

Contents

Preface

ix

The purpose of this manual	ix
Advanced functions	x
HP 49G on the World Wide Web	x
Regulatory information	x
USA	x
Canada	xi
Japan	xi
End-user terms and conditions	xi
Warranty	xii

Chapter 1: Keys

1-1

Key map	1-2
The HP 49G's keyboards	1-3
What each key does	1-5
Key conventions	1-10

Chapter 2: Basic operation

2-1

Turning on and turning off	2-2
Turning on	2-2
Changing the screen contrast	2-3
Turning off	2-3
Default screen	2-3
Status area	2-4
History	2-5
Menu	2-6
Using the command line	2-7
Multi-line entries	2-8
Entering numbers	2-8
Entering characters	2-10
Entering special characters	2-11
Entering from history	2-12
Editing the command line	2-13
Input forms	2-14
Input form fields	2-14
Closing an input form	2-17

Modes	2-18
Changing a mode	2-18
Algebraic and RPN modes	2-21
Exact and approximate modes	2-22
Command line calculations	2-24
Time Management	2-26
Setting the date and time	2-26
Changing the format of the date or time	2-27
Alarms	2-27

Chapter 3: Creating and editing expressions 3-1

Creating a new expression	3-2
Editing an expression	3-3
Using Equation Writer	3-4
Implied multiplication	3-4
Entering e and i	3-4
Operating modes	3-5
Working with modes	3-5
How Equation Writer sees expressions	3-7
Examples	3-8
Example 1	3-8
Example 2	3-8
Example 3	3-9
Equation Writer keys	3-9

Chapter 4: Plotting graphs 4-1

Basic plotting	4-3
Plot types	4-6
Function plots	4-6
Parametric plots	4-8
Polar plots	4-10
Conic plots	4-13
Differential equation plots	4-15
Truth plots	4-17
Slopefield plots	4-19
Wireframe plots	4-20
Pseudo-Contour plots	4-21
Y-Slice plots	4-23
Gridmap plots	4-24
Parametric surface plots	4-25
Fast 3-D plots	4-27
Statistical plots	4-28

Cursor movement	4-34
Standard cursor movement	4-34
Tracing a plot	4-35
Cursor coordinates	4-35
Zooming	4-36
To zoom in	4-36
To zoom out	4-36
Zoom options	4-36
Analyzing functions	4-37
Finding roots	4-38
Finding extrema	4-38
Finding slopes	4-38
Finding areas	4-39
Finding intersections	4-39
Tables	4-40
Customizing table values	4-40
Special plotting and table variables	4-41
EQ	4-41
Σ DAT	4-41
PPAR	4-41
VPAR	4-42
Σ PAR	4-42
ZPAR	4-42
TPAR	4-42

Chapter 5: Working with expressions 5-1

Configuring the CAS	5-2
Numeric option	5-3
Approx option	5-3
Other options	5-4
Using the computer algebra system	5-5
Working from the command line	5-7
Working in Equation Writer	5-9
Performing substitutions	5-10
Expanding and factorizing	5-11
Expanding expressions	5-11
Factorizing expressions	5-13
Exponential and trigonometric expressions	5-14
Calculus commands	5-17
Example	5-18

Differentiating an expression step-by-step	5-19
Setting step-by-step mode	5-19
Performing step-by-step operations	5-19
Step-by-step example	5-20

Chapter 6: Solving equations **6-1**

About solving equations	6-2
Solving an equation	6-3
Example	6-3
Interpreting results	6-4
Solving polynomial equations	6-5
Example	6-5
Finding a polynomial from a set of roots	6-7
Solving linear systems	6-7
Representing a system as matrices	6-8
Example	6-9
Solving differential equations	6-10
Using the financial solver	6-11
Time-value-of-money calculation parameters	6-11
Time-value-of-money calculations	6-12
Amortizing the calculation	6-13

Chapter 7: Storing objects **7-1**

Variables	7-2
Creating a variable	7-2
Using a variable in a calculation	7-4
User-defined functions	7-4
Directories	7-5
Creating a directory	7-6
Selecting a directory or variable	7-7
Managing variables and directories	7-8
Deleting a variable or directory	7-8
Copying or moving a variable or directory	7-9
Renaming a variable or directory	7-9
Editing a variable	7-10
Memory Management	7-10
Using port memory	7-11

Chapter 8: Vectors, lists, arrays, and matrices 8-1

Vectors	8-2
Creating vectors	8-2
Vector mathematics	8-3
Lists	8-6
Creating a list	8-6
Working with lists	8-6
Arrays and matrices	8-7
Creating arrays	8-7
Quickly moving through an array	8-9
Editing an array	8-9
Matrix arithmetic	8-10

Chapter 9: Using statistics 9-1

Descriptive statistics	9-2
Starting an application and specifying the data	9-2
Single-variable statistics	9-3
Generating frequencies	9-4
Fitting a model to a set of data	9-5
Calculating summary statistics	9-6
Plotting statistics	9-7
Inferential statistics	9-7
Example data	9-7
Using inferential statistics	9-8
Hypothesis tests	9-9
Confidence intervals	9-14

Chapter 10: Introduction to programming 10-1

Getting started	10-2
Creating, saving, and running a program	10-3
The programming menu	10-4
Algebraic and RPN modes	10-5
Using functions that require arguments	10-5
Handling data	10-6
Input data	10-6
Output data	10-6
How a program flows	10-6
Nested procedures	10-7
Working with variables	10-8
Using local variables	10-8
Setting variables	10-8

Setting a local variable to the result of a calculation	10-10
Using global variables	10-11
Example	10-11
Looping and branching	10-13
Comparison functions	10-13
Conditional and looping structures	10-13
Example	10-14
Trapping errors	10-15
Example	10-16

Appendix A: Connecting to another calculator A-1

Transferring objects between calculators	A-1
Transferring data between two HP 49Gs	A-2
Transferring objects to or from an HP 48	A-2

Appendix B: Error messages B-1

Appendix C: Units C-1

Appendix D: Troubleshooting D-1

Calculator will not turn on	D-2
Resetting the calculator	D-2
Batteries	D-2
Calculator is not responding	D-4
Halting the system	D-4
Resetting the memory	D-5
Calculator continually re-boots	D-5
Error on start up	D-6
Low memory	D-6
No room for last stack	D-6
Insufficient memory	D-7
Out of memory	D-7

Appendix E: Working in RPN mode E-1

Using the stack	E-2
Placing objects on the stack	E-2
Performing RPN calculations	E-3
Example stack calculations	E-4
Using a one-argument command	E-4
Using a multi-argument command	E-4
Multi-command calculations	E-5
Using computer algebra commands	E-6
Manipulating stack data	E-7
Interactive stack commands	E-7

Index I-1