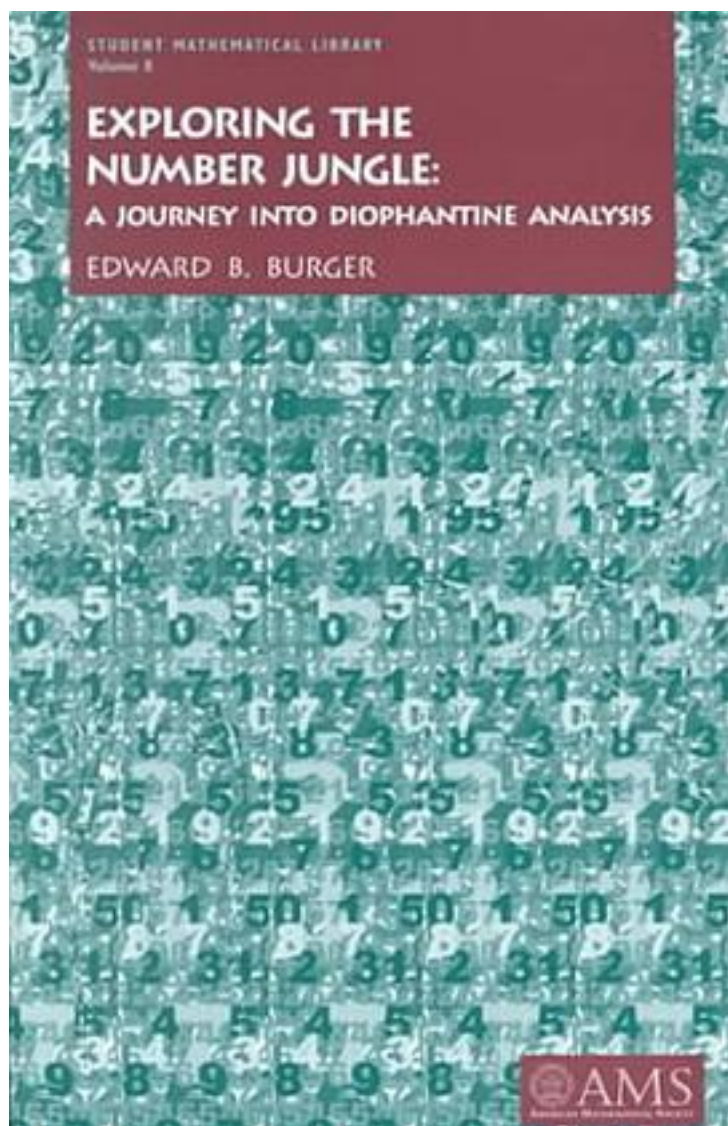


Exploring the Number Jungle



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Welcome to diophantine analysis—an area of number theory in which we attempt to discover hidden treasures and truths within the jungle of numbers by exploring rational numbers. Diophantine analysis comprises two different but interconnected domains—diophantine approximation and diophantine equations. This highly readable book brings to life the fundamental ideas and theorems from diophantine approximation, geometry of numbers, diophantine geometry and p-adic analysis. Through an engaging style, readers participate in a journey through these areas of number theory.

Each mathematical theme is presented in a self-contained manner and is motivated by very basic notions. The reader becomes an active participant in the explorations, as each module includes a sequence of numbered questions to be answered and statements to be verified. Many hints and remarks are provided to be freely used and enjoyed. Each module then closes with a Big Picture Question that invites the reader to step back from all the technical details and take a panoramic view of how the ideas at hand fit into the larger mathematical landscape. This book enlists the reader to build intuition, develop ideas and prove results in a very user-friendly and enjoyable environment.

Little background is required and a familiarity with number theory is not expected. All that is needed for most of the material is an understanding of calculus and basic linear algebra together with the desire and ability to prove theorems. The minimal background requirement combined with the author's fresh approach and engaging style make this book enjoyable and accessible to second-year undergraduates, and even advanced high school students. The author's refreshing new spin on more traditional discovery approaches makes this book appealing to any mathematician and/or fan of number theory.

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目录:	Cover	1
	Title	3
	Copyright	4
	Table of Contents	5
	Opening thoughts: Welcome to the jungle	7
	Modules	13
	Module 1. A bit of foreshadowing and some rational rationale	13
	Module 2. Building the rationals via Farey Sequences	17
	Module 3. Discoveries of Dirichlet and Hurwitz	23
	Module 4. The theory of continued fractions	29
	Module 5. Enforcing the law of best approximates	35
	Module 6. Markoff's spectrum and numbers	41
	Module 7. Badly approximable numbers and quadratics	49
	Module 8. Solving the alleged "Pell" equation	55
	Module 9. Liouville's work on numbers algebraic and not	61
	Module 10. Roth's stunning result and its consequences	67
	Module 11. Pythagorean triples through diophantine geometry	73
	Module 12. A quick tour through elliptic curves	81

Module 13. The geometry of numbers	87
Module 14. Simultaneous diophantine approximation	95
Module 15. Using geometry to sum some squares	101
Module 16. Spinning around irrationally and uniformly	105
Module 17. A whole new world of p-adic numbers	111
Module 18. A glimpse into p-adic analysis	119
Module 19. A new twist on Newton's method	123
Module 20. The power of acting locally while thinking globally	129
Appendices	135
1. Selected Big Picture Question commentaries	135
2. Hints and remarks	141
3. Further reading	151
Acknowledgments	153
Index	155
A	155
B	155
C	155
D	155
E	155
F	155
G	155
H	156
I	156
J	156
K	156
L	156
M	156
N	156
O	156
P	156
Q	156
R	156
S	156
T	156
U	157
Back Cover	160
• • • • •	(收起)

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