cohort in 2003, the scores decreased in 3<sup>rd</sup> grade (2004), increased in 4<sup>th</sup> grade (2005), and then decreased annually such that only 41% of students in that cohort scored proficient or above in 2008. Despite the substantial increase in the percent proficient or above at both the 4<sup>th</sup> and 5<sup>th</sup> grade levels (16%), none of the cohorts represented in Table 1 were able to maintain their 4<sup>th</sup> grade achievement levels when tested in the 5<sup>th</sup> grade. It appears that the classroom mathematics instruction received by many California children may not adequately prepare them to maintain, much less accelerate, their comprehension of mathematics and level of achievement. If a student is not proficient in basic mathematics concepts prior to beginning Algebra, it is likely the student will not be ready for the more abstract concepts presented in Algebra.

These data beg the following questions:

- Are teachers with a multiple subject credential adequately prepared to teach mathematics in the upper elementary grades?
- Are they adequately preparing students for Algebra I?
- What is happening during mathematics instruction in the elementary years that results in students' mathematics proficiency decreasing rather than increasing?

### ***Mathematics Instruction at the Secondary Level***

Once students leave the self-contained or core classrooms of the earlier grades, they typically follow the sequence of mathematics courses shown below, with students planning to attend college or major in the sciences or mathematics completing more of the sequence.

Algebra I → Geometry → Algebra II/Trigonometry  
→ Mathematical Analysis → Linear Algebra → Calculus

Probability and Statistics and Advanced Probability and Statistics courses are also taught in some high schools. Traditionally, students enroll in Algebra I in 8<sup>th</sup> or 9<sup>th</sup> grade, although advanced 7<sup>th</sup> grade students may be recommended to take Algebra I. In 2007-08, approximately 50% of all California 8<sup>th</sup> graders were enrolled in Algebra I. The July action of the SBE will vastly increase the number of 8<sup>th</sup> grade students enrolled in Algebra I classes.

### ***Mathematics Authorizations for the Secondary Level***

The single subject credential in mathematics authorizes an individual to teach every level of mathematics from grades K-12. More specifically, the single subject mathematics authorization statement reads:

This document authorizes the holder to teach the subject area(s) listed above in grades twelve and below, including preschool, and in classes organized primarily for adults.

Individuals who hold a single subject teaching credential in mathematics are authorized to teach mathematics in grades seven through 12 including Algebra I, Geometry, Algebra II/Trigonometry, Probability and Statistics, Introductory Analysis, and Calculus courses.

The single subject Foundational-Level Mathematics (FLM) authorization statement reads:

This document authorizes the holder to teach the content areas in general mathematics, algebra, geometry, probability and statistics, and consumer mathematics in grades twelve and below, including preschool, and in classes organized primarily for adults.

The FLM credential authorizes an individual to teach mathematics in grades seven through 12 including Algebra I, Geometry, Algebra II, and Probability and Statistics. Individuals who hold a FLM credential are not authorized to teach Trigonometry, Introductory Analysis, or Calculus courses. The FLM credential, which was approved as an authorization by the Commission in 2002, was developed to increase the number of individuals authorized to teach Algebra I, Geometry, and Algebra II.

In addition to holding one of the credentials listed above, a multiple subject or single subject teacher may add either a *Supplementary Authorization in Introductory Mathematics* or a *Subject Matter Authorization in Mathematics*. The Supplementary Authorization in Introductory Mathematics has been an option for teachers for over 25 years, while the Subject Matter Authorization, on the other hand, is a more recent option developed in response to NCLB. Both the *Supplementary Authorization in Introductory Mathematics* and the *Subject Matter Authorization in Mathematics* read:

This credential authorizes the holder to teach only the subject matter content typically included for the introductory subject or subjects listed above, in curriculum guidelines and textbooks approved for study in grades 9 and below to students in preschool, kindergarten, grades 1-12, or in classes organized primarily for adults....

An individual with the Supplementary Authorization document, which is the document that has been in use in California for many years, has a minimum of 20 semester units of mathematics content knowledge. However, after NCLB highly qualified teacher requirements became federal law, California defined a highly qualified teacher as an individual who has completed 32 semester units in the subject area, in this case mathematics. The *Supplementary Authorization* did not satisfy California's definition of highly qualified teacher. Therefore, the Commission developed the *Subject Matter Authorization* that requires 32 semester units in mathematics and allows teachers holding this authorization to be considered "highly qualified" for the purpose of the NCLB. Both these documents authorize the individual to teach mathematics up through 9<sup>th</sup> grade content. With Algebra I being an 8<sup>th</sup> grade class, these documents would authorize an individual to teach Algebra I and Geometry.

In addition, veteran teachers can utilize the High Objective Uniform State Standard Evaluation (HOUSSE) process administered at the local level to become highly qualified. Districts are motivated to assign only highly qualified teachers to their academic subject courses because to do otherwise risks being sanctioned by the SBE and the CDE.

### ***Proficiency Levels of Students in Algebra I***

Beginning with Algebra I (or 10<sup>th</sup> grade coursework, whichever occurs first), students are assessed with an End of Course (EOC) examination rather than a grade level assessment. Students are not required to achieve a proficient or above score to pass the class, as criteria for passing the class are developed at the local level. However, NCLB requires that all states undertake activities to ensure that all students score proficient or above on English/Language Arts and mathematics assessments by 2013-14. Consequently, the percent proficient has become a critical parameter in discussions about curriculum and instructional practices.

Table 2 reports the percentage of 8<sup>th</sup> grade students proficient or above in general mathematics and Algebra I for the years 2002-03 through 2007-08.



**Table 2: Percentage of 8<sup>th</sup> Grade Students Scoring at Proficient or Above in General Mathematics and Algebra I, and Percentage of 8<sup>th</sup> Grade Students Enrolled in Each Class, for 2002-03 through 2007-08**

	2003	2004	2005	2006	2007	2008	Change in % 07-08	Change in % 03-08
	%	%	%	%	%	%		
	% enroll	% enroll	% enroll	% enroll	% enroll	% enroll		
<b>General Mathematics</b>	24 60%	24 54.7%	26 48.5%	26 46.7%	23 44.8%	31 42.9%	8	7
<b>Algebra I</b>	39 32%	35 37.8%	34 44.7%	40 46.8%	38 48.7%	42 50.5%	4	3

Source: California Department of Education website, <http://www.cde.ca.gov/nr/ne/yr08/yr08rel110.asp#tab5>

Table 2 shows that the percent of 8<sup>th</sup> grade students scoring proficient or above in General Mathematics rose slowly between 2002-03 and 2005-06 and then increased substantially between 2006-07 and 2007-08. There was an overall increase of 7%. Among 8<sup>th</sup> grade students in Algebra I, the percentage of students scoring proficient and above decreased between 2002-03 and 2005-06, but increased between 2005-06 and 2007-08 with an overall increase of 3%. Two aspects of these patterns are worth noting. First, that the scores in General Mathematics stayed relatively stable despite the movement of many 8<sup>th</sup> grade students into Algebra I. This is an interesting finding that is discussed below. Second, whereas one might expect that the percent of students scoring proficient or above in Algebra I would decrease as more 8<sup>th</sup> graders enrolled in the class, there is actually the opposite trend when viewed across the six years, with substantial growth in scores between 2004-05 and 2007-08.

It is not possible to follow individual students from one grade to the next; it is not known how well students in either General Mathematics or Algebra I performed in 7<sup>th</sup> grade mathematics. That data will be available once the California Longitudinal Pupil Assessment Data System (CALPADS) is operating. Available data (see Table 2) shows that increasing numbers of 8<sup>th</sup> grade students were moved into Algebra I between 2002-03 and 2007-08 and that, after a few difficult years (2002-03 to 2004-05), the percentage proficient or above began to increase. If that means that the higher performing 7<sup>th</sup> graders were the 8<sup>th</sup> grade Algebra I students, then the General Mathematics test scores reflect the performance of students who scored in the lower half of the 7<sup>th</sup> grade class. And the 7% increase in percent proficient or above for that group suggests that mathematics teachers' capacity to teach the content standards through effective instructional strategies were becoming more effective over time. Similarly, the increase might be a reflection of the stronger mathematics skills students had when they entered 8<sup>th</sup> grade as evidenced by CST results in 7<sup>th</sup> grade (see Table 1).

Table 3 compares the percent of students scoring proficient or above between first time test-takers and repeat test-takers on the 2008 CST Algebra I examination by grade level. As stated above, students who repeated the Algebra I assessment were not doing so because they scored below proficient on the test. Rather, students repeated the test because they had failed the class and were required to take it again and, thus, were re-tested. In fact, however, it is likely that these students performed below the basic level during the initial testing since the basic performance level is generally considered to be about grade level performance which should

have correlated with earning a passing grade in the class. (When the longitudinal student database is available, it will be possible to study these patterns with confidence.)

**Table 3: 2008 Algebra I Test: Percentage of Students Scoring at Proficient and Above**

Grade	All Results (# Test Takers)	1 <sup>st</sup> Time Examinees (# Test Takers)	Repeating the Algebra I Assessment* (# Test Takers)
7	80%	80 %	NA
	(25,573)	(25,573)	
8	42%	41 %	71 %
	(246,587)	(242,062)	(4,525)
9	18%	14 %	25 %
	(272,353)	(167,819)	(104,534)
10	8%	8 %	9 %
	(131,415)	(62,834)	(68,581)
11	5%	7 %	4 %
	(66,108)	(31,901)	(34,207)
State Total	25%	28 %	17 %
	(742,036)	(530,189)	(211,487)

Source: California Department of Education website,  
<http://www.cde.ca.gov/nr/ne/yr08/yr08rel110.asp#tab5>

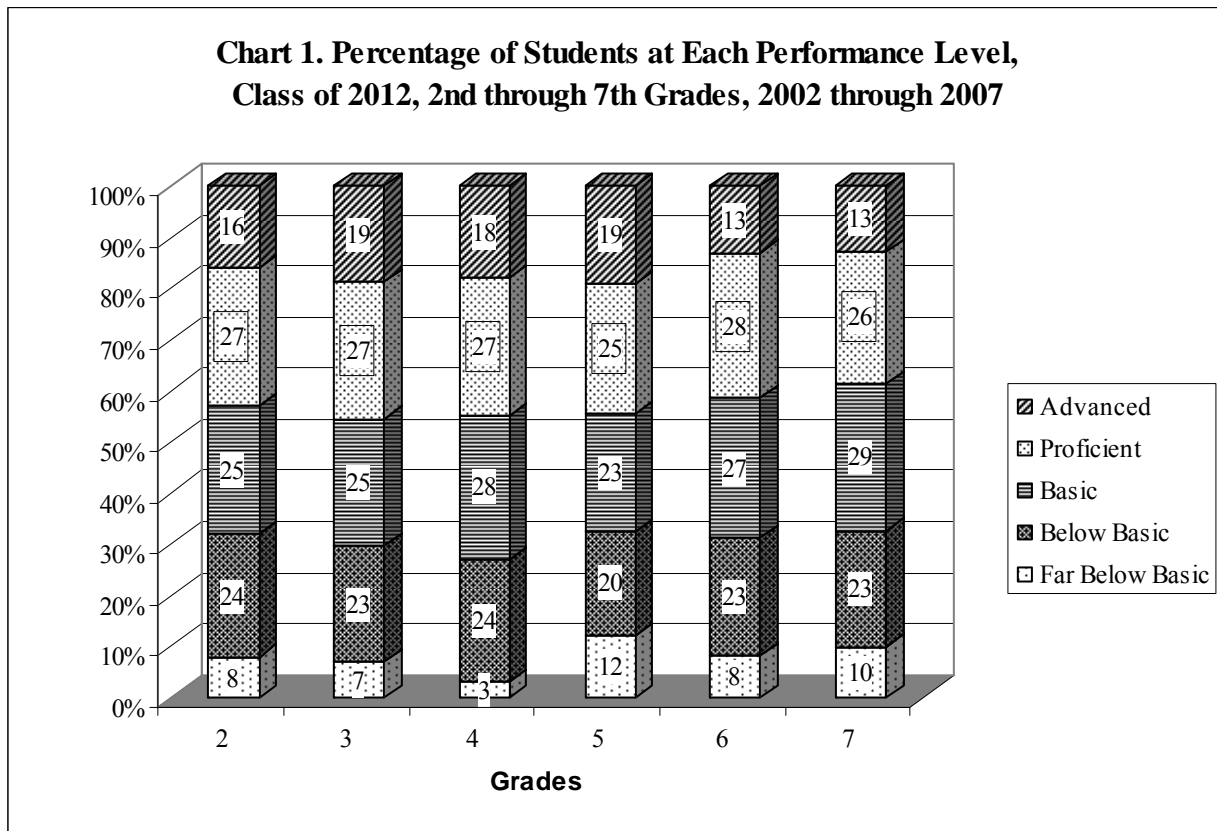
\* This number does not represent all students from the preceding year who did not score proficient on the test. Only those who failed the class according to criteria determined at the local level are required to retake the class and, therefore, retake the test.

Table 3 shows two patterns. The first and most obvious is that students who repeat the Algebra I class and retake the test the following year are less likely, as a group, to perform as well as they had during their initial test. This comparison is shown by the shaded, diagonal cells (e.g., 7<sup>th</sup> grade initial test-takers vs. 8<sup>th</sup> grade repeat test-takers). While these data are cross-sectional data (e.g., data were collected during one year rather than longitudinally), annual changes in percent proficient and above have been small, thereby allowing scores to be compared as if they were longitudinal. These data show that 80% of 7<sup>th</sup> grade initial test-takers scored at the proficient or above levels but only 71% of those students who the re-tested in 8<sup>th</sup> grade scored proficient or above. The same test-retest pattern is observed more starkly among 8<sup>th</sup> grade initial test-takers (41% proficient or above) and 9<sup>th</sup> grade repeat test-takers (25% proficient or above), and 9<sup>th</sup> grade initial test-takers (14% proficient or above) and 10<sup>th</sup> grade repeat test-takers (9% proficient or above). And, finally while only 8% of 10<sup>th</sup> grade initial test-takers performed at proficient or above, a paltry 4% of 11<sup>th</sup> grade repeat test-takers scored at that level.

A second pattern shown in Table 3 is that the percent proficient or above decreases as grade levels increase, such that 80% of 7<sup>th</sup> graders score proficient or above as opposed to 5% of those who take the test in 11<sup>th</sup> grade. These patterns suggest that the earlier a student takes Algebra I, the more likely that student will be able to score proficient and above, even if that student has to repeat the class.

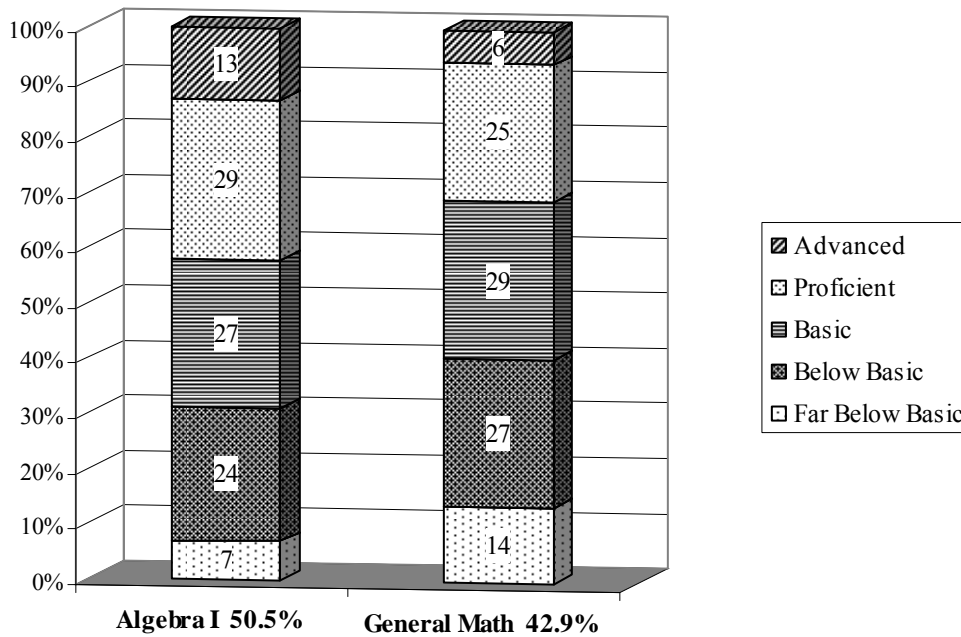
Supporting student success in mathematics and preventing student failure is a critical concern of the P-16 education community and, in this setting, to the teacher preparation community. Understanding when gaps in mathematics knowledge occur might suggest possible responses. Towards that end, Charts 1 and 2, below, follow one cohort of students from 2<sup>nd</sup> grade through 8<sup>th</sup> grade and provides information on the distribution of students among the five performance levels of the CST mathematics tests. Please note that Charts 1 and 2 discuss scores as basic and above, rather than proficient and above.

As seen in Chart 1, at the end of the 2<sup>nd</sup> grade, about 30% of this cohort of students scored below grade level, at below basic, or far below basic on the CST. The percent of students scoring below basic or far below basic decreased in 3<sup>rd</sup> and 4<sup>th</sup> grade, but the percent of 5<sup>th</sup> graders scoring below basic and far below basic increased and remained at about 30% through the end of 7<sup>th</sup> grade. It appears that the accumulating deficits in this cohort's mathematics knowledge and skills were still unaddressed at the end of 7<sup>th</sup> grade.



Using the same parameters as those used with Chart 1 (percent basic and above), data in Chart 2 follows the same cohort of students to the end of 8<sup>th</sup> grade. Interestingly, 70% of students who took Algebra I (50.5% of the cohort) tested basic or above. In contrast, only 60% of students who took General Mathematics (42.9% of the cohort) scored basic or above. This means that 40% of these 8<sup>th</sup> graders were still below grade level in mathematics, despite another pass at K-7 mathematics content.

**Chart 2. Percentage of Students at Each Performance Level,  
Class of 2012, 8th Grade, 2007-08**



Taken together, Table 3 and Charts 1 and 2 suggest that students in this cohort who reached 8<sup>th</sup> grade and were not ready for Algebra I did not benefit substantially from another year of General Mathematics (most likely pre-algebra). This is shown by the distribution of scores on the General Mathematics Test (40% were still below grade level, Chart 2) and by their relatively weak scores the following year in Algebra I (only 14% of 9<sup>th</sup> grade first time test-takers were proficient, Table 5). In contrast, the data suggest that underprepared students who enrolled in Algebra I, failed and then repeated the class, ended up, at the end of 9th grade, with higher levels of proficiency than did students who enrolled in a General Mathematics class and took Algebra I in 9<sup>th</sup> grade (25% proficient or above and 14% proficient or above, respectively). It appears that enrollment in the more challenging class may more effectively remediate deficiencies in mathematics knowledge than does enrollment in a general mathematics class. (It must be noted that these students did not have the benefit of instructional materials developed pursuant to the 2005 Mathematics Frameworks, which has a new, standards-based pre-algebra curriculum and six volumes for intervention programs for grades 4-7.)

***Number of Mathematics Credentials and Other Authorizations Awarded 2002-07***

The following tables report the number of mathematics credentials and authorizations awarded between 2002 and 2007. The table contains some duplicated counts of teachers who earned mathematics authorizations. For example, an individual who earned an intern authorization in 2002 might have earned a preliminary authorization in 2003 or 2004, and then earned a professional clear in 2006 or 2007. This means that the counts in the tables are overestimates of the number of authorized individuals prepared between 2003 and 2007. Table 4 identifies the number of mathematics credentials and authorizations granted between 2002-03 and 2006-07.

**Table 4: Mathematics Credentials and Authorizations Granted, 2002-03 through 2006-07**

	2002-03		2003-04		2004-05		2005-06		2006-07	
	New	Renew	New	Renew	New	Renew	New	Renew	New	Renew
<b>Single Subject Credentials</b>										
Foundational-Level Mathematics <sup>1</sup>	1		163		430	37	660	67	714	180
Mathematics	1,004	1,743	1,261	1,780	1,221	1,947	1,108	2,103	1,090	2,303
<b>Total</b>	<b>1,005</b>		<b>1,425</b>		<b>1,651</b>		<b>1,768</b>		<b>1,804</b>	
<b>Internship Credentials</b>										
Foundational- Level Mathematics (Intern) <sup>1</sup>	5		108		219		263		320	
Mathematics (Intern)	306		401		331		300		364	
<b>Total</b>	<b>311</b>		<b>509</b>		<b>550</b>		<b>563</b>		<b>684</b>	
<b>Subject Matter Authorization (32 units)</b>										
Subject Matter/Single Subject Credential <sup>2</sup>					18	1	28	7	67	5
Subject Matter/Multiple Subject Credential <sup>2</sup>					47	3	93	15	101	28
<b>Total</b>					<b>65</b>		<b>121</b>		<b>168</b>	
<b>Supplementary Authorizations (20 units)</b>										
Added to Single Subject Credential	417	686	389	710	209	745	142	737	102	820
Added to Multiple Subject Credential	740	830	770	880	455	982	262	1,071	232	1,253
<b>Total</b>	<b>1,157</b>		<b>1,159</b>		<b>664</b>		<b>404</b>		<b>334</b>	

<sup>1</sup> Foundational Mathematics (FLM): authorizations initiated in Spring 2003.

<sup>2</sup> Subject Matter Authorization (32 units): authorizations initiated in 2004.

As can be seen from Table 4, the number of new single subject mathematics credentials granted increased steadily between 2002-03 and 2006-07. The growth is due to the substantial increase in the number of new FLM credentials granted annually. Growth of this credential is likely to increase substantially as the demand for teachers authorized to teach Algebra I increases.

The number of new subject matter authorizations granted annually increased between 2004-05 and 2006-07 while the number of new supplementary authorizations (that are not compliant with highly qualified teacher requirements) has been on the decline since 2002-03.

Table 5 shows the number of waivers and permits granted between the years 2002-03 and 2006-07. Despite the increase in the numbers of new authorizations shown in Table 4, above, the number of permits and waivers is still fairly large, suggesting a continuing need for mathematics teachers.

**Table 5: Waivers, Provisional Internship Permits, Short-Term Staff Permits, and Emergency Permits, 2002-07**

		2002-03	2003-04	2004-05	2005-06	2006-07
Waivers <sup>1</sup>	FLM					4
	Math	92	32	25	56	68
Provisional Internship Permits <sup>2</sup>	FLM				6	35
	Math				123	264
Short-Term Staff Permits <sup>3</sup>	FLM				19	79
	Math				71	248
Emergency Teaching Permits <sup>4</sup>	FLM		11	42	33	
	Math	1404	812	751	266	
<b>Annual Totals</b>		<b>1496</b>	<b>845</b>	<b>818</b>	<b>574</b>	<b>698</b>
Local Assignment Option <sup>5</sup>						
	Math	2,035				

<sup>1</sup> One or more requirements are waived which may include the basic skills requirement and/or the subject matter requirement for a teaching permit (minimum of 18 units). The requirement waived the most often is the basic skills requirement. The local employing agency must request the waiver for the teacher.

<sup>2</sup> Provisional Internship Permits (PIP) are requested by the local employing agency and are issued for one year and may be reissued only once if renewal requirements are met. The individual has NOT satisfied the subject matter requirement for an internship or preliminary credential.

<sup>3</sup> Short-Term Staff Permits (STSP) are requested by the local employing agency for acute staffing needs. They may be issued only once and expire at the end of the current school year. Individuals with a STSP may or may not have satisfied the subject matter requirement for an internship or preliminary credential. If subject matter has been met, the individual may not have been able to enroll in the internship program because pre-service had not been completed or was unable to enroll in a Commission-approved internship program due to timelines or lack of space in the program.

<sup>4</sup> Emergency Teaching Permits were phased out by Commission action taken on August 14, 2003. No Emergency Permits were issued after July 1, 2005.

<sup>5</sup> Local Assignment Options allow a employing agency to assign a credentialed teacher to an assignment outside their basic credential authorization. These individuals are fully prepared teachers but do not have an authorization to teach mathematics. Local assignment options are reported in a 4 year reporting cycle. For more information on assignment options, see pages 7-9 of the Commission's report, Assignment Monitoring of Certificated Employees in California by County Offices of Education, 2003-07, <http://www.ctc.ca.gov/reports/AMR-090108.pdf>.

### ***Subject Matter Preparation to Teach Mathematics***

The preparation for an individual to teach any subject includes both an understanding of the subject matter and an understanding of how to teach that subject to K-12 students. Subject Matter Requirements (SMRs) are developed for each content area and then Program Standards are adopted by the Commission. The same SMRs are used when an examination is developed. The current SMRs for mathematics are aligned to the adopted student content standards and the 1997 framework. An individual earning an initial authorization to teach mathematics has two options for demonstrating mastery of the content of mathematics: 1) completion of an approved subject matter preparation program offered by a college or university (an option for a single subject credential) that provides instruction in subject matter content and an introduction to subject-specific pedagogy, or 2) passage of an examination (required for a multiple subject credential, an option for a single subject credential). Completion of university coursework is required when an individual adds either a Supplementary Authorization (20 units) or a Subject Matter Authorization (32 units) to his or her existing single subject or multiple subject credential.

As shown in Table 6, in 2006-07, in general, 40% of candidates demonstrated subject matter competency in mathematics through coursework, while 60% demonstrated competency through passage of the examination. This is not the case with respect to the FLM credential of which nearly all, or 99% of candidates, take the examination. The percent of candidates using the examination route has more than doubled from 2002-03 to 2006-07 due, in large part, to the FLM credential since an overwhelming majority of candidates earning the FLM satisfy the subject matter requirement by passing the examination.

**Table 6: Satisfying the Subject Matter Requirement: Math and Foundational-Level Math**

	2002-03	2003-04	2004-05	2005-06	2006-07
<b>Mathematics Single Subject</b>					
Approved Program	77%	63%	60%	64%	65%
Pass Examination	23%	37%	40%	36%	35%
<b>Total Credentials</b>	<b>1,004</b>	<b>1,261</b>	<b>1,221</b>	<b>1,108</b>	<b>1,090</b>
<b>Foundational-Level Mathematics</b>					
Approved Program	0%	2%	2%	1%	1%
Pass Examination	100%	98%	98%	99%	99%
<b>Total Credentials</b>	<b>1</b>	<b>163</b>	<b>430</b>	<b>660</b>	<b>714</b>
<b>Total Credentials</b>					
Approved Program	77%	56%	45%	40%	40%
Pass Examination	23%	44%	55%	60%	60%
<b>Total Credentials</b>	<b>1,005</b>	<b>1,424</b>	<b>1,651</b>	<b>1,768</b>	<b>1,804</b>

Approved Single Subject Mathematics Programs

As shown in Table 7, some of the current subject matter programs were approved prior to the SB 2042 subject matter program standards revisions (e.g., the Ryan Programs) and were designed to meet standards adopted in 1992. These subject matter programs are not aligned with the current content standards or framework and are no longer allowed to admit new mathematics candidates. All currently enrolled candidates in these programs must complete the program by July 1, 2009. All SB 2042 programs are aligned with the new SMRs. Completion of a subject matter program is a two to four year endeavor for most prospective teachers. The SB 2042 subject matter programs are fairly new and, for many of the programs, very few individuals have completed the program at this time. A list of all approved mathematics subject matter programs, including the approval date for the SB 2042 program, can be found in Appendix B.

**Table 7: Approved Mathematics Subject Matter Programs**

	Ryan Program	SB 2042 Program
California State University	11	18
University of California	7	2
Private Colleges and Universities	16	6
<b>Total Number of Approved Subject Matter Programs in Mathematics</b>	<b>34</b>	<b>26</b>

As noted earlier, subject matter and supplementary authorizations in mathematics require that the courses taken to qualify “*must include course work in the content areas of algebra, advanced*

*algebra, geometry, probability or statistics, and development of the real number system or introduction to mathematics.*” However, there are no standards that prescribe the content of coursework required for the subject matter authorization or the supplementary authorization. Rather, the individual must hold a teaching credential (multiple or single subject) and complete the requisite number of college units at a regionally accredited university. There are no assurances that the college courses cover the breadth of mathematics that the credential authorizes the individual to teach or that the depth of coverage is aligned with what is taught in the public schools.

### Approved Subject Matter Examinations

Multiple Subject teacher candidates must pass the CSET: Multiple Subjects examination to satisfy the subject matter requirement, while Single Subject teacher candidates who demonstrate subject matter via examination must take the CSET: Mathematics examination.

The CSET: Multiple Subjects examination includes three subtests covering Reading, Language, and Literature; History and Social Science; Science; Mathematics; Physical Education; Human Development; and Visual and Performing Arts. CSET: Multiple Subjects Subtest II assesses a candidate’s mathematics and science content knowledge. Candidates respond to 26 multiple choice questions and two constructed response questions in each of the two content areas. The domains listed below are addressed in the CSET: Multiple Subjects (Subtest II).

#### Domain 1: Number Sense

- Numbers, Relationships Among Numbers and Number Systems
- Computational Tools, Procedures, and Strategies

#### Domain 2: Algebra and Functions

- Patterns and Functional Relationships
- Linear and Quadratic Equations and Inequalities

#### Domain 3: Measurement and Geometry

- Two and three dimensional Geometric Objects
- Representational Systems, Including Concrete Models, Drawings, and Coordinate Geometry

#### Domain 4: Statistics, Data Analysis, and Probability

- Collection, Organization, and Representation of Data
- Inferences, Predictions, and Arguments based on Data
- Basic Notions of Chance and Probability

The complete content specifications for the CSET: Multiple Subjects examination can be found on the CSET web page: [http://www.cset.nesinc.com/PDFs/CS\\_multisubject\\_SMR.pdf](http://www.cset.nesinc.com/PDFs/CS_multisubject_SMR.pdf).

An important consideration at this time is whether the current CSET: Multiple Subjects examination appropriately assesses a candidate’s knowledge of the content of mathematics.

Single Subject Mathematics credential candidates may choose to take and pass the CSET: Mathematics examination to satisfy the subject matter requirement for a mathematics credential. Alternatively, a candidate can complete a Commission approved subject matter program in mathematics. The domains listed below are addressed in the CSET: Mathematics Examination (CSET Subtests I, II, and III) and by the approved subject matter program.



Domain 1: Algebra

- Algebraic Structures
- Polynomial Equations and Inequalities
- Functions
- Linear Algebra

Domain 2: Geometry

- Parallelism
- Plane Euclidean Geometry
- Three-Dimensional Geometry
- Transformational Geometry

Domain 3: Number Theory

- Natural Numbers

Domain 4: Probability and Statistics

- Probability
- Statistics

Domain 5: Calculus

- Trigonometry
- Limits and Continuity
- Derivatives and Applications
- Integrals and Applications
- Sequences and Series

Domain 6: History of Mathematics

- Chronological and Topical Development of Mathematics

FLM credential candidates may also pass an examination to satisfy the subject matter requirement. Candidates for this credential are only required to pass Subtests 1 and 2 of the CSET: Mathematics Examination, which address Domains 1-4. The complete content specifications for the CSET: Mathematics examination can be found on the CSET web page: [http://www.cset.nesinc.com/PDFs/CS\\_mathematics\\_SMR.pdf](http://www.cset.nesinc.com/PDFs/CS_mathematics_SMR.pdf).

Single Subject CSET Passing Rate Information

The CSET examination and registration bulletin invites examinees to indicate whether they completed 24 or fewer units in mathematics or 25 or more units. Provided in Tables 8 are pass rate data on the CSET: Mathematics Examination from those examinees who provided responses about their mathematical preparation. The table provides both the first-time pass rates and the cumulative pass rates for these examinees.

**Table 8: Percent of Individuals who Passed the CSET: Mathematics Assessment by Undergraduate Units Completed, 2002-07**

CSET Mathematics Examinations	Total <sup>1</sup>	First Time Pass Rate		Cumulative Pass Rate	
		24 or fewer credit hours	25 or more credit hours	24 or fewer credit hours	25 or more credit hours
I: Algebra and Number Theory	11,895 70% / 27%	26 %	47 %	48 %	69 %
II: Geometry, Probability and Statistics	10,554 69% / 31%	35 %	50 %	53 %	69 %
III: Calculus and History of Math	3,987 56% / 44%	32 %	46 %	65 %	58 %

<sup>1</sup> This data represents a subset of all CSET: Mathematics examinees. Table includes only those who responded to the background questions about undergraduate coursework.

Table 8 clearly shows that an individual who completed 25 or more credit hours in university mathematics is more likely to pass the CSET subtests than is someone who has completed 24 or fewer credit hours. This finding supports California’s requirement to satisfy NCLB that a teacher must complete 32 semester units of subject matter preparation, or the equivalent, in order to be deemed highly qualified.

***Pedagogical Preparation to Teach Mathematics***

Once an individual has satisfied the subject matter requirement and is participating in a teacher preparation program, coursework is completed addressing subject specific pedagogy and the candidate is assessed during field work. Preliminary Preparation Program Standard 8 addresses subject specific pedagogy and the portions of the standard addressing the preparation of teachers authorized to teach mathematics are provided below:

**Multiple Subject Mathematics Pedagogy- Standard 8A (a)**

During interrelated activities in program coursework and fieldwork, MS candidates learn about the interrelated components of a balanced program of mathematics instruction: computational and procedural skills; conceptual understanding of the logic and structure of mathematics; and problem-solving skills in mathematics. They learn to (1) recognize and teach logical connections across major concepts and principles of the state-adopted academic content standards for students in mathematics (K – 8), (2) enable K – 8 students to apply learned skills to novel and increasingly complex problems; (3) model and teach students to solve problems using multiple strategies; (4) anticipate, recognize and clarify mathematical misunderstandings that are common among K – 8 students; (5) design appropriate assignments to develop student understanding, including appropriate problems and practice; and (6) interrelate ideas and information within and across mathematics and other subject areas.

**Single Subject Mathematics Pedagogy- Standard 8B (a)**

During interrelated activities in program coursework and fieldwork, SS mathematics candidates acquire a deep understanding of the interrelated components of a balanced program of mathematics instruction: computational and procedural skills; conceptual understanding of mathematics; and problem

solving skills in mathematics. They learn to (1) recognize and teach logical connections across major concepts and principles of the state-adopted K-12 academic content standards for students in Mathematics (Grades 7-12); (2) enable students in Grades 7-12 to apply learned skills to increasingly novel and complex problems; (3) demonstrate and teach multiple solution strategies for broad categories of problems; (4) anticipate, recognize and clarify mathematical misunderstandings that are common among students in Grades 7-12; and (5) design exercises for practicing mathematics skills, including the selection of appropriate problems for practice.

The standard statements above were developed about eight years ago. A new K-12 Mathematics Framework was adopted in 2005 that includes a great deal of information to guide and organize the teaching of mathematics. This raises a question about the adequacy of the preparation program standards in light of the new mathematics framework. It is appropriate to question whether the adopted preliminary preparation program standards adequately address the methodology of teaching mathematics and whether the pedagogical statements in the adopted preliminary program standards should be reviewed and possibly revised based on the more recent mathematics framework.

If the standards appropriately address the pedagogical knowledge, skills, and abilities of a mathematics teacher, then the question turns to implementation of those standards and particularly whether the approved preparation programs are offering courses of study and field work that meet the adopted standards. The implementation of an approved program's teacher preparation coursework and field work is reviewed during the Commission's accreditation activities. However, it is important to note that with the hiatus of accreditation activities from December 2002 until the 2007-08 school year, many of these programs have not been reviewed for a number of years. This discussion identifies information that will be collected now that the accreditation activities have been resumed.

Senate Bill 2042 (Chap. 548, Stats. 1998) required the Commission to revise and update the subject matter preparation program standards for all multiple and single subject teaching credentials. The revision process ensured that subject matter preparation standards were aligned with the content standards for K-12 students. All individuals currently earning single subject credentials in California are being prepared to teach the adopted state content standards. However, as with all education innovations, there is a substantial delay between implementation of the reform and its impact on the majority of K-12 students. Credentialing data indicate that 26,787 SB 2042 multiple subject credentials have been granted. These individuals, if all of them were currently employed, would account for about 19% of all multiple subject classroom teachers. There have been 2,566 SB 2042 single subject credentials in mathematics granted. The majority of current classroom teachers were prepared under the Fisher or, more recently, Ryan preparation programs that were not aligned with the current California frameworks or the content standards. In addition, the first of the K-12 academic content standards were adopted in 1997. One of the major efforts in implementing SB 2042 was the alignment between K-12 content expectations and teacher preparation. However, that relationship cannot be quantified until more teachers prepared through SB 2042 credential programs are in the public schools and until the California Longitudinal Teacher Integrated Data Education System (CALTIDES) is operational. One final consideration relevant to this topic is that the Commission has the authority to award Specialist credentials. The program standards for the Mathematics Specialist Programs were

developed in 1985 and revised slightly in 1992. But at this time, there are no approved programs that meet the standards and fewer than twenty Mathematics Specialist credentials have been granted. The authorization for the mathematics specialist reads:

The Mathematics Specialist Instruction Credential authorizes the holder to teach mathematics in grades twelve and below, including preschool, and in classes organized primarily for adults. This credential also authorizes the holder to develop and coordinate curriculum, develop programs and deliver staff development for mathematics education programs coordinated by school districts and county offices of education.

Currently, the role of Reading Specialist Credential holders is an important one for schools in that they usually work with students in the primary grades who are having trouble learning to read in addition to providing staff development and developing and coordinating curriculum. Although the Mathematics Specialist Credential exists, it can be argued that it has been an underutilized tool for addressing needs in the area of mathematics. Examining ways to expand these programs and credential holders as well as maximize their role may be one way to address the needs of students in upper elementary, middle, or high schools who are not making adequate progress in their understanding of mathematics.

### **Next Steps**

This item poses a number of questions for the Commission to consider below. The questions address the subject matter knowledge of individuals who teach mathematics in the elementary and many middle schools. The questions also address the subject specific pedagogical preparation of individuals who teach mathematics. Staff provides the questions below to help organize the Commission's deliberations. Staff asks the Commission for direction as to whether any of the questions should be given further study, and if yes, which ones should be addressed first.

### ***Multiple Subject Credentials and Mathematics Instruction***

1. Does the subject matter preparation of multiple subject teachers include adequate subject matter preparation to allow the teachers to be successful with students at the full range of the credential authorization?
2. Does the current CSET: Multiple Subjects examination appropriately assess a candidate's knowledge of the content of mathematics?
3. Do the multiple subject teacher preparation programs include adequate pedagogical preparation for the successful teaching of mathematics in grades K-6 or 7 or 8?
4. Should the pedagogy statements in the adopted preliminary program standards be reviewed and possibly revised based on the more recent mathematics framework?
5. What is happening during mathematics instruction in the elementary years that results in students' mathematics proficiency decreasing as the student grade level increases? Are teachers with a multiple subject credential adequately prepared to teach mathematics in the upper elementary grades? Are they adequately preparing students for Algebra I? Are they adequately prepared to teach Algebra I?

### ***Single Subject Credential in Mathematics***

6. Do the adopted single subject preliminary preparation program standards adequately address the methodology of teaching mathematics, especially remediating students' misunderstandings or filling in the holes in the students' conceptual understanding of mathematics? Should the pedagogy statements in the adopted preliminary program standards be reviewed and possibly revised based on the more recent mathematics framework?
7. If the single subject preliminary preparation program standards adequately address the teaching of mathematics, are the approved single subject preparation programs offering courses of study and field work that meet the adopted standards?
8. Should a *Supplementary Authorization in Mathematics* or a *Subject Matter Authorization in Mathematics* authorize an individual to teach Algebra I or any classes with Algebra I as a prerequisite?

### ***Mathematics Specialist:***

9. Could the underutilized Mathematics Specialist credential help serve an important role, somewhat similar to a Reading Specialist, in the public schools?

## Appendix A Authorizations to Teach Mathematics

<b>Credential Type</b>	<b>Eligible Courses</b>	<b>Settings</b>	<b>Notes</b>
Multiple Subject Credential	Math content grades 12 and below but limited by the setting	Math in Self-Contained Classrooms or Core settings <sup>1/</sup>	This credential stands on its own. NCLB compliant for self-contained classrooms only. Holders can complete HOUSSE or VPSS through employer for Core NCLB compliance
Single Subject Credential in Mathematics	All courses	Departmentalized Classrooms—all Grade Levels	This credential stands on its own. NCLB Compliant
Single Subject Credential in Foundational-Level Mathematics	General Math, Consumer Math, Algebra, Geometry Probability and Statistics	Departmentalized Classrooms—all Grade Levels	This credential stands on its own. NCLB Compliant
Subject Matter Authorization in Mathematics	Math content grades 9 and below	Departmentalized Classrooms—all Grade Levels	This is an add-on authorization and may only be added to a Single Subject or Multiple Subject credential. NCLB Compliant
Supplementary Authorization in (Introductory) Mathematics	Math content grades 9 and below	Departmentalized Classrooms—all Grade Levels	This is an add-on authorization and may only be added to a Single Subject or Multiple Subject credential. (Preceded the Subject Matter Authorization, but remains an option as it is an appropriate assignment.) Holders can complete HOUSSE or VPSS through employer for NCLB compliance.
Short-Term Staff Permit in Mathematics	All courses	Departmentalized Classrooms—all Grade Levels	Issued for one year at employer request. Not renewable. <u>Not</u> NCLB Compliant
Provisional Intern Permit in Mathematics	All courses	Departmentalized Classrooms—all Grade Levels	Issued for one year at employer request. Renewable one time if individual takes all appropriate subject matter exams. <u>Not</u> NCLB Compliant
Local Teaching Assignment Option (LTAO)	All courses	Departmentalized Classrooms—all Grade Levels	Available only for fully credentialed teachers. Is a local level employment option with approval by local governing board on a year-to-year basis and teacher consent. Holders can complete HOUSSE or VPSS through employer for NCLB compliance.
Single Subject Limited Assignment Permit Mathematics	All courses	Departmentalized Classrooms—all Grade Levels	Available only for fully credentialed teachers. May only be issued for three consecutive one-year terms in a specific subject area. Renewal requires completion of 6 semester units of course work in the subject area. Holders can complete HOUSSE or VPSS through employer for NCLB compliance.

<sup>1/</sup> A core setting is when two or more subjects are taught to the same group of students – which may include Algebra 1 as one of those subjects.

## Appendix B

### Approved Mathematics Subject Matter Programs

Approved Mathematics Subject Matter Programs				
Institution		Ryan* Program	SB 2042 Program	2042 Approval Date
<b>California State University</b>	Bakersfield	X		
	Channel Islands		X	May 2004
	Chico	X	X	December 2007
	Dominguez Hills		X	August 2005
	East Bay (Hayward)	X	X	April 2008
	Fresno	X		
	Fullerton		X	March 2007
	Humboldt	X	X	December 2007
	Long Beach		X	August 2005
	Los Angeles		X	June 2006
	Northridge		X	November 2006
	Pomona	X		
	Sacramento		X	June 2006
	San Bernardino	X	X	February 2007
	San Diego	X	X	February 2007
	San Francisco	X	X	April 2008
	San Jose	X	X	August 2007
	San Luis Obispo		X	December 2006
	San Marcos	X	X	June 2008
	Sonoma		X	June 2006
Stanislaus		X	August 2006	
<b>University of California</b>	Berkeley	X		
	Davis	X		
	Irvine		X	August 2005
	Los Angeles	X	X	November 2007
	Riverside	X		
	San Diego	X		
	Santa Barbara	X		
	Santa Cruz	X		
<b>Private Colleges and Universities</b>	Azusa Pacific University		X	April 2007
	Biola University	X		
	Cal Lutheran	X	X	August 2007
	Concordia	X		
	Fresno Pacific	X		
	Loyola Marymount University	X		
	Masters College	X		
	National University		X	June 2006

<b>Approved Mathematics Subject Matter Programs</b>			
<b>Institution</b>	<b>Ryan* Program</b>	<b>SB 2042 Program</b>	<b>2042 Approval Date</b>
Pacific Union College	X		
Pepperdine	X		
Pt. Loma Nazarene		X	June 2006
Saint Mary's College	X		
Santa Clara University	X		
Simpson	X		
University of San Diego		X	December 2005
University of San Francisco	X		
University of La Verne	X		
Vanguard	X	X	February 2008
Westmont	X		
Whittier	X		
<b>Total Math Subject Matter Programs</b>	<b>34</b>	<b>26</b>	

\* Subject matter program prior to SB 2042. No new students may be admitted to these programs and all currently enrolled students must complete the program by July 1, 2009. After completing the subject matter program, these individuals must complete a teacher preparation program. Therefore individuals earning SB 2042 credentials through the completion of a SB 2042 teacher preparation program with the prior subject matter preparation may continue through the 2009-2010 year.