California Subject Examinations for Teachers®

TEST GUIDE

MATHEMATICS

General Examination Information

CS-TG-MATHGI-03

Test Structure for CSET: Mathematics

CSET: Mathematics consists of three separate subtests, each composed of both multiple-choice and constructed-response questions. Each subtest is scored separately.

The structure of the examination is shown in the table below.

CSET: Mathematics*			
Subtest	**Domains**	**Number of Multiple-Choice Questions**	**Number of Constructed-Response Questions (short [focused] responses)**
I	Algebra	24	3
	Number Theory	6	1
	Subtest Total	30	4
II	Geometry	22	3
	Probability and Statistics	8	1
	Subtest Total	30	4
III	Calculus	26	3
	History of Mathematics	4	1
	Subtest Total	30	4

*Candidates verifying subject matter competence by examination for a credential in Foundational-Level Mathematics are required to take and pass Subtests I and II only.

Calculators for CSET: Mathematics

A calculator will be needed and **will be allowed only for Mathematics Subtest II: Geometry; Probability and Statistics**. You must bring your own graphing calculator to the test administration, and it must be one of the approved models listed in the current version of the CSET registration bulletin. Since the approved calculator brands and models are subject to change, the list of approved graphing calculators will be updated as necessary. Test administration staff will clear the memory of your calculator before and after the test. Be sure you back up the memory on your calculator, including applications, to an external device before arriving at the test site.

Annotated List of Resources for CSET: Mathematics

This list identifies some resources that may help candidates prepare to take CSET: Mathematics. While not a substitute for coursework or other types of teacher preparation, these resources may enhance a candidate's knowledge of the content covered on the examination. The references listed are not intended to represent a comprehensive listing of all potential resources. Candidates are not expected to read all of the materials listed below, and passage of the examination will not require familiarity with these specific resources. A brief summary is provided for each reference cited. Resources are organized alphabetically and by content domain in subtest order.

Algebra

Lay, David C. (2002). *Linear Algebra and Its Applications* (3rd edition). Boston, MA: Addison-Wesley.

A thorough treatment of the subject, with supplementary exercises at end of each chapter.

Martin-Gay, K. Elayn. (2001). *Intermediate Algebra* (3rd edition). Upper Saddle River, NJ: Prentice Hall.

Presents text with flexibility in choosing situations to model, emphasizing key concepts and encouraging multiple views of functions.

Pinter, Charles C. (1990). *A Book of Abstract Algebra*. Boston, MA: McGraw-Hill Higher Education.

Aimed at abstract or modern algebra courses in the junior or senior year. Includes exercises organized around specific concepts. A mid-level approach.

Number Theory

Rosen, Kenneth H. (1993). *Elementary Number Theory and Its Applications* (3rd edition). Murray Hill, NJ: AT&T Bell Laboratories.

Integrates the classical number theory with modern applications such as cryptography and computer science.

Geometry

Greenberg, Marvin J. (1993). *Euclidean and Non-Euclidean Geometries: Development and History* (3rd edition). New York, NY: W. H. Freeman and Company.

This text includes an overview of the foundations of Euclidean and hyperbolic geometries, geometric transformations, models of the hyperbolic planes, and pseudospheres.

Holme, Audun. (2000). *Geometry: Our Cultural Heritage*. New York, NY: Springer-Verlag.

Selected topics from history of geometry and a modern treatment of selected basic issues in geometry.

Wallace, Edward C., and West, Stephen F. (1998). *Roads to Geometry* (2nd edition). Upper Saddle River, NJ: Prentice-Hall.

Provides information to clarify and unify concepts generally discussed in traditional geometry courses.

Probability and Statistics

Newmark, Joseph. (1997). *Statistics and Probability in Modern Life* (6th edition). Philadelphia, PA: Saunders College Publishing.

Topics include frequency distribution, histograms, frequency polygons, measures of central tendency and dispersion, the normal curve, hypothesis testing, and linear correlation articles.

Calculus

Anton, Howard. (1998). *Calculus: A New Horizon* (6th edition). New York, NY: John Wiley & Sons.

Designed for freshman/sophomore calculus courses. Provides clear explanations, excellent exercises, and examples at an appropriate level.

Thomas, George B.; Finney, Ross L.; Weir, Maurice D.; and Giordano, Frank. (2000). *Thomas' Calculus* (10th edition). Boston, MA: Addison-Wesley.

Each chapter includes questions to guide your review, and many exercises.

History of Mathematics

Boyer, Carl B. (Revised by Merzbach, Uta C.). (1991). *A History of Mathematics* (2nd edition). New York, NY: John Wiley & Sons.

A broad coverage from the Greeks to Godel. Appendix included with chronological table and mathematical developments within a larger historical context.

Courant, Richard, and Robbins, Herbert. (1978). *What Is Mathematics? An Elementary Approach to Ideas and Methods*. Oxford: Oxford University Press.

A classic survey of the whole field of math.

Suzuki, Jeff. (2002). *A History of Mathematics*. Upper Saddle River, NJ: Prentice-Hall.

Emphasis on numeration, notation, mathematical results in their original form and mathematics as an evolving science.

Other Resources of Interest

Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve. (1998). Sacramento, CA: California Department of Education.

Frameworks are developed by the Curriculum Development and Supplemental Materials Commission, which also reviews and recommends textbooks and other instructional materials to be adopted by the State Board. Can be found at **http://www.cde.ca.gov/cfir/index.aspl.**

Mathematics Framework for California Public Schools, Kindergarten Through Grade Twelve. (2000). Sacramento, CA: California Department of Education.

Frameworks are developed by the Curriculum Development and Supplemental Materials Commission, which also reviews and recommends textbooks and other instructional materials to be adopted by the State Board. Can be found at **http://www.cde.ca.gov/cfir/index.aspl.**

Rotman, Joseph J. (1997). *Journey into Mathematics: An Introduction to Proofs.* Upper Saddle River, NJ: Prentice Hall.

This provides an introduction to proofs. It also includes information on concepts such as induction, the binomial theorem, coordinates, trigonometry, complex numbers, and conic sections.

Stillwell, John, and Gehring, F. W. (1997). *Numbers and Geometry.* New York, NY: Springer-Verlag.

An introductory text covering three main fields of mathematics—algebra, analysis, and geometry—at the level of calculus.