# Contents

Introduction

Chapter 1  | What Is a Graph?  
| 1.1 Team Competitions  | 5  
| 1.2 Null Graphs and Complete Graphs  | 7  
| 1.3 Isomorphic Graphs  | 9  
| 1.4 Planar Graphs  | 12  
| 1.5 Planar Problems  | 14  
| 1.6 The Number of Edges in a Graph  | 18  
| 1.7 Interval Graphs  | 21  

Chapter 2  | Connected Graphs  
| 2.1 Connected Components  | 24  
| 2.2 The Problem of the Bridges of Königsberg  | 26  
| 2.3 Eulerian Graphs  | 27  
| 2.4 Finding Your Way  | 30  
| 2.5 Hamiltonian Cycles  | 31  
| 2.6 Puzzles and Graphs  | 33  

Chapter 3  | Trees  
| 3.1 Trees and Forests  | 37  
| 3.2 Cycles and Trees  | 39  
| 3.3 The Connector Problem  | 41  
| 3.4 The Travelling Salesman Problem Revisited  | 44  
| 3.5 Bracing Frameworks  | 46  
| 3.6 Streets and Squares  | 49  

vii