Contents

1 Recurrent Problems **3**
1.1 The Tower of Hanoi 3
1.2 Lines in the Plane 3
1.3 The Josephus Problem 3

2 Sums **5**

3 Integer Functions **7**

4 Number Theory **9**

5 Binomial Coefficients **11**

6 Special Numbers **13**

7 Generating Functions **15**

8 Discrete Probability **17**

9 Asymptotics **19**

Chapter 1

Recurrent Problems

1.1 The Tower of Hanoi

1.2 Lines in the Plane

1.3 The Josephus Problem

Exercises

Chapter 2

Sums

Chapter 3

Integer Functions

Chapter 4

Number Theory

Chapter 5

Binomial Coefficients

Chapter 6

Special Numbers

Chapter 7

Generating Functions

Chapter 8

Discrete Probability

Chapter 9

Asymptotics