



# GRE<sup>®</sup>

Listening. Learning. Leading.<sup>®</sup>

We invite  
you to

**Take a  
Closer  
Look...**

For more information  
about this GRE Subject  
Test, contact the GRE  
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## The GRE<sup>®</sup> Mathematics Test

Does your graduate department require or recommend that graduate applicants take the Mathematics Test offered by the *Graduate Record Examinations<sup>®</sup>* Program?

This Subject Test can be very useful in distinguishing among candidates whose credentials are otherwise similar. The test measures undergraduate achievement and provides a common yardstick for comparing the qualifications of students from a variety of colleges and universities with different standards. Consider these factors:

### **Predictive validity**

Subject Test scores are a valid predictor of graduate school performance, as confirmed by a recent meta-analysis performed by independent researchers of over 1,700 studies containing validity data for GRE tests.\* This study showed that GRE Subject Tests are reliable predictors of a range of outcome measures, including first-year graduate grade-point average, cumulative graduate grade-point average, comprehensive examination scores, publication citation counts, and faculty ratings. For more information about the predictive validity of the GRE tests, visit [www.ets.org/gre/validity.html](http://www.ets.org/gre/validity.html).

### **Content that reflects today's curricula**

The test consists of 66 multiple-choice questions, drawn from courses commonly offered at the undergraduate level. A brief summary of test topics can be found on the back of this sheet. Additional information about the test and a full-length practice test are provided FREE with test registration and can be downloaded at [www.ets.org/gre/greprep](http://www.ets.org/gre/greprep).

### **Developed by leading educators in the field**

The content and scope of each edition of the test are specified and reviewed by a distinguished team of undergraduate and graduate faculty representing colleges and universities across the country.

\*Source: "A comprehensive meta-analysis of the predictive validity of the Graduate Record Examinations<sup>®</sup>: Implications for graduate student selection and performance." Kuncel, Nathan R.; Hezlett, Sarah A.; Ones, Deniz S., *Psychological Bulletin*, January 2001, Vol. 127(1), 162-181.

## Who develops the GRE Mathematics Test?

Individuals who serve or have recently served on the Committee of Examiners are faculty members from the following institutions:

California State University—Fullerton

City College of CUNY

Georgia Institute of Technology

Morehouse College

Morgan State University

Pennsylvania State University

Texas A&M University

University of California, San Diego

University of Iowa

University of Nebraska—Lincoln

University of Washington

Wesleyan University

Committee members are selected with the advice of the Mathematical Association of America and the American Mathematical Society.

Test questions are written by committee members and by other subject-matter specialists from ETS and colleges and universities across the country.

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## Test Content

The test consists of 66 multiple-choice questions, drawn from courses commonly offered at the undergraduate level. Approximately 50 percent of the questions involve calculus and its applications—subject matter that can be assumed to be common to the backgrounds of almost all mathematics majors. About 25 percent of the questions in the test are in elementary algebra, linear algebra, abstract algebra, and number theory. The remaining questions deal with other areas of mathematics currently studied by undergraduates in many institutions.

The following content descriptions may assist students in preparing for the test. The percentages given are estimates; actual percentages will vary somewhat from one edition of the test to another.

### CALCULUS (50%)

Material learned in the usual sequence of elementary calculus courses—differential and integral calculus of one and of several variables—including calculus-based applications and connections with coordinate geometry, trigonometry, differential equations, and other branches of mathematics

### ALGEBRA (25%)

Elementary algebra: basic algebraic techniques and manipulations acquired in high school and used throughout mathematics

Linear algebra: matrix algebra, systems of linear equations, vector spaces, linear transformations, characteristic polynomials, eigenvalues and eigenvectors

Abstract algebra and number theory: elementary topics from group theory, the theory of rings and modules, field theory, and number theory

### ADDITIONAL TOPICS (25%)

Introductory real analysis: sequences and series of numbers and functions, continuity, differentiability and integrability, elementary topology of  $\mathbb{R}$  and  $\mathbb{R}^n$

Discrete mathematics: logic, set theory, combinatorics, graph theory, and algorithms

Other topics: general topology, geometry, complex variables, probability and statistics, and numerical analysis

The above descriptions of topics covered in the test should not be considered exhaustive; it is necessary to understand many other related concepts. Prospective test takers should be aware that questions requiring no more than a good precalculus background may be quite challenging; some of these questions turn out to be among the most difficult questions on the test. In general, the questions are intended not only to test recall of information, but also to assess the test taker's understanding of fundamental concepts and the ability to apply these concepts in various situations.



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