

# The GRE Math Subject Exam

## About the exam

Many graduate math programs require or recommend taking the GRE Math Subject Exam for admission to their department. There is also a GRE General Exam that may be required, which is different, and less important (it is similar to the SAT test). You can find out everything you need to know about both exams by going to <http://www.ets.org> and clicking on “GRE”.

The Math Subject exam is 2 hours and 50 minutes long, and it consists of approximately 66 multiple-choice questions drawn from courses commonly offered at the undergraduate level.

## **Calculus – 50%**

Material learned in the usual sequence of elementary calculus courses—differential and integral calculus of one and of several variables—includes 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, and eigenvalues and eigenvectors. Abstract algebra and number theory: elementary group theory, rings and modules, field theory, and elementary number theory.

## **Additional Topics – 25%**

Introductory real analysis: sequences and series of numbers and functions, continuity, differentiability and integrability, and elementary topology of  $\mathbb{R}$  and  $\mathbb{R}^n$ . Discrete math: logic, set theory, combinatorics, graph theory, and algorithms. General topology, geometry, complex variables, probability and statistics, and numerical analysis.

## Deadlines and Dates

GRE Subject Test Dates	Registration Deadline	Scores are mailed
November 13	Oct 8 (late: Oct 15)	Dec 24
April 9	Mar 4 (late: Mar 11)	May 20

Registration can be done online and costs \$140.

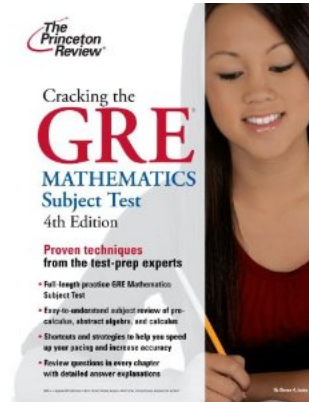
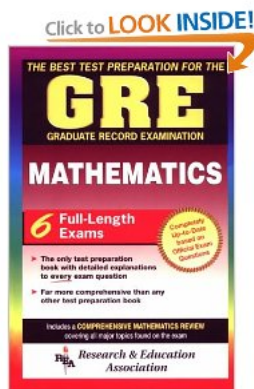


Figure 1: The two books addressing the Math GRE Subject Exam

## Resources

There is an old free copy of a GRE Math Subject Exam hidden at

<http://www.ets.org/Media/Tests/GRE/pdf/Math.pdf>

A no-info no-scratch paper version is at

<http://math.uci.edu/~deichhor/GREexamClean.pdf>

There are three old exams on UCSB's Math Club website

<http://www.math.ucsb.edu/mathclub/GRE/>

There is also a newer free copy of a GRE Math Subject Exam at

[http://www.ets.org/Media/Tests/GRE/pdf/gre\\_0809\\_math\\_practice\\_book.pdf](http://www.ets.org/Media/Tests/GRE/pdf/gre_0809_math_practice_book.pdf)

There are also two books that should be possible to acquire. They can be bought online, ordered at book stores, possibly found in libraries, and possibly borrowed or purchased from other CSI students!

The best book is the "The Best Test Preparation for the GRE Mathematics," ISBN 0878916377. It has six full length actual GRE Math Subject exams with explanations, and a review of the material on the exam. The exams are a little old, and contain a lot of material that is a little outside of the mainstream, but with over 300 questions, it is really an essential resource for anyone who is serious about trying to prepare for the exam.

There is also "Cracking the GRE Math Test, 4th edition". This book is more of a training manual, and it includes intelligent test-taking techniques. It also has many questions plus one full length sample exam with complete solutions. There's also a DVD version that I haven't seen.

You might see other books that look appropriate, but beware that they may be for the GRE *General* test, which is very different.

People can also be valuable resources. My email is [obryant@gmail.com](mailto:obryant@gmail.com).