

Covers Versions
3.0, 3.5, & 4.0

Excel 4 for Windows

the
COMPLETE REFERENCE

Osborne/McGraw-Hill

Osborne
Asian
Student
Edition

**MARTIN S. MATTHEWS
& STEPHANIE SEYMOUR**

Excel 4 for Windows: The Complete Reference

**Martin S. Matthews
Stephanie Seymour**

Osborne McGraw-Hill

Berkeley New York St. Louis San Francisco
Auckland Bogotá Hamburg London Madrid
Mexico City Milan Montreal New Delhi Panama City
Paris São Paulo Singapore Sydney
Tokyo Toronto

Osborne **McGraw-Hill**
2600 Tenth Street
Berkeley, California 94710
U.S.A.

For information on software, translations, or book distributors outside of the U.S.A., please write to Osborne **McGraw-Hill** at the above address.

Excel 4 for Windows: The Complete Reference

Copyright © 1993 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher, with the exception that the program listings may be entered, stored, and executed in a computer system, but they may not be reproduced for publication.

1234567890 DOC 99876543

ISBN 0-07-881836-2

Information has been obtained by Osborne **McGraw-Hill** from sources believed to be reliable. However, because of the possibility of human or mechanical error by our sources, Osborne **McGraw-Hill**, or others, Osborne **McGraw-Hill** does not guarantee the accuracy, adequacy, or completeness of any information and is not responsible for any errors or omissions or the results obtained from use of such information.

**To the next generation of Excel users:
Tara, Jaimeson, and Michael**

Publisher _____

Kenna S. Wood

Acquisitions Editor _____

William Pollock

Associate Editor _____

Vicki Van Ausdall

Editorial Assistant _____

Judy Kleppe

Technical Editor _____

John Cronan

Project Editor _____

Nancy Pechonis

Copy Editor _____

Deborah Craig

Proofreader _____

Zoe Borovsky

Indexer _____

Julie Kawabata

Computer Designer _____

Lance Ravella

Cover Design _____

Bay Graphics Design, Inc.

Acknowledgments

John Cronan did an excellent job of technically reviewing all of this book—a long, painstaking task which he always managed to get done on schedule even though he had been shorted some (and more than once, most) of his allotted time. Not only did John provide good ideas and find some of the most obscure errors, but he also always did what it took to get the job done.

Erik Paulsen jumped into the breach when Marty was pulled away on another project. Erik ended up writing the majority of Chapters 3, 4, and 5. Erik's willingness to take this project on with no notice, and then to do whatever was necessary to get it done (including more than one sleepless night) is very greatly appreciated.

Jane Seymour, Stephanie's mother, has an office equidistant from Stephanie, Marty, and John; she therefore provided a most valuable exchange point for portions of the manuscript going from one person to the other.

Maureen Jones, Amana Fisher, and Gary Seymour provided Stephanie with practical and emotional support essential to the completion of this book. Their contributions are greatly appreciated.

Carole Boggs Matthews and Michael Matthews provided Marty with all that it took to allow this book to be finished. Their love, patience, and understanding are without parallel.

Introduction

Excel for Windows has long had a popular following. With the release of Excel 4 this popularity has expanded, and Excel now easily outsells both major competing spreadsheet packages. Such dominance is well deserved, given Excel's ease of use and the features it provides.

About This Book

Excel 4 for Windows: The Complete Reference has two purposes: first, to allow you to put the full power of Excel to work in the easiest possible way; and second, to provide an in-depth reference so you can easily find what you need to know for expanding both your knowledge of Excel and your use of it.

This book uses a very simple structure, offering a comprehensive reference work that is also easy to use. It is meant to be a primary supplement to the Excel documentation. In the documentation we have found it very easy to get lost in the pine needles and not be able to find the trees, let alone the forest.

How This Book Is Organized

Excel 4 for Windows: The Complete Reference is divided into two major sections, in line with its twin purposes. The first section, The Excel Basics, provides a quick and easily read introduction to the product. The second section, The Excel Dictionary, provides a concise, easy to use reference to every concept, every menu command, and every

function and macro function. These two sections work together to give you the basics you need to get started with Excel, as well as an in-depth reference source to help you keep growing with the product. They are complemented by two appendixes that provide useful information about software installation and about the Excel character set, and by two handy Excel command supplements.

The Excel Basics

The first section of the book is made up of five chapters that introduce Excel and its three main components: worksheets, charts, and databases. These chapters are meant to be easily and quickly read so you can get started using the product.

The first chapter, *Overview of Excel 4 for Windows*, describes Windows and Excel, focusing on their on-screen characteristics and how they are used with both the mouse and the keyboard. The chapter then goes into the basic features of Excel, covering cells and ranges, formulas and functions, and toolbars and menus.

The second chapter, *Producing Worksheets*, discusses the basic skills that are fundamental to using Excel worksheets. Included in this chapter are entering and editing data; getting around, changing, formatting, and printing a worksheet; saving and loading a worksheet; and leaving Excel.

The third chapter, *Creating Charts*, gives you the tools necessary to use Excel's charting features. The chapter shows how to create charts from worksheet information, then describes the types of charts that can be created, and how to customize, format, and edit charts.

The fourth chapter, *Using a Database*, shows you how to place and use a database on a worksheet. The chapter covers building and maintaining a database, as well as organizing, manipulating, and analyzing information in a database.

The fifth chapter, *Working with Macros*, provides an introduction to the use of macro commands, an often overlooked but very powerful feature of Excel. This chapter describes what macros are; discusses how to record, edit, and run them; and examines the classes of macro functions. Finally, the chapter leads you through building and running both a command macro and a function macro.

The Excel Dictionary

The second section of the book, as you might guess from its name, is structured like a dictionary. It is meant to provide a very simple, convenient reference to all facets of Excel. The section's high usability has been carefully thought out and is based on these features:

- **Alphabetic structure** This simple structure enables you to quickly locate what you are looking for without having to figure out which section to look in.

- **Categorized entries** There are four types of entries, each clearly marked: concepts, menu commands, functions, and macro functions.
- **Consistent layout** Each entry includes a complete description, as well as the following information: type (concept, menu command, function, or macro function), identification if an item is new to version 4 of Excel or not available in version 4, associated commands, associated functions, associated concepts, keyboard shortcuts, tools, and mouse tricks. This information is formatted into a consistent and easy-to-use layout. The title of each entry includes both the item name and any arguments it uses. Often there are one or more examples of how the item is used.
- **Comprehensive cross-referencing** The Excel Dictionary is designed to help you easily find an item even when you don't know exactly what a macro or function is called, or can't recall the full name of a menu option. For example, if you wanted to print, but didn't know that the Print option is on the File menu, you could easily find this out by reading the entry for Print (the concept), which cross-references File Print (the menu command).
- **Dictionary style page headings** At the top of every page is a heading, similar to those in language dictionaries, that indicates what topics can be found on that page.
- **Alphabetic thumb tabs** The Excel Dictionary includes alphabetic thumb tabs—again, like a language dictionary—to make it easy and fast for you to find the right spot in the book.

Appendixes

Appendix A provides detailed instructions for installing Excel, as well as valuable background information. It describes what equipment you need and explains how to start and use the Excel Setup program. In addition, it discusses how you prepare to store the data you will create with Excel, and how to start and leave the program. Appendix B provides a handy reference to the Excel character set.

Excel Command Supplements

Near the back of the book are several supplemental pages listing the many keyboard shortcuts available in Excel. These pages are followed by a toolbar command card that can be removed and used as an instant reference. The card combines pictures and descriptions of the many tools that appear on Excel's built-in toolbars.

Using Various Versions of Excel

Excel, for the most part, has maintained an upward compatibility among its different releases. In other words, the majority of the commands and functions available in older versions can be used in newer versions.

Most of the features new to version 4 of Excel have been identified in this book. Therefore, if you stay away from the sections that address these new features, you can easily use the book with versions 3.0 and 3.5.

Conventions Used in This Book

Excel 4 for Windows: The Complete Reference uses several conventions designed to make the book easier for you to use. These are as follows.

- **Bold** type is used for text you are instructed to type from the keyboard.
- Keys on the keyboard are presented in small capital letters (RIGHT ARROW and ENTER, for example).
- When you are expected to enter a command, you are told to *press* the key(s). If you enter text or numbers, you are told to *type* them.

Contents

Acknowledgments	xi
Introduction	xiii

Part I

The Excel Basics

1	
Overview of Excel 4 for Windows	3
The Windows Environment	3
The Windows Screen	4
Using the Mouse	6
Using Menus and Dialog Boxes	7
Using the Keyboard	10
Getting Help	13
Excel Basics	14
Addresses and Cells	15
Ranges and Range Names	16
Formulas	17
Functions	21
The Excel Environment	22
The Excel Application Window	22
The Excel Document Windows	27
Excel Menus	31

2	
Producing Worksheets	39
Entering Data	39
Entering Numbers	39
Large Entries	42
Completing an Entry	43
Mapping Out a Path for Data Entry	43
Getting Around in the Worksheet	43
CTRL and END Key Combinations	44
Jumping with the Mouse	45
Using the Scroll Bars	46
Using Zoom	47
Editing Data	48
The I-Beam Pointer and the Insertion Point	49
Insert Versus Overtyping Mode	50
Editing with the Keyboard	50
Spell Checking	51
Saving and Opening Worksheet Files	52
Naming Files	52
Storing Related Documents in a Workbook	53
Opening Files	55
Leaving Excel	56
Manipulating Data on the Worksheet	56
Copying Information	57
Moving Information	65

Deleting Information	66
Inserting Cells, Rows, and Columns	67
Deleting Cells, Rows, and Columns	68
Changing Column Width and Row Height	69
Formatting the Worksheet	71
Aligning Text and Numbers	71
Formatting Numbers	72
Formatting Text	73
Adding Borders, Patterns, and Colors	74
Printing a Worksheet	76
Defining What To Print	76
Setting Up a Printed Page	77
Printing	79

3 --- Creating Charts 81

Preparing Information	81
Selecting Data	82
Chart Types	85
Area Charts	85
Three-Dimensional Area Charts	86
Bar Charts	87
3-D Bar Charts	89
Column Charts	89
Three-Dimensional Column Charts	90
Combination Charts	91
Line Charts	92
Three-Dimensional Line Charts	94
Pie Charts	94
Three-Dimensional Pie Charts	96
Radar Charts	97
Scatter Charts	98
Three-Dimensional Surface Charts	99
Charting Methods	100
Using ChartWizard	100
Using the Chart Toolbar	105
Using the File Menu	108
Editing and Formatting with the Chart Menus	108

4 --- Using a Database 123

How an Excel Database Works	123
Database Records and Fields	123
The Data Menu	124
Building a Database	125
Adding Records to a Database	126
Sorting a Database	127
Determining the Sort Order	128
Building and Using Criteria	130
Building a Criteria Range	130
Entering Criteria	131
Searching the Database	137
Deleting Records	138
Extracting a Range	139
Using Data Forms	140
Adding Records with a Data Form	141
Finding Records with a Data Form	141
Editing and Deleting Records with a Data Form	142
Analyzing Database Information	143
Database Statistical Functions	143
Data Tables	145
Crosstab Tables	146
Other Data Operations	153
Entering Data Series	154
Parsing	155
Consolidating	156

5 --- Working with Macros 161

What Are Macros?	161
Recording a Macro	162
Recording with the Macro Menu	162
Recording with the Macro Toolbar	164
Running a Macro	165
Running a Macro with the Macro Menu	165
Running a Macro with the Macro Toolbar	165
Working with Macro Sheets	166

Opening a New Macro Sheet	167
Hidden Macro Sheets	167
Macro Types	168
Macro Functions	169
Macro Command Functions	170
Macro Information Functions	171
Macro Control Functions	171
Customizing Functions	172
Using Macros	172
Using Macro Ranges	172
Writing a Macro	173
Naming a Macro	177
Testing a Macro	178
Documenting a Macro	180
Using Custom Functions	180
Writing Custom Functions	182

Part II

The Excel Dictionary

Alphabetical List of Commands and Functions	187
--	-----

Part III

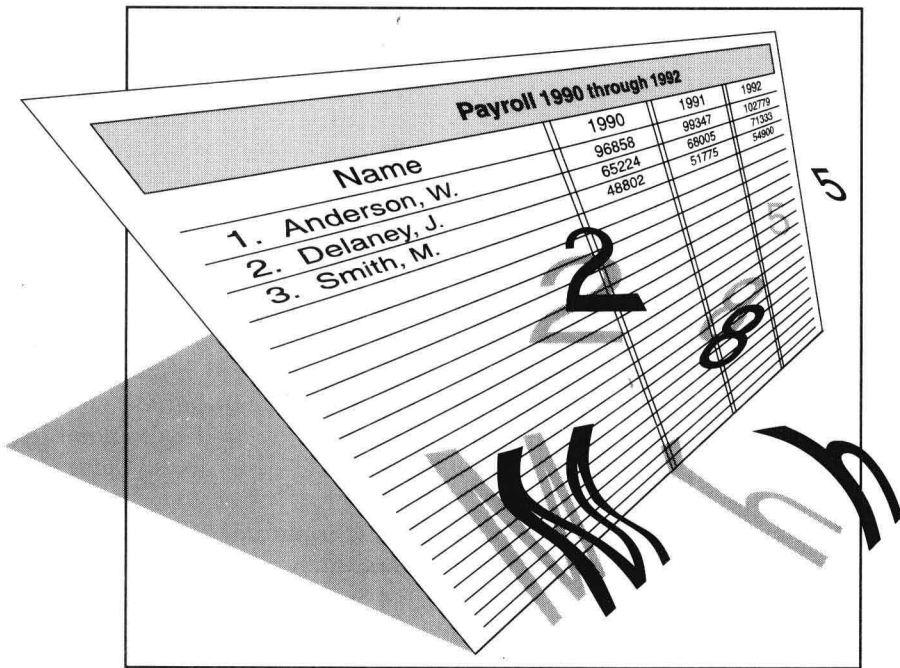
Appendixes

A	
Installing Windows and Excel	833
Preparing To Store Data	834
Creating Directories on a Hard Disk	834
Copying Your Disks	835
Running Windows Setup	837
Starting Windows	838
Running Excel Setup	838
Starting Excel	840
Leaving Excel and Windows	841

B	
The Excel Character Set	843
Index	847

Part I

The Excel Basics



Chapter 1

Overview of Excel 4 for Windows

Excel is a spreadsheet program—a program in which you can enter numbers in rows and columns and perform arithmetic on those numbers. However, Excel is also much more. Excel includes a full charting module that lets you display spreadsheet numbers in graphic form, and a database module that lets you specify a section of spreadsheet data to use as a database. In addition to these features, Excel includes a large number of mathematical and statistical functions; a complete language for automating Excel operations; and many commands and tools for manipulating, formatting, storing, and retrieving information.

Although Excel can do so much, it is very straightforward and easy to use. Keep this in mind as you learn Excel: the intuitive approach will often be the one that works.

This chapter will introduce Excel 4 and the Windows environment under which Excel operates. It assumes that you have Windows and Excel on your computer and have them operating. If you need help installing or starting Excel, see Appendix A. If there is a particular command, function, or concept on which you want more information, see the Excel Dictionary later in this book.

The Windows Environment

On IBM and compatible personal computers, Excel runs under Microsoft Windows. *Windows* is an extension to the MS-DOS operating system that provides a graphical,

or visual, interface between you and your computer. Since Excel for Windows uses this visual interface, the first step in learning about Excel is to learn about Windows.

The Windows Screen

The most obvious part of the Windows visual interface is what you see on the screen. Figure 1-1 shows an Excel screen. Many parts of this screen are features common to all Windows applications.

The Excel screen is composed of two windows, one inside the other. A *window* is an area of the screen with a border around it. The outer window is an *application window*, in this case the Excel application window. The inner window is a *document window*; in Figure 1-1, it contains a spreadsheet, or *worksheet*. (If you cannot see a distinction between the application window and the document window, your document window has been maximized. To get your screen to look like Figure 1-1, move the mouse pointer to the small box with two arrows in the *second row* from the top on the far right side and press the left mouse button.) The application and document windows contain the following features common to all windows:

- Across the top of each window is the title bar, which contains the window name. For application windows, the name is generally the name of the application; for document windows, it is the name of the document.

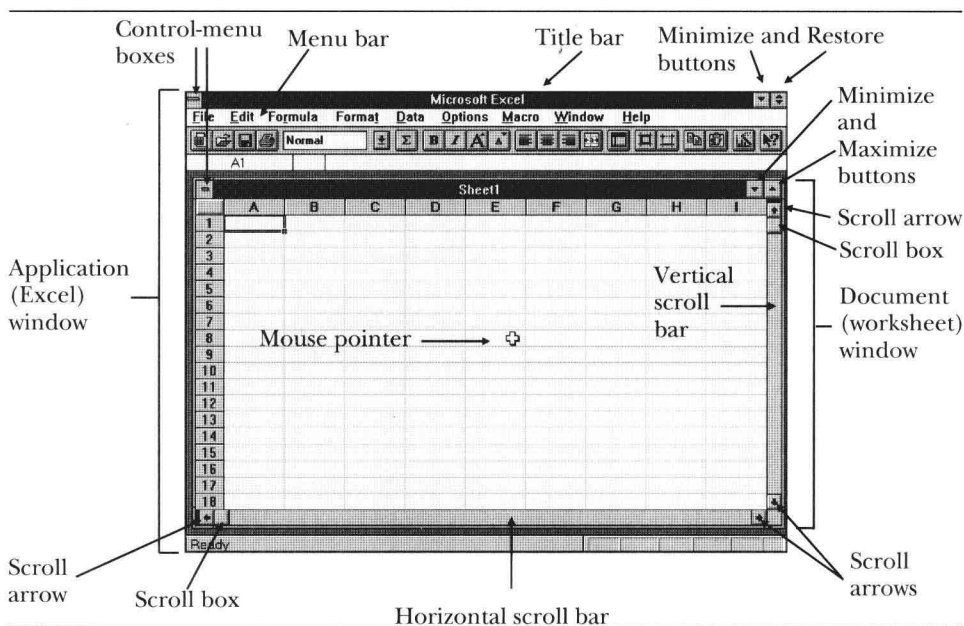


Figure 1-1. The common Windows elements on the Excel screen