
Preface

When I came to Singapore I was given a fourth year undergraduate Honours Number Theory course. I decided to teach Gauss's immortal *Disquisitiones Arithmeticae*. This book is the result.

On historical and mathematical grounds alike number theory has earned a place in the curriculum of every mathematics student. This is a textbook for an advanced undergraduate or beginning graduate core course in the subject. Such a course should stick pretty close to the naive questions, which in number theory concern prime numbers and Diophantine equations. The emphasis in this book is on Diophantine equations, especially quadratic equations in two variables.

My own conscious interest in Diophantine equations goes back to a long winter's night in a St. Louis basement in 1962 when my father and I tried to solve the notorious problem of the monkey and the coconuts as presented by Martin Gardner. No one told me then that Diophantine equations belong to a subject called "number theory," and I found little help in the public library. I needed a teacher trained in number theory. It pleases me that several of my students of Gauss are now teaching in the schools. I might particularly mention Mr. Lee Ah Huat with whom I discovered Gauss's first proof of the law of quadratic reciprocity.

This book is closely based on lectures I gave to able groups of students during three consecutive years at the National University of Singapore. I thank the students for constantly demanding "the notes," which was how the text began. I tried during the writing always to keep my students in mind, always to remember that I was writing a textbook. I have sought to avoid the twin traps of doing algebra to the exclusion of number theory and of doing only trivial number theory. I take it for granted that the material I have chosen is interesting. My supreme stylistic goal is clarity.

By the time this book is published I shall have gone on from Singapore. Singapore has been part of my life for three and a half years, and I shall miss it. I have many friends here. I wish them all well.

Singapore
August 1987

DAN FLATH