Contents

Chapter 1. Introduction  
  1. Basic Concepts 1  
  2. Some Key Theorems 5  

Chapter 2. Positive Series 9  
  3. Preliminaries 9  
  4. Comparison Tests 12  
  5. The Tests of Cauchy, D’Alembert and Raabe 23  
  6. The Tests of Kummer, Bertrand and Gauss 33  
  7. The Integral Test 41  
  8. Further Results 48  

Chapter 3. Arbitrary Series 61  
  9. The Cauchy Convergence Criterion 61  
  10. Absolute and Conditional Convergence 63  
  11. Power Series 68  
  12. Alternating Series. Leibniz’s Test 73  
  13. The Tests of Abel and Dirichlet 77  

Chapter 4. Infinite Products 89  
  14. Concepts and Notation 89  
  15. Basic Theorems 94  

Chapter 5. Series and Product Expansions of  
  Elementary Functions 106  
  16. Taylor Series 106  
  17. Examples 112  
  18. The Binomial Series 119  
  19. Stirling’s Formula 124  
  20. Infinite Product Expansion of the Sine 127  

Index 135