

*Fourth Edition*

Be Prepared  
for the

AP

Computer  
Science  
Exam in Java

**Maria Litvin**

Phillips Academy, Andover, Massachusetts

**Gary Litvin**

Skylight Publishing, Andover, Massachusetts

Skylight Publishing  
Andover, Massachusetts

**Copyright © 2009 by  
Maria Litvin, Gary Litvin, and Skylight Publishing**

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the author and Skylight Publishing.

Library of Congress Control Number: 2009904716

ISBN 978-0-9824775-0-2

Skylight Publishing  
9 Bartlet Street, Suite 70  
Andover, MA 01810

web: [www.skylit.com](http://www.skylit.com)  
e-mail: [sales@skylit.com](mailto:sales@skylit.com)  
[support@skylit.com](mailto:support@skylit.com)

1 2 3 4 5 6 7 8 9 10 14 13 12 11 10 09

Printed in the United States of America

## Brief Contents

Preface	vii
How to Use This Book	xi
Chapter 1. Exam Format, Grading, and Tips	1
Chapter 2. Java Features, Part 1	11
Chapter 3. Java Features, Part 2	45
Chapter 4. Program Design and OOP Concepts	71
Chapter 5. Algorithms	93
Chapter 6. GridWorld Case Study	117
Chapter 7. Annotated Solutions to Past Free-Response Questions	137
Practice Exams	139
Answers and Solutions	265
Index	299





---

**Chapter 5. Algorithms** **93**

- 5.1. Iterations 93
- 5.2. Sequential Search and Binary Search 101
- 5.3. Selection and Insertion Sorts 104
- 5.4. Recursion 106
- 5.5. Mergesort 111
- 5.6. Data Organization Questions 113

---

**Chapter 6. GridWorld Case Study** **117**

- 6.1. Introduction 117
- 6.2. The Location Class and the Grid Interface 121
- 6.3. The Actor Class 125
- 6.4. Bugs, Flowers, and Rocks 129
- 6.5. Critters 131
- 6.6. Tips for the Case Study Questions 135

---

**Chapter 7. Annotated Solutions to Past Free Response Questions** **137**

---

**Practice Exams** **139**

- Exam #1 141
- Exam #2 171
- Exam #3 201
- Exam #4 231

---

**Answers and Solutions** **265**

- Exam #1 265
- Exam #2 273
- Exam #3 283
- Exam #4 291

---

**Index** **299**