
4B

Action

Professional Services Committee

Adoption of the Passing Score Standard for the California Subject Examinations for Teachers (CSET): Mathematics Examination

AGENDA INSERT

Executive Summary: This agenda item provides (a) foundational information about the standard setting process and (b) recommendations for passing score standards for the CSET: Mathematics examination, which has been updated to align with the Common Core State Standards.

Policy Question: Does the recommended passing score standard for the CSET: Mathematics examination meet Commission expectations?

Recommended Action: That the Commission adopt the recommended passing score standard for the CSET: Mathematics examination.

Presenter: Michael Taylor, Consultant, Professional Services Division

Strategic Plan Goal:

I. Educator Quality

- ◆ Develop, maintain, and promote high quality authentic, consistent educator assessments and examinations that support development and certification of educators who have demonstrated the capacity to be effective practitioners.

Adoption of the Passing Score Standard for the California Subject Examinations for Teachers (CSET): Mathematics Examinations

The Initial Administration of the New CSET: Mathematics

Because CSET: Mathematics is a computer-based examination given on-demand all year a specific date needed to be determined for switching from the previous version of the examination to the new version. The last administration of the previous version of CSET: Mathematics was December 28, 2014. Administration of the new examination began on December 29, 2014. Data from the initial administrations of the revised examination was collected between December 29, 2014 and January 25, 2015 to inform the standard setting process. Examinees who completed any subtest for CSET: Mathematics since December 29, 2014 are currently waiting for the Commission to determine a passing standard for the new examination before they will receive score reports and learn if they have passed the exam. Table 3 below shows the number of examinees who completed each subtest between December 29, 2014 and January 25, 2015.

Table 3: Number of Individuals who Completed each Subtest

CSET: Mathematics			
	Subtest I	Subtest II	Subtest III
Total number of examinees	72	45	24
Male	39	25	13
Female	32	19	11
Hispanic	16	7	5
Asian	11	9	2
White	35	22	14
Other	2	0	0

Most of the examinees were White men. The next most commonly identified ethnicities for examinees were Hispanic and Asian. There were not enough examinees of other races and ethnicities to identify them specifically. Not all of the examinees elected to respond to demographic questions about their gender and ethnicity.

Results of the Standard Setting Studies

The Standard Setting Panel followed the procedures outlined in the agenda item to determine recommendations for the CSET: Mathematics minimum passing score. Following the standard setting studies, Evaluation Systems group of Pearson (Evaluation Systems) calculated the

median panel-recommended passing score based on the individual members' recommendations and the SEM for each subtest. The calculated SEM for each subtest, referred to as +/- 1 SEM, falls between 2 and 3 raw score points. Table 4 below provides a summary of the CSET: Mathematics recommendations, including the number of scorable items by item type, the total possible score by item type, the median panel-recommended raw score total, the recommended application of the calculated SEM, and resulting first time pass rates for examinees who took the exams between December 31, 2014, when administration of the revised exams began, and January 25, 2015.

Table 4: CSET: Mathematics Panel-Recommended Passing Score

Subtest	Item Type ¹	Scorable Items	Total Possible Score Points	Weighting (MC/CR)	Computed Median of Panel Recommendations	Median Panel Recommendation with -1 SEM Applied	First – time Pass Rate ²
I (211)	MC	28	28	70/30	19	16	56%
	CR	3	24		17	15	
II (212)	MC	28	28	70/30	19	16	49%
	CR	3	24		18	16	
III (213)	MC	24	28	70/30	17	14	58%
	CR	2	16		12	11	

¹ MC = multiple-choice test item, CR = constructed-response test item

² Based on the Median Panel Recommendation with -1 SEM applied

Table 5 below shows the number of individuals who completed CSET: Mathematics by subtest and their potential first-time pass rate based on gender and ethnicity (if available). Pass rates are suppressed for groups with fewer than 10 individuals.

Table 5: Number of Individuals who Completed each Subtest With Potential Pass Rates

	Subtest I		Subtest II		Subtest III	
	N	% Pass with -1 SEM applied	N	% Pass with -1 SEM applied	N	% Pass with -1 SEM applied
Total number of examinees	72	56%	45	49%	24	58%
Male	39	67%	25	60%	13	77%
Female	32	44%	19	32%	11	36%
Hispanic	16	63%	7	*	5	*
Asian	11	64%	9	*	2	*
White	35	49%	22	50%	14	57%

* Pass rates are suppressed for groups with fewer than 10 individuals

Mathematics Background of the Examinees in the Standard Setting Study

Table 6 shows the numbers of examinees who completed each subtest during the initial administration period for the revised exam (December 29, 2014 – January 25, 2015) who reported that their undergraduate major was mathematics. Additionally Table 6 shows potential pass rates by subtest for examinees based on the number of mathematics courses they reported taking as undergraduate students.

Table 6: Potential Pass Rates Based on Self-reported Mathematics Background

Subtest	I	II	III
Total number of examinees	72	45	24
Number of examinees who identified as math majors	19	11	10
Pass rate for math majors with -1 SEM applied	74%	45%	70%
Number of examinees who identified other majors	53	34	14
Pass rate for other majors with -1 SEM applied	49%	50%	50%
Number of examinees who reported completing 25 or more semester credit hours of undergraduate math courses	21	12	7
Pass rate with -1 SEM applied	67%	50%	*
Number of examinees who reported completing 24 or fewer semester credit hours of undergraduate math courses	43	33	14
Pass rate with -1 SEM applied	49%	48%	57%

* Pass rates are suppressed for groups with fewer than 10 individuals

Credential-level Pass Rates

The CSET: Mathematics examination can be used toward earning either a foundational-level mathematics teaching credential or a full single-subject mathematics teaching credential. To earn a Foundational-Level mathematics credential examinees must pass subtests I and II only. To earn the full mathematics credential examinees must pass all three subtests. Table 7 below shows the potential pass rates for the population of examinees who took either subtests I and II only, or who took all three subtests during the initial administrations of the revised CSET: Mathematics exam.

Table 7: Credential-level Potential Pass Rates

	CSET: Mathematics Subtests	Number of Examinees	% Pass with -1 SEM applied
Foundational-Level Math	I and II only	22	45%
Single Subject Math	I, II, and III	7	*

* Pass rates are suppressed for groups with fewer than 10 individuals

Appendix C describes the demographic characteristics of the standard setting panel. Appendix D provides potential pass-rates for the revised examinations with various applications of SEM. Appendix E provides historical pass rates by subtest for the previous version of CSET: Mathematics.

Staff-Recommended Passing Standards

For the CSET: Mathematics, staff recommends that the Commission adopt the median Standard Setting Panel recommended passing score with -1 SEM applied for each subtest as shown in Table 3 above.

Appendix C
CSET: Mathematics Standard Setting Panel Demographic Characteristics

CSET: MATHEMATICS
STANDARD SETTING PANEL DEMOGRAPHIC CHARACTERISTICS

Total Number	
Participated	9
Ethnicity	
African American or Black	-
Asian American	-
Filipino	-
Southeast Asian American	-
Pacific Island American	-
Mexican American / Chicano	1
Latin American / Other Hispanic	1
Native American	-
White (non-Hispanic)	7
Other	-
Gender	
Female	3
Male	6
Region	
North	5
South	4
Current Profession	
Public School Educator	4
College/University Educator	4
Other	1
Years of K-12 Public Education Experience –Teaching Mathematics	
0–3	1
4–6	-
7–10	3
11+	2
College or University Experience	
College/University Educator	8
Taught College Courses in Past 3 years	8

Appendix D

Updated CSET: Mathematics Potential Pass Rates –First Attempt

	Subtest		
	I	II	III
% Pass at -1 SEM	56%	49%	58%
% Pass at Panel-recommended minimum passing score (0 SEM)	39%	40%	46%
% Pass at +1 SEM	26%	33%	38%

Appendix E

Historical Pass Rates by Subtest for the Previous Version of CSET: Mathematics - First Attempt by Year

Year	Subtest I (110)			Subtest II (111)			Subtest III (112)		
	Pass Rate	# Takers	# Passed	Pass Rate	# Takers	# Passed	Pass Rate	# Takers	# Passed
2002-2003	29%	2,238	646	40%	1,984	800	21%	1,333	276
2003-2004	29%	2,996	856	39%	2,745	1,067	40%	963	382
2004-2005	30%	2,896	877	38%	2,597	980	47%	859	402
2005-2006	32%	3,019	977	36%	2,692	962	47%	758	354
2006-2007	34%	3,118	1,068	40%	2,752	1,111	49%	846	412
2007-2008	31%	3,184	994	38%	2,806	1,065	50%	852	429
2008-2009	33%	3,477	1,146	42%	2,981	1,242	49%	954	465
2009-2010	34%	3,213	1,091	46%	2,801	1,283	54%	977	529
2010-2011	36%	2,657	948	47%	2,343	1,101	54%	890	477
2011-2012	40%	2,345	932	47%	2,103	978	53%	840	446
2012-2013	40%	1,324	526	49%	897	442	59%	433	255
2013-2014	42%	1,395	582	46%	1,033	475	64%	441	281
2014-15 YTD	36%	481	175	42%	359	151	59%	160	95
All Years	33%	32,343	10,818	41%	28,093	11,657	47%	10,306	4,803