

Contents

<i>Preface</i>	<i>vii</i>
1 Introduction	1
1.1 Starting <i>Maple</i>	1
1.2 Calculating with numbers	5
1.3 Calculating with real numbers and functions	9
1.4 Calculating with complex numbers and functions	14
1.5 Problems	16
2 Term transformations	17
2.1 Calculating with symbols	17
2.2 Calculating with rational integral terms	20
2.3 Calculating with fractions (rational expressions)	23
2.4 Problems	25
3 Lists, tables and functions	27
3.1 Sets	27
3.2 Series	28
3.3 Lists	29
3.4 Arrays and tables	31
3.5 Functions	35
3.6 Problems	37
4 Solution of equations	38
4.1 Solving rational integral equations	38
4.2 Equations with square roots and absolute values	42
4.3 Trigonometric equations	43
4.4 Problems	45
5 Linear algebra and systems of equations	46
5.1 Description of matrices and vectors	46
5.2 Calculating with vectors	48
5.3 Matrix transformations	50
5.4 Solution of systems of equations	57
5.5 Problems	60

6	Graphics	61
6.1	2D graphics	61
	6.1.1 Parametrised curves	66
	6.1.2 Representation of tables	67
6.2	3D-graphics	70
6.3	Problems	75
7	Analysis	76
7.1	Derivations	76
7.2	Integrals	80
7.3	Limits, series and products	82
7.4	Differential equations	86
7.5	Problems	88
8	Simple programs	89
8.1	Linear programs	89
8.2	Branching programs	91
8.3	Programs with loops	94
8.4	Problems	101
	Appendix A Installation on PCs	102
	Appendix B List of commands	104
	Appendix C Solutions	113
C.1	Solutions for chapter 1	113
C.2	Solutions for chapter 2	113
C.3	Solutions for chapter 3	113
C.4	Solutions for chapter 4	114
C.5	Solutions for chapter 5	114
C.6	Solutions for chapter 6	114
C.7	Solutions for chapter 7	114
C.8	Solutions for chapter 8	115
	Bibliography	116
	Index	117