

# Contents

---

<i>Preface</i>	v
<i>Notation</i>	ix
1 Complex Numbers and Functions	1
2 Sums and Products	7
3 Discrete Fourier Transform	23
4 Algebraic and Transcendental Equations	29
5 Vector and Matrix Calculations	37
6 Matrices and Groups	55
7 Matrices and Eigenvalue Problems	63
8 Functions of Matrices	83
9 Transformations	91
10 L'Hospital's Rule	111
11 Lagrange Multiplier Method	115
12 Linear Difference Equations	121
13 Linear Differential Equations	133

viii *Problems and Solutions*

14	Integration	149
15	Continuous Fourier Transform	169
16	Complex Analysis	175
17	Special Functions	189
18	Inequalities	203
19	Functional Analysis	211
20	Combinatorics	221
21	Convex Sets and Functions	229
22	Optimization	235
	<i>Bibliography</i>	241
	<i>Index</i>	245