

ARCO

MASTER THE

SAT* SUBJECT TEST:

MATH LEVELS

1 AND 2

4th Edition

Mark N. Weinfeld
Lalit A. Ahuja
David Alan Miller



An ARCO Book

ARCO is a registered trademark of Thomson Learning, Inc., and is used herein under license by Thomson Peterson's.

About Thomson Peterson's

Thomson Peterson's (www.petersons.com) is a leading provider of education information and advice, with books and online resources focusing on education search, test preparation, and financial aid. Its Web site offers searchable databases and interactive tools for contacting educational institutions, online practice tests and instruction, and planning tools for securing financial aid. Thomson Peterson's serves 110 million education consumers annually.

For more information, contact Thomson Peterson's, 2000 Lenox Drive, Lawrenceville, NJ 08648; 800-338-3282; or find us on the World Wide Web at www.petersons.com/about.

© 2006 Thomson Peterson's, a part of The Thomson Corporation
Thomson Learning™ is a trademark used herein under license.

Previous editions published as *SAT II Success Math 1C and IIC* © 2000, 2001, 2004

Special thanks to Joan Marie Rosebush

Editor: Wallie Walker Hammond; Production Editor: Alysha Bullock; Manufacturing Manager: Raymond Golaszewski; Composition Manager: Gary Rozmierski

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, Web distribution, or information storage and retrieval systems—without the prior written permission of the publisher.

For permission to use material from this text or product, submit a request online at www.thomsonrights.com

Any additional questions about permissions can be submitted by e-mail to thomsonrights@thomson.com

ISBN 13: 978-0-7689-2304-9
ISBN 10: 0-7689-2304-2

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1 08 07 06

Fourth Edition

Contents

Before You Begin	vii
How This Book Is Organized	vii
Comprehensive Answer Explanations	viii
Special Study Features	viii
You're Well on Your Way to Success	ix
Top 10 Ways to Raise Your Score	x

PART I: SAT SUBJECT TEST BASICS

1 All About the SAT Subject Test: Math Levels 1 and 2	3
Get to Know the Exam Format	3
When to Use Calculators	4
How the Test Is Scored	4
Some Test-wise Strategies for SAT Subject Test Success	4
Educated Guessing Will Boost Your Score!	6
Getting Ready: The Night Before and the Day of the Test ..	6
Summing It Up	8

PART II: DIAGNOSING STRENGTHS AND WEAKNESSES

2 Practice Test 1: Diagnostic Level 1	11
Preparing to Take the Diagnostic Test	11
Practice Test 1: Diagnostic Level 1	11
Reference Information	12
Answer Key and Explanations	21
3 Practice Test 2: Diagnostic Level 2	25
Preparing to Take the Diagnostic Test	25
Practice Test 2: Diagnostic Level 2	25
Reference Information	26
Answer Key and Explanations	35

PART III: SAT SUBJECT TEST: MATH REVIEW

4	Multiple-Choice Math Strategies	43
	Solving Multiple-choice Math Questions	43
	Know When to Use Your Calculator	45
	Learn the Most Important Multiple-choice Math Tips	45
	Summing It Up	59
5	Numbers and Operations Review	61
	Properties of Numbers	61
	Exercise: Properties of Numbers	64
	Answers and Explanations	65
	Whole Numbers	66
	Operations with Whole Numbers	69
	Exercise: Whole Numbers	72
	Answers and Explanations	73
	Operations with Fractions	74
	Exercise: Fractions	77
	Answers and Explanations	78
	Operations with Decimals	79
	Decimals and Fractions	81
	Exercise: Decimals and Fractions	86
	Answers and Explanations	87
	Operations with Percents	89
	Exercise: Percents	90
	Answers and Explanations	91
	Exercise: Percent Word Problems	98
	Answers and Explanations	99
	Systems of Measurements	100
	Exercise: Systems of Measurement	103
	Answers and Explanations	104
	Signed Numbers	105
	Exercise: Signed Numbers	108
	Answers and Explanations	109
	Summing It Up	110
6	Algebra and Functions Review	111
	Powers, Exponents, and Roots	112
	Exercise: Exponents, Powers, and Roots	117
	Answers and Explanations	118
	Algebra	119
	Exercise: Algebra	127
	Answers and Explanations	128
	Exercise: Equations	131
	Answers and Explanations	132

Exercise: Word Problems Involving One Unknown	138
Answers and Explanations	139
Exercise: Equation-Solving	147
Answers and Explanations	148
Exercise: Linear Inequalities and Equations	156
Answers and Explanations	157
Functions and Their Graphs	164
Exercise: Functions	172
Answers and Explanations	173
Summing It Up	175
7 Geometry and Measurement Review	177
Plane Geometry	177
Three-dimensional Geometry	206
Exercise: Geometry	208
Answers and Explanations	210
Coordinate Geometry	212
Exercise: Coordinate Geometry	216
Answers and Explanations	217
Trigonometry	219
Exercise: Trigonometry	224
Answers and Explanations	225
Trigonometric Functions of the General Angle	228
Exercise: Trigonometric Functions	234
Answers and Explanations	235
Exercise: Trigonometric Identity and Equations	241
Answers and Explanations	242
Solving Triangles	243
Scalars and Vectors	245
Exercise: Triangles	248
Answers and Explanations	249
Graphs of Trigonometric Functions	251
Exercise: Graphs of the Trigonometric Functions	255
Answers and Explanations	256
Summing It Up	258
8 Data Analysis, Statistics, Probability, and Advanced Math Review	259
Set Theory	259
Exercise: Sets	262
Answers and Explanations	263
Probability	264
Exercise: Probability	267
Answers and Explanations	268