Microsoft Excel

Getting Started with Microsoft Excel

Microsoft

Getting Started with Microsoft® Excel

**Complete Spreadsheet with Business Graphics and Database
Version 2.2**

For Apple® Macintosh®

Microsoft Corporation

Contents

Welcome

Welcome to Microsoft Excel, the most powerful integrated spreadsheet for the Macintosh.

With its sophisticated spreadsheet and worksheet-oriented database, Microsoft Excel puts you in control of information. Powerful built-in graphics make it easy to present your information visually. And since Microsoft Excel lets you create your own functions and macros, you can automate repetitive tasks.

Microsoft Excel—use it to handle even the most complex financial or statistical problems with ease.

File   Edit   Formula   Form

C2

A

B

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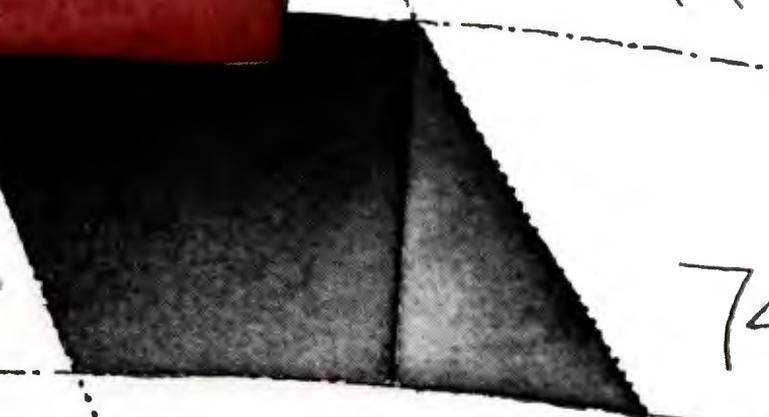
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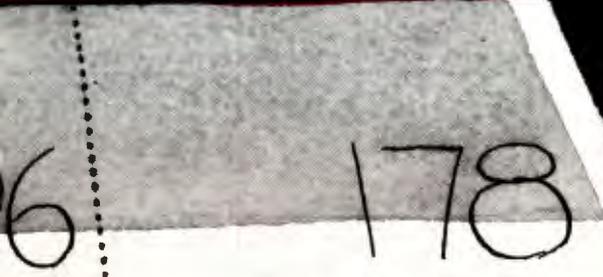
About This Manual

This manual shows you how to start Microsoft Excel and use it for many common tasks.

Before you start, you should already know how to perform basic operations with your Apple Macintosh. You should know how to use the Finder and the mouse, manipulate windows, scroll a worksheet, pull down menus, and choose commands. If you need information about any of these topics, see your Macintosh owner's guide.

This manual has three main parts:

- **Getting Started** shows you how to load the Microsoft Excel software and start the program.
- **Learning Microsoft Excel** teaches you how to create a worksheet, how to use a database, and how to create a chart.
- **Where to Go Next** introduces the other informational materials — written and online — included with Microsoft Excel.

If you are new to Microsoft Excel, you should read through the "Getting Started" section and work through the lessons and examples.

Using this manual

If you are an experienced Microsoft Excel user or if you have been using another spreadsheet program, read the "Getting Started" section and the chapter titled "Where to Go Next." If you need to review some of Microsoft Excel's commands and features, work through the lessons and examples in this book.

The following conventions are used throughout this book:

Notational conventions

- **Bold text.** Important terms appear in **boldfaced** type.
- **Command names.** Commands are given with the menu name first. For example, if you need to choose the Quit command from the File menu, the lesson will direct you to "Choose File Quit."

- **Italics.** *Italics* indicate words and characters that you type. Titles of books also appear in italics.
- **Key combinations.** A plus sign (+) between two keynames indicates that those keys must be pressed at the same time. For example, "Press Command + S" means that you should hold down the Command key while you press the S key.
- **Keynames.** Keynames are indicated with initial capital letters (for example, Command and Shift).
- **Lists.** A procedure list is a list of actions for you to complete. Each step in a procedure list is preceded by a boxed number ([1]).

  A procedure with only one step is preceded by a boxed square (▣).

  List items that provide information instead of procedural steps are preceded by squares (■).

Getting Started

To use Microsoft Excel you need:

- A Macintosh Plus, Macintosh SE, or Macintosh II.
- The master Microsoft Excel disks.
- A second 800K disk drive (if you don't have a hard disk) and blank initialized disks to make copies of the master disks and save your files.
- A printer (optional).

Before you begin working with Microsoft Excel, you should personalize your master Microsoft Excel Program disk. The first time you start Microsoft Excel, the program asks you to name your master disk. The name you type in will be displayed each time you start Microsoft Excel.

To personalize your master Microsoft Excel program disk:

1. Turn on your Macintosh. If you are using a dual disk drive system, you will need to place a disk containing a system folder into the external drive.
2. Insert your master Microsoft Excel Program disk in the internal disk drive.
3. Double-click the Program disk icon.
4. Double-click the Microsoft Excel application icon.
5. Type your name and, if applicable, your organization's name, in the dialog box.
6. Click the OK button. Once you click the OK button, the Microsoft Excel screen appears.
7. Choose File Quit to return to the Finder.

Copying Microsoft Excel

After you personalize your master disks, you should copy them onto your hard disk or onto blank floppy disks. You can copy the Microsoft Excel disks just as you copy any other Macintosh disks. After making copies, store the originals in a safe place to protect them from damage.

To copy Microsoft Excel to a hard disk

Microsoft Excel runs most efficiently when it is used on a hard disk. To install Microsoft Excel on your hard disk, copy the files on the Microsoft Excel disks to your hard disk:

1 Drag the master Microsoft Excel disk icon over the hard disk icon. Your Macintosh system creates a new folder called Microsoft Excel.

2 Open the other two Microsoft Excel master disks and drag their contents into the Microsoft Excel folder or put them into other folders.
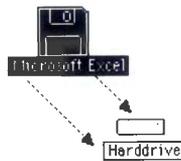
To copy Microsoft Excel to floppy disks

To make working copies of the Microsoft Excel disks:

■ Drag the Microsoft Excel Program disk icon over the icon of a blank, initialized disk.
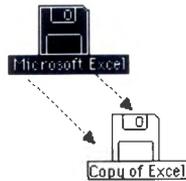
Follow the same procedure to copy the other two master disks.

Important Although Microsoft Excel is not copy protected, you may make copies only for your personal use. Please read the license agreement on the disk package for complete details.

Running Microsoft Excel

To start Microsoft Excel on a floppy disk system:

[1] Place a disk with a system folder on it into the external drive.

[2] Turn on your Macintosh.

[3] Insert the copy of the Microsoft Excel Program disk into the internal disk drive.

[4] Double-click the Microsoft Excel icon to start Microsoft Excel and create a new worksheet.

After you start Microsoft Excel, you need to keep the Program disk in the internal drive so your Macintosh can access the Microsoft Excel application. You also need to keep the system disk in the external drive so your Macintosh can access the system folder on that disk. You should save, open, and delete documents on the System disk rather than on the Program disk. Use the Drive button in the Save As, Open, and Delete dialog boxes if you need to change to the internal drive.

You can save, open, or delete documents on another disk in either the internal or external disk drive. To change the default drive and disks, use the Drive and Eject buttons. After you open, save, or delete a document, Microsoft Excel will continue until it needs information from one of the disks that you ejected. When it needs information from another disk, Microsoft Excel will prompt you with the disk name.

[1] Turn on your Macintosh.

[2] Double-click the hard drive icon.

[3] Double-click the Microsoft Excel folder.

[4] Double-click the Microsoft Excel icon to start Microsoft Excel and create a new worksheet.

You can use icons in the Finder to start Microsoft Excel and create a new worksheet or open existing documents.

To	Double-click
Start Microsoft Excel and create a new worksheet	Microsoft Excel
Start Microsoft Excel and open an existing document	Worksheet1 Macro1 Chart1
Start Microsoft Excel and open the documents you had open when you saved the workspace	Resume Excel

For sets of documents that you use regularly, you can create custom workspace icons.

1. Choose File Save Workspace to save a workspace that you are using.
2. Type a name for the workspace icon in the dialog box that appears.
3. Click the OK button.

Any time you want to open all of the documents in a certain workspace, double-click the custom workspace icon.

For More Information

For more information on	See
Managing files	"Command, Menu, and Dialog Box," core topic in *Microsoft Excel Reference*.
Starting Microsoft Excel	Your Macintosh user's guide.
	"Starting Microsoft Excel" in *Microsoft Excel Reference*.
Saving a workspace	"File Save Workspace command" in *Microsoft Excel Reference*.

Learning

Microsoft Excel

Learning Microsoft Excel shows you how to create
a worksheet, use a database within a worksheet, and
create a chart from worksheet data. As you work
through this tutorial, you will learn the basic skills
you need to use Microsoft Excel.
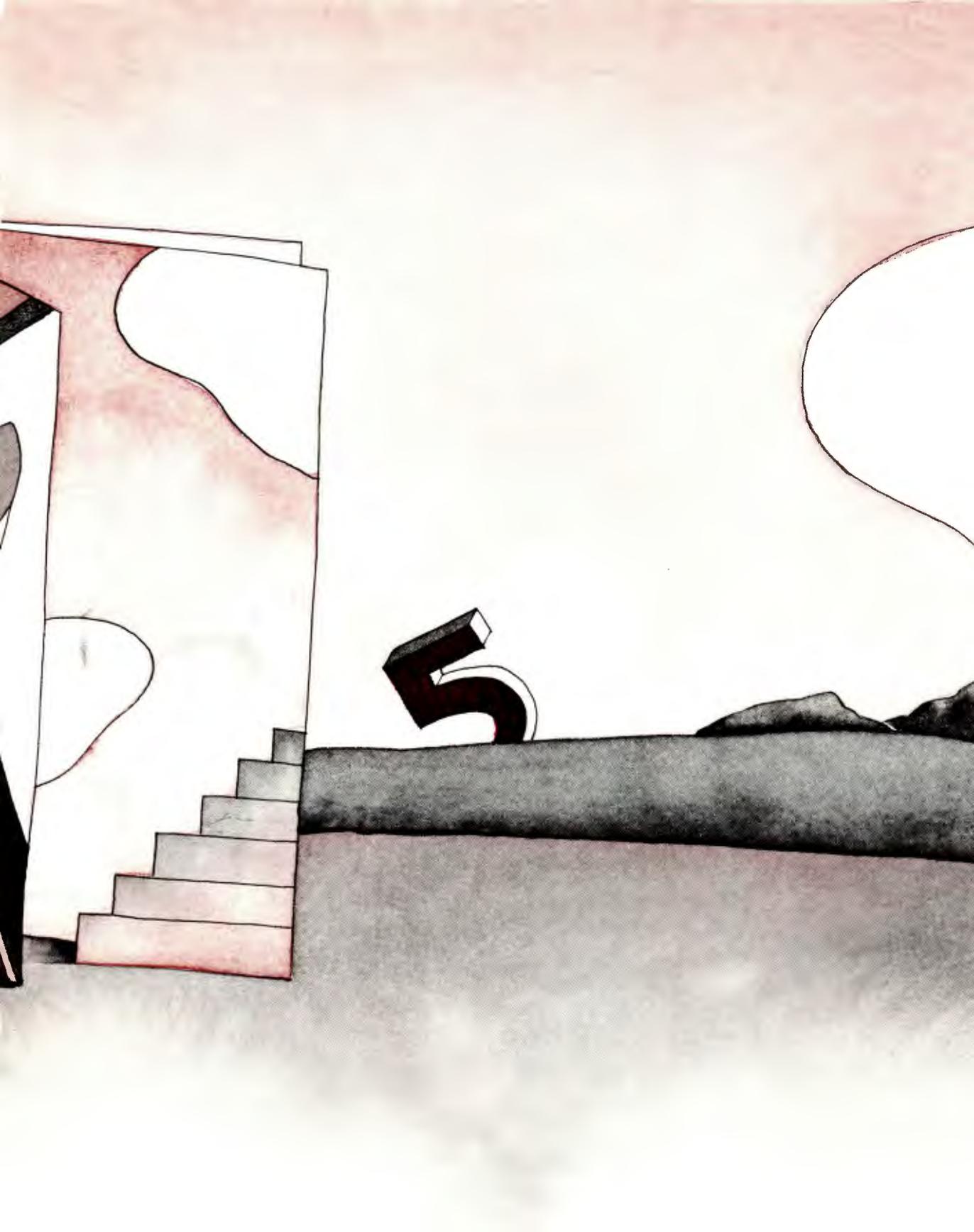
1 Create a Worksheet

In this chapter, you will set up a worksheet for an operating budget. In the process, you will:

- Enter information in cells
- Create formulas to calculate totals
- Format numbers and text
- Change column widths
- Insert rows
- Define names
- Add information to the worksheet
- Save and print the worksheet

Start Microsoft Excel and Create a Worksheet

If you haven't started Microsoft Excel:

- Start Microsoft Excel by following the instructions in the previous section, "Getting Started."

A blank worksheet titled Worksheet1 appears. A **worksheet** is a rectangular grid of rows and columns. Each intersection of a row and column is a cell. When you open a new worksheet, the cell in the upper-left corner is the **active cell**. The active cell is distinguished by a heavy, black border.

Worksheet menu bar
Reference to active cell
Active cell
Column headings
Document name
Formula bar
Title bar
Scroll arrow
Scroll box

Status bar   Row headings   Cells   Pointer   Size box
Scroll bars
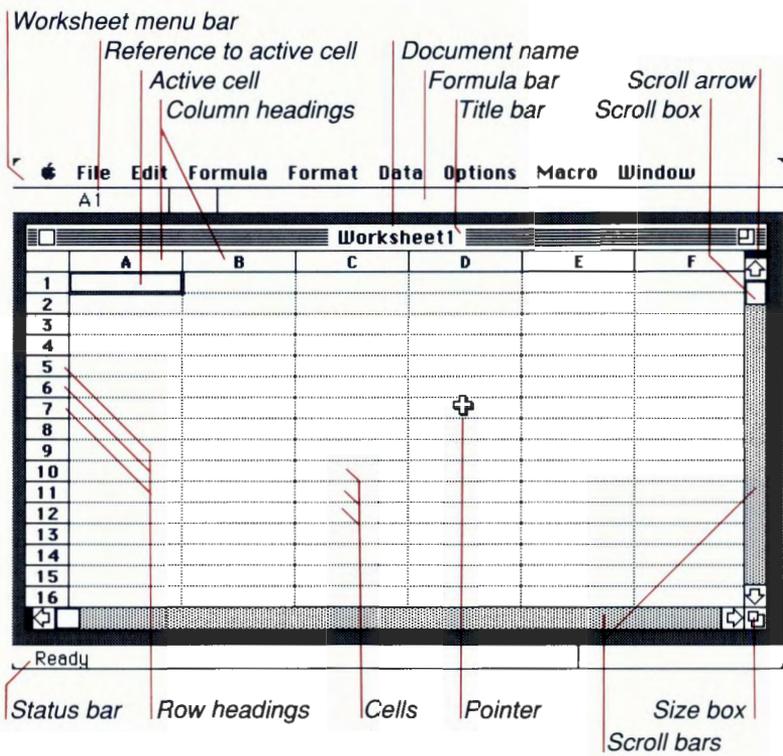
Microsoft Excel's worksheet has 16,384 rows and 256 columns. Rows are numbered from 1 to 16,384. The columns are labeled from left to right, beginning with A through Z. After Z, labeling continues with AA through AZ, then BA through BZ, and so on through column IV. On a new worksheet, the active cell is at column A and row 1, so its **reference** is A1.

The window displays only a portion of the worksheet at any one time. To see rows and columns that are not displayed, scroll the worksheet.

Select cells to put text in

When you use a Microsoft Excel worksheet, you enter text, numbers, and formulas in cells. Before you can enter information, you must first select the cells with which you want to work.

1. Point to cell A1 (column A, row 1).

   The pointer turns into a large plus sign when it is inside the worksheet.

2. Drag down to select A1 through A9.

   The selected cells are called a **range** of cells.

Point here first, then drag to A9.
Active cell
Range
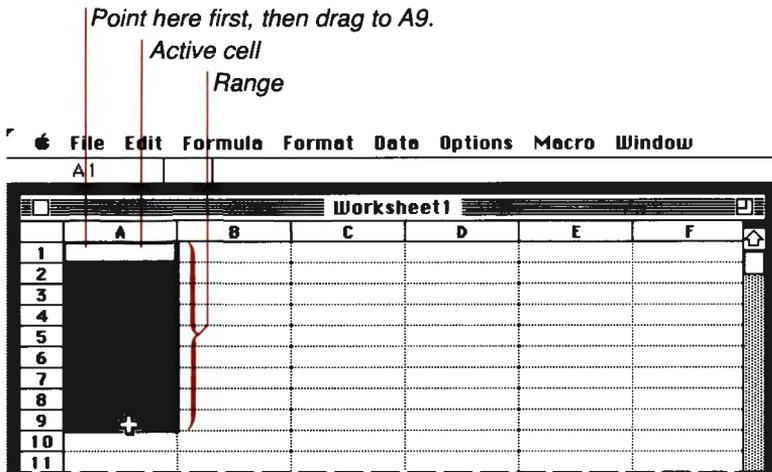
Now you can start typing the revenue and expense categories for your operating budget.

Microsoft Excel displays what you type in both the formula bar and in the active cell. What you type is entered into the cell when you press the Return key.

Type text in the cells

1	Type *Salary*	"Salary" appears in the formula bar and in cell A1.
2	Press Return to enter the information.	"Salary" is now entered in A1. When you press Return, the next cell in your selection becomes active.
3	Type the expense categories *Inventory* and *Overhead,* pressing Return after each one.	
4	Press Return again to skip a cell.	
5	Type *Total Expenses* and press Return twice.	
6	Type *Revenues* and press Return twice.	
7	Type *Operating Income* and press Return.	When you reach the end of a selection, pressing Return returns you to the first cell in the selection.
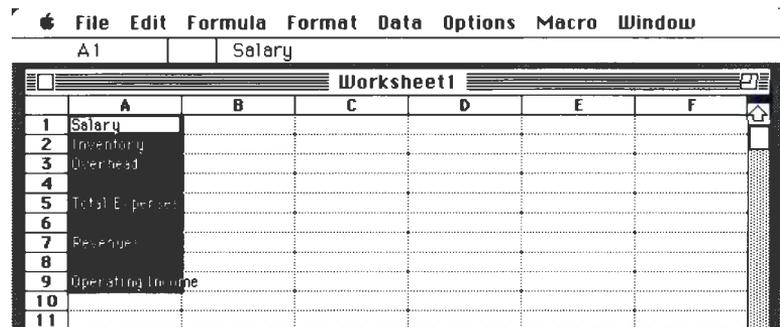
While you were typing text in column A, you may have noticed two boxes to the left of the formula bar. These are the enter and cancel boxes. Whenever you begin typing, these boxes appear and the formula bar becomes active.

Cancel box   *Enter box*   *Formula bar*
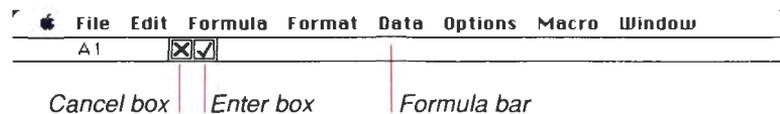
The **enter box** works like the Return key; click it to enter what you typed into the active cell. If you want to cancel and start over, click the **cancel box**. You will use the enter and cancel boxes most often when you are working in the formula bar. If you are entering numbers or text from the keyboard, you might find it easier to use the Return key to enter the information, and the Escape key to cancel an entry.

If you click any cells while the formula bar is active, Microsoft Excel will add cell references to what you are typing. If you make a mistake while typing or if you accidentally add cell references, press the Backspace key to delete your mistake. If you've already pressed the Return key, you can move back to the incorrect entry by holding down the Shift key and pressing the Return key. When you reach the incorrect cell, you can retype the entry.

Microsoft Excel lets you use many different fonts within a worksheet. To make "Operating Income" more visible on your Budget worksheet, use a bold font.

Format some text

1 Click A9.

2 Choose Format Font.

3 Click Bold in the Style box.
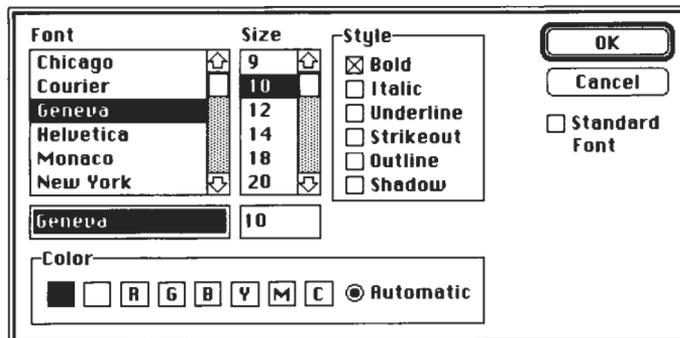
4 Click the OK button.

"Operating Income" appears in bold.

Widen column A

You can change the width of any column on a worksheet. To widen column A:

1 Position the pointer on the boundary between the headings of columns A and B.

The pointer changes to a vertical line with arrows showing that it can be moved to the right or left.

Point to the column boundary. When the pointer changes shape, drag to the right.

			File	Edit	Formula	Format	Data	Options	Macro	Window		

Width: 10.00		Operating Income				

Worksheet1

	A	B	C	D	E	F
1	Salary					
2	Inventory					
3	Overhead					
4						
5	Total Expenses					
6						
7	Revenues					
8						
9	Operating Income					
10						
11						
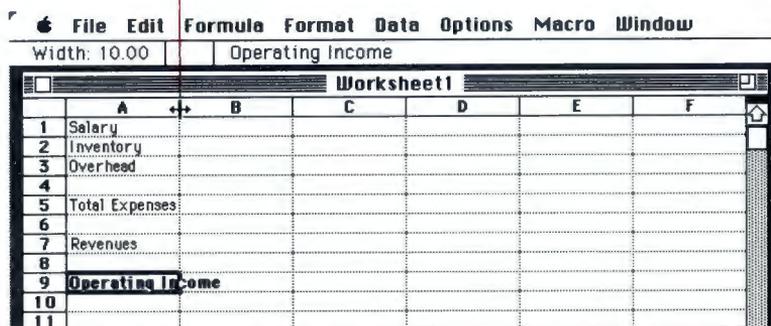
2 Drag the column line to the right of "Income."

	File	Edit	Formula	Format	Data	Options	Macro	Window	

Width: 14.00		Operating Income				

Worksheet1

	A	B	C	D	E	F
1	Salary					
2	Inventory					
3	Overhead					
4						
5	Total Expenses					
6						
7	Revenues					
8						
9	Operating Income					
10						
11						
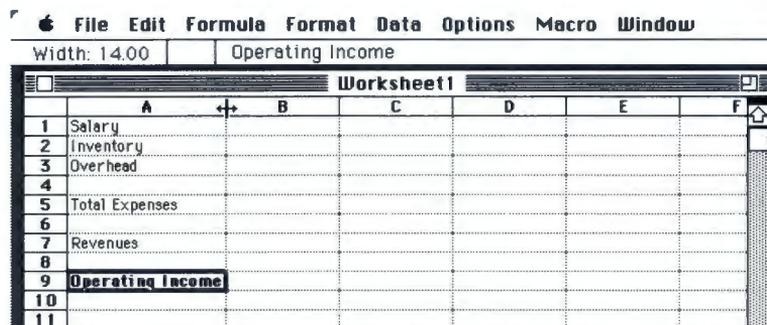
When you release the mouse button, column A is wider.

Select an entire column

Now you can enter the 1988 forecast figures in column B.

■ To select the entire column, click the heading of column B.

Click here.

	A	B	C	D	E	F
			Worksheet1			
1	Salary					
2	Inventory					
3	Overhead					
4						
5	Total Expenses					
6						
7	Revenues					
8						
9	Operating Income					
10						
11						

Now enter the numbers for the expense and revenue categories.

**Enter numbers the
same way you entered
text**

1 Type *192000* and press Return.
2 Type *95000* and press Return.
3 Type *87000* and press Return.
4 Press Return until B7 is the active cell.
5 Type *995000* in B7 and press Return.

Microsoft Excel automatically aligns numbers to the right.

	A	B	C	D	E	F
			Worksheet1			
1	Salary					
2	Inventory					
3	Overhead					
4						
5	Total Expenses					
6						
7	Revenues					
8						
9	Operating Income					
10						
11						

The numbers you just entered are in General format. To format the
numbers as dollars, use the Format Number command. Because you will
also enter dollar amounts in column C, go ahead and format that column
too.

**Format the numbers
as dollars**

1 Drag across the column headings for columns B and C.

Click here.   *Drag here.*
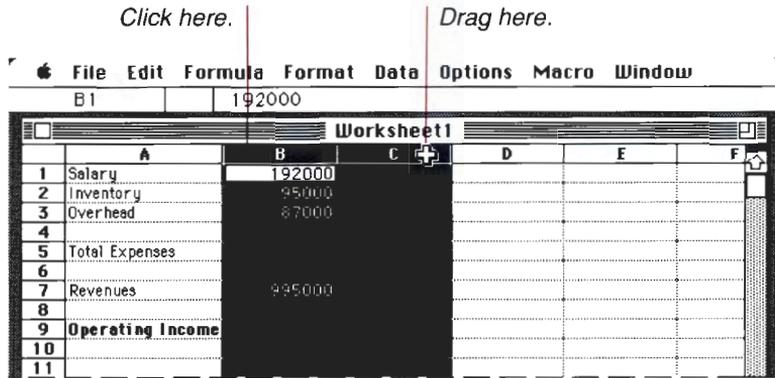
2 Choose Format Number.

3 Click on the first dollar format.

Click on this number format.
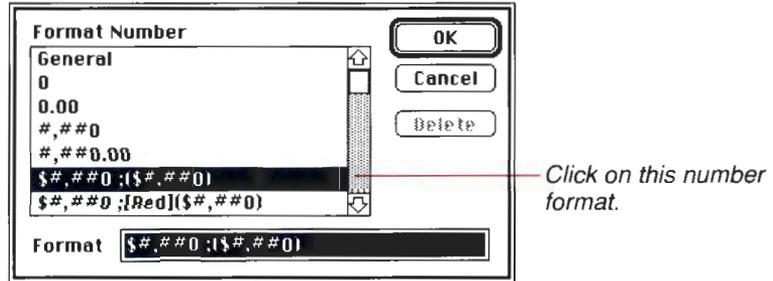
4 Click the OK button.

Microsoft Excel displays the numbers as dollars.

Build a Formula

To get figures for Total Expenses and Operating Income, Microsoft Excel must total the expense categories and then subtract Total Expenses from Revenues. You need to tell Microsoft Excel which values on the worksheet to use to calculate the new values.

To start a formula in a cell, select the cell and type an equal sign. When you type an equal sign, the insertion point appears in the formula bar, and the cancel and enter boxes appear.

Now build a formula to total the three expense categories.

Do this	The formula bar shows
1 Click B5.	
2 Type =	An equal sign followed by a blinking insertion point

Clicking the enter box enters the formula for the cell B5 and calculates the value.

```
 *  File  Edit  Formula  Format  Data  Options  Macro  Window
      B5           X √   =
 ▤         ══════════════ Worksheet1 ══════════════
              A         B        C        D        E        F
   1   Salary       $192,000
   2   Inventory     $95,000
   3   Overhead      $87,000
   4
   5   Total Expenses    =
   6
   7   Revenues     $995,000
   8
   9   Operating Income
  10
  11
```
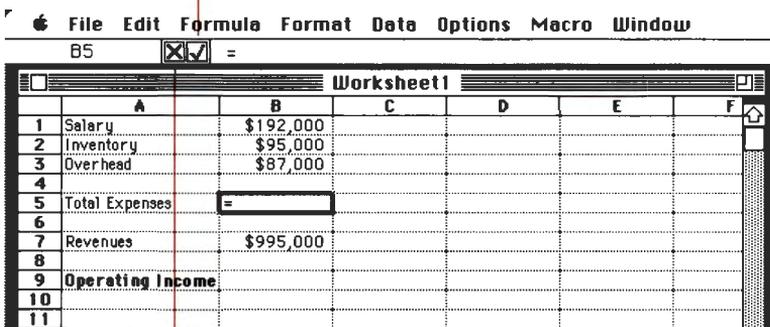
Clicking the cancel box cancels the formula.

3 Click B3.	=B3. A marquee appears around B3 to show that you have chosen it as a cell reference.
4 Type +	=B3+
5 Click B2.	=B3+B2
6 Type +	=B3+B2+
7 Click B1.	=B3+B2+B1
8 Click the enter box to the left of the formula bar.	The formula bar shows the formula, and B5 shows the value calculated by the formula.

The formula bar shows the formula.

	A	B	C	D	E	F
		=B3+B2+B1				

Worksheet1

	A	B	C	D	E	F
1	Salary	$192,000				
2	Inventory	$95,000				
3	Overhead	$87,000				
4						
5	Total Expenses	$374,000				
6						
7	Revenues	$995,000				
8						
9	Operating Income					
10						
11						
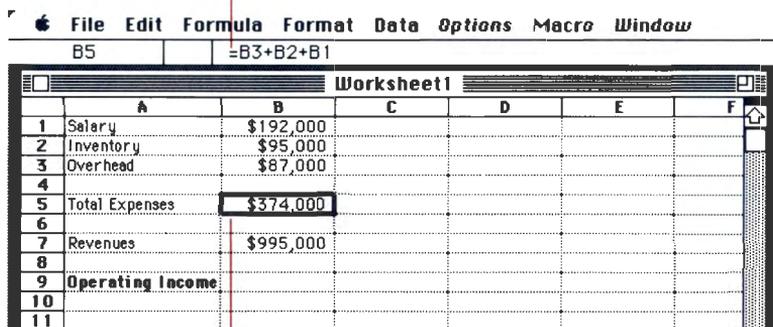
After you click the enter box, Microsoft Excel calculates the formula and displays the total here.

Microsoft Excel uses **relative references** in formulas. This means that instead of looking to specific fixed cells for values, Microsoft Excel looks to cells relative to the cell containing the formula. If you copy a formula to another cell in the worksheet, Microsoft Excel adjusts the relative references automatically.

Microsoft Excel can also use **absolute references**. Absolute references refer to a cell's location on the worksheet — not to its position relative to the cell containing the formula. Unlike a relative reference, if you copy a formula with an absolute reference, the new formula still refers to the same cell as the old formula; absolute references don't change when you copy them. You use absolute references when referring to information on another worksheet. You can learn more about formulas and references in the *Microsoft Excel Reference.*

Change some of the figures

Whenever you change a value in your worksheet, Microsoft Excel recalculates any formula that uses that value.

1 Click B2.

2 Type *95500* and press Return.

Microsoft Excel automatically adjusts the total in B5.

Define a name

Using names in place of cell references makes a worksheet easier to understand; it is much easier to remember Revenues – Total Expenses than B7 – B5.

You can use the Formula Define Name command to give a name to a cell
or to a range of cells.

1. Click the heading of   The entire row is selected.
   row 7.

2. Choose Formula Define   "Revenues" appears in the Name box.
   Name.   When there is text in the active cell,
                                  Microsoft Excel proposes that text as
                                  the name of the selection.
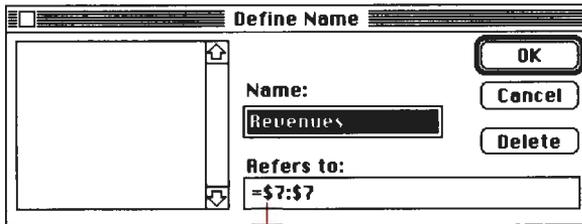
The dollar sign means that
this is an absolute reference
to row 7.

3. Click the OK button.

Microsoft Excel now knows that whenever you use the name Revenues
in a formula, you are referring to row 7.

Define names for the rest of the worksheet

Now name the rest of the expense categories. To save time, you can use the Formula Create Names command, which lets you define many names at once.

[1] Point to the row heading of row 1.

[2] Drag down through the row headings to select rows 1 to 5.

[3] Choose Formula Create Names.

[4] Because you want to create names from the text in the left column, turn on the Left Column check box.
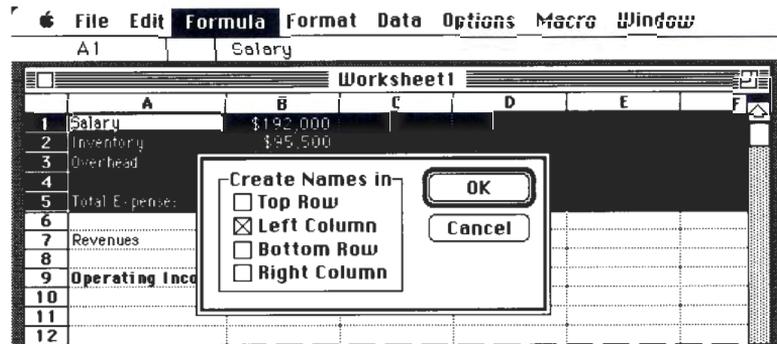
[5] Click the OK button.

Microsoft Excel names the selected rows according to the information in the left column — column A. For example, the name "Salary" applies specifically to all of row 1. Whenever you use the name "Salary" in a formula, Microsoft Excel knows you are referring to row 1. The same is true for the names you've given to rows 2 through 5.

Paste names to make a formula

You can use the names you defined to quickly build the formula for calculating Operating Income.

[1] Click B9.

[2] Choose Formula Paste Name.

The dialog box displays a list of the names you've defined. When a name has two parts, Microsoft Excel uses an underline character to separate them. Spaces are not allowed in names.

3 Double-click Revenues in the list box.

Double-clicking in a list box accomplishes the same thing as selecting a list box item and then clicking the OK button. Note that when you paste a name to start a formula, Microsoft Excel automatically adds the equal sign for you.

Microsoft Excel puts an equal sign in the formula bar before pasting "Revenues".

	File	**Edit**	**Formula**	**Format**	**Data**	**Options**	**Macro**	**Window**

B9	☒☑	=Revenues

Worksheet1

	A	B	C	D	E	F
1	Salary	$192,000				
2	Inventory	$95,500				
3	Overhead	$87,000				
4						
5	Total Expenses	$374,500				
6						
7	Revenues	$995,000				
8						
9	Operating Income	=Revenues				
10						
11						

4 Type − (minus).

5 Choose Formula Paste Name.

6 Double-click the name Total_Expenses in the list box.

7 Click the Enter box.

Microsoft Excel subtracts Total Expenses from Revenues and displays the result in B9.

```
  File  Edit  Formula  Format  Data  Options  Macro  Window
      B9              =Revenues-Total_Expenses
```

	A	B	C	D	E	F
1	Salary	$192,000				
2	Inventory	$95,500				
3	Overhead	$87,000				
4						
5	Total Expenses	$374,500				
6						
7	Revenues	$995,000				
8						
9	Operating Income	$620,500				
10						
11						

Add Information to the Worksheet

By adding column titles and copying the work you've done for the forecast 1988 figures, you can easily extend your worksheet to accommodate the actual figures for 1988.

Insert a row

First, insert a row for column titles at the top of your worksheet.

1 Click the heading of row 1.

2 Choose Edit Insert.

```
  File  Edit  Formula  Format  Data  Options  Macro  Window
      A1
```

	A	B	C	D	E	F
1						
2	Salary	$192,000				
3	Inventory	$95,500				
4	Overhead	$87,000				
5						
6	Total Expenses	$374,500				
7						
8	Revenues	$995,000				
9						
10	Operating Income	$620,500				
11						
12						

The Edit Insert command inserts as many cells as your selection contains and automatically adjusts all rows and names. If you had selected two rows before choosing the Edit Insert command, Microsoft Excel would have inserted two rows.

Now add the column titles.

Add column titles

1 Press Return to move the active cell to B1.

2 Type *1988 Forecast* and press Return.

3 Type *1988 Actual* and press Return.

The titles appear over the appropriate columns.

```
 ┌─  é   File   Edit   Formula   Format   Data   Options   Macro   Window          ┐
 │       D1               │          │
 │ ▤▢════════════════════ Worksheet1 ════════════════════ ▥▢
 │           A          │     B     │    C    │    D    │    E    │    F ▵
 │  1                      1988 Forecast 1988 Actual
 │  2  Salary            │ $192,000  │         │         │         │
 │  3  Inventory         │  $95,500  │         │         │         │
 │  4  Overhead          │  $87,000  │         │         │         │
 │  5                    │           │         │         │         │
 │  6  Total Expenses    │ $374,500  │         │         │         │
 │  7                    │           │         │         │         │
 │  8  Revenues          │ $995,000  │         │         │         │
 │  9                    │           │         │         │         │
 │ 10  Operating Income  │ $620,500  │         │         │         │
 │ 11                    │           │         │         │         │
 │ 12                    │           │         │         │         │
```

The Edit Fill Right command copies the contents of the left column of your selection to the right, into the rest of your selection. You will use the Edit Fill Right command to copy formulas and numbers from column B into column C. Later, you will get the actual expense information for column C from a database of expense records.

Copy cell values into the next column

1 Point to B2.

2 Drag to C10.

3 Choose Edit Fill Right.

The formula, Revenues – Total_Expenses, is now in two cells: B10 and C10. Microsoft Excel knows which values to use in each column. The formula in column B subtracts column B's Total Expenses from column B's Revenues, while the formula in column C subtracts column C's Total Expenses from column C's Revenues.

Save your work

Save Your Work

It is a good idea to save your work frequently. Saving protects your work from being lost in the event of a power interruption.

To save the work you have completed so far:

1 Choose File Save As.   The Save As dialog box appears.

2 Type *Budget* in the text box to name the worksheet.
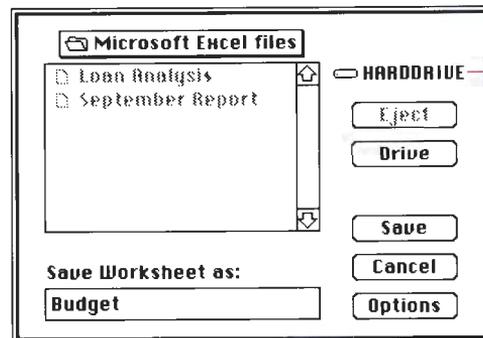
This tells you which disk Microsoft Excel will save the worksheet on.

[3] If the disk name that
appears in the dialog box is
not the disk you want to
save to, use the Drive
and/or Eject buttons to
change the disk.

[4] Click the Save button.

Microsoft Excel names the worksheet Budget. The saved document
remains on the screen.

Print the Worksheet

You can print a worksheet at any time. To print the worksheet:

[1] Choose File Print.
[2] Click the OK button.

Your worksheet begins to print. After Microsoft Excel finishes printing,
the worksheet remains on the screen.

The next chapter shows you how to work with a database. You can work
through the database lessons now, or you can quit Microsoft Excel and
do them some other time.

Quit Microsoft Excel

To quit Microsoft Excel:

[■] Choose File Quit.

For More Information

For more information on	See
Formatting text	"Font" in *Microsoft Excel Reference.*
Formatting numbers	"Number" in *Microsoft Excel Reference.*
Using operators	"Operators" in *Microsoft Excel Reference.*
Creating and using worksheets	"Worksheets" in *Microsoft Excel Reference.*
	"Worksheets" in *A Microsoft Excel Tour.*

2 Use a Database

A database makes it easy for you to store and organize information. With Microsoft Excel, you can sort, find, delete, and retrieve information from a database. You can also use database functions to analyze data.

In Chapter 1 you learned how to create a worksheet. In this chapter, you will work with a database containing expense information for 1988. The worksheet that contains the database is called Expenses. This worksheet is located on your Microsoft Excel Help and Examples disk.

The lessons in this chapter will show you how to:

■ Define a database on a worksheet
■ Define criteria on a worksheet
■ Find information within a database
■ Use a function to analyze information in a database
■ Use a table to display information from a database
■ Copy information between worksheets

If you quit Microsoft Excel at the end of the last chapter, you need to start the program before you can continue.

Open the Expenses worksheet:

1 Choose File Open.

2 Use the Drive and Eject buttons in the dialog box if you need to change disks or folders.

3 Double-click Expenses in the list box.

Open the Expenses worksheet

Each row in the database is a **record**. Each record consists of separate pieces of information called **fields**. Each field is stored in a separate cell. The first row of a database must always contain **field names** that describe the information in the fields below them.

Field names in field name row.
Each row is one record.

File	Edit	Formula	Format	Data	Options	Macro	Window

A1

Expenses

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10	Date	Expense	Amount	Vendor	
11	1/1/88	overhead	$1,000	A.B. Properties	
12	1/5/88	overhead	$566	Ace Power & Light	
13	1/5/88	overhead	$600	Wheelin's Gas Co.	
14	1/5/88	overhead	$200	Ralph J Cook Garbage	
15	1/5/88	overhead	$440	City of Franklin	
16	1/6/88	inventory	$16,000	SW Wholesale	

Ready

Records are made up of fields. This is one field.

Define the Database

A database can be anywhere on a worksheet. To define an area of a worksheet as a database, you use the Data Set Database command. The area you define with this command is called the **database range**.

Define the database range:

1 Click A10.

2 Drag the scroll box to the bottom of the vertical scroll bar.

3 Hold down Shift and click   Everything between A10 and D256 is
   D256.   selected.

4.   Choose Data Set Database.   This tells Microsoft Excel to define the selection as a database.

5.   Drag the scroll box to the top of the vertical scroll bar.

Microsoft Excel names the selected area Database. You can use this name just as you would any other named reference. You can also use it to build formulas, as you will see a little later.

Specify What You Want to Find

Microsoft Excel can locate information within a database according to the **criteria** you specify. Criteria are the tests which Microsoft Excel uses to find records for you in the database. For example, you might want Microsoft Excel to find all expense items greater than $1,000, or all salary expenses, or both.

A criteria range contains the field names you want Microsoft Excel to look in, as well as the information you want to find.

An easy way to set up a criteria range is to copy the field names from your database range:

1.   Select A10 to D10 by dragging.

2.   Choose Edit Copy.

3.   Click cell A1.   A1 is the first cell in the range to be copied to.

4.   Choose Edit Paste.

Set up the criteria range

The field names are now copied into cells A1:D1.

		File	Edit	Formula	Format	Data	Options	Macro	Window	

A1		Date

Expenses

	A	B	C	D	E	
1	Date	Expense	Amount	Vendor		
2						
3						
4						
5						
6						
7						
8						
9						
10	Date	Expense	Amount	Vendor		
11	1/1/88	overhead	$1,000	A.B. Properties		
12	1/5/88	overhead	$566	Ace Power & Light		
13	1/5/88	overhead	$600	Wheelin's Gas Co.		
14	1/5/88	overhead	$200	Ralph J Cook Garbage		
15	1/5/88	overhead	$440	City of Franklin		
16	1/6/88	inventory	$16,000	SW Wholesale		

Copy (Select destination and press Enter or choose Paste)

Specify the criteria

With the Set Criteria command, you define a selection as the **criteria range** — the range of cells that contains your criteria. Now suppose you want to look at salary records.

1 Click B2.

2 Type *salary* and press Return.

Be sure not to add spaces before or after the word "salary."

3 Select A1 through D2 by dragging.

This specifies that you want to search for records with the word "salary" in the expense field.

		File	Edit	Formula	Format	Data	Options	Macro	Window	

A1		Date

Expenses

	A	B	C	D	E	
1	Date	Expense	Amount	Vendor		
2		salary				
3						
4						
5						
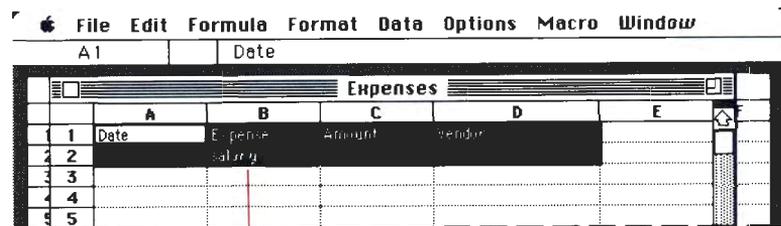
You have specified "salary" as your criteria.

4 Choose Data Set Criteria.

This defines the selection as your criteria range.

Microsoft Excel names the selected area Criteria. You can use this name just as you would any other named reference.

Find Information in the Database

Now use the Find command from the Data menu to search through the database and find the records that match the criteria.

[1] Choose Data Find.

Microsoft Excel scrolls to and selects the first salary record. The striped scroll boxes remind you that you are in the Find mode.

This number means that this is the seventh record in the database.

	A	B	C	D	E
10	Date	Expense	Amount	Vendor	
11	1/1/88	overhead	$1,000	A.B. Properties	
12	1/5/88	overhead	$566	Ace Power & Light	
13	1/5/88	overhead	$600	Wheelin's Gas Co.	
14	1/5/88	overhead	$200	Ralph J Cook Garbage	
15	1/5/88	overhead	$440	City of Franklin	
16	1/6/88	inventory	$16,000	SW Wholesale	
17	1/5/88				
18	1/5/88	salary	$1,270	Carol Stansen	
19	1/5/88	salary	$945	Jim Parsons	
20	1/5/88	salary	$700	Karen Bush	
21	1/5/88	salary	$1,000	James Gregory	
22	1/5/88	salary	$1,160	Lisa La Flamme	
23	1/5/88	salary	$2,000	Andy Lubert	
24	1/15/88	overhead	$5,000	AR Office	
25	1/15/88	salary	$1,000	Mary Fuller	

‍ File Edit Formula Format Data Options Macro Window

7 | 1/5/1988

Expenses

Find (Use direction keys to view records)

The scroll boxes remain striped as long as you are in Find mode.

[2] Click the down scroll arrow to continue looking.

Microsoft Excel selects the next salary record. Microsoft Excel beeps when there are no more records to find.

[3] Click the up scroll arrow.

Microsoft Excel selects the previous salary record.

[4] Drag the scroll box to the bottom of the vertical scroll bar.

Microsoft Excel selects the last salary record.

5 Choose Data Exit Find.   The scroll box changes back to white.

6 Drag the scroll box to the
   top of the vertical scroll
   bar.

Use the Data Form

You can also view records one at a time using the Data Form.

To use the Data Form to find all salary expenses that are over $1000:

1 Choose Data Form.   The Data Form dialog box appears and
                                  shows the first record in the database.

2 Click the Criteria button.   A blank form appears for you to enter
                                  the criteria.

3 Click in the Expense box.   A blinking insertion point appears.

*You can enter criteria in
any of these boxes.*

```
┌──────────────────────────────────────────────────┐
│ ▤▢▬▬▬▬▬▬▬▬▬ Expenses ▤▬▬▬▬▬▬▬▬▬                  │
│ ┌Date:      ┌─────────────┐    Criteria          │
│ │           └─────────────┘   ┌──────────┐        │
│ │Expense :  ┌─────────────┐   │   New    │        │
│ │           └─────────────┘   ├──────────┤        │
│ │Amount:    ┌─────────────┐   │  Clear   │        │
│ │           └─────────────┘   ├──────────┤        │
│ │Vendor:    ┌─────────────┐   │ Restore  │        │
│ │           └─────────────┘   ├──────────┤        │
│ │                             │Find Preu │        │
│ │                             ├──────────┤        │
│ │                             │Find Next │        │
│ │                             ├──────────┤        │
│ │                             │  Form    │        │
│ │                             ├──────────┤        │
│ │                             │  Exit    │        │
│ │                             └──────────┘        │
└──────────────────────────────────────────────────┘
```

These are the field names.

4 Type *salary*   Be sure not to add spaces before or
                                  after the word.

5 Click in the Amount field.   A blinking insertion point appears.

6 Type >*1000*.

Note   The criteria you use in
the Data Form does not replace
the criteria you defined with
the Set Criteria command.

7 Click the Find Next button.   Microsoft Excel displays the first
record in the database that matches
your criteria.

	Expenses	
Date:	1/5/1988	8 of 246
Expense :	salary	New
Amount:	1270	Delete
Vendor:	Carol Stansen	Restore
		Find Prev
		Find Next
		Criteria
		Exit

8 Click the Find Next button
a few more times to display
more of the records.   When there are no more records,
Microsoft Excel beeps.

9 Click the Exit button.   Microsoft Excel returns you to the
worksheet.

Get Information from the Database

Microsoft Excel's functions allow you to quickly analyze your database.
The database functions perform calculations on fields in a database
according to criteria you define. You can use database functions to com-
pute sums, averages, and minimums, as well as many other values.

**Microsoft Excel
database functions**

To complete the 1988 Actual figures on your Budget worksheet, you
need the totals for each of the three expense types on the Expenses
worksheet. You've already set up your criteria range to find the salary
records. Now you can use the DSUM database function to total the
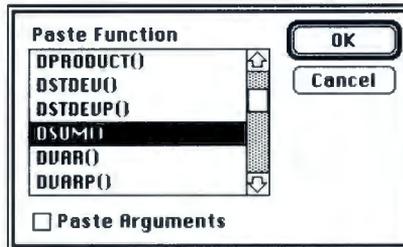"Amount" fields of all the salary records.

Paste the DSUM function

First, paste the DSUM function:

1 Click B4.

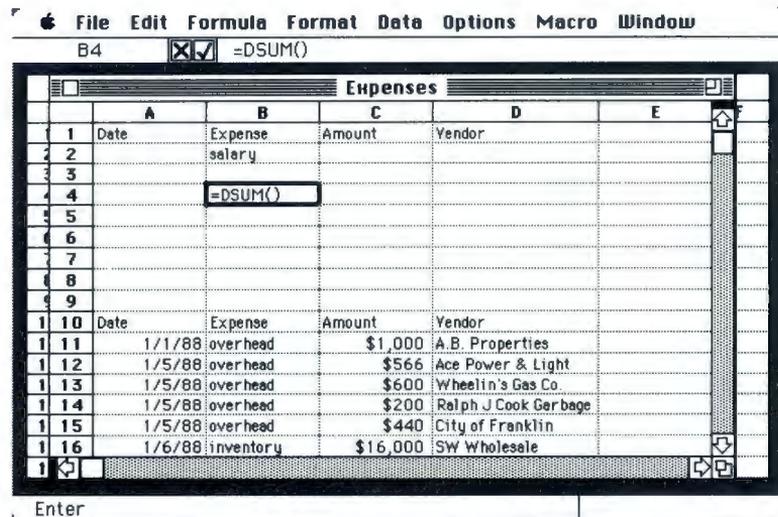You will paste the DSUM function into this cell.

2 Choose Formula Paste Function.

The list box displays all the Microsoft Excel functions.

3 Scroll in the list box and double-click DSUM.

```
┌─────────────────────────────────┐
│ Paste Function          ┌─────────┐│
│ DPRODUCT()         ⬆    │   OK    ││
│ DSTDEU()           ▓    └─────────┘│
│ DSTDEUP()          ▓    ┌─────────┐│
│ DSUM()             ▓    │ Cancel  ││
│ DUAR()                  └─────────┘│
│ DUARP()            ⬇               │
│                                    │
│ ☐ Paste Arguments                  │
└─────────────────────────────────┘
```

The function appears in the formula bar and in B4:

```
 🍎  File  Edit  Formula  Format  Data  Options  Macro  Window
      B4        Ⓧ✓    =DSUM()
┌──────────────────────── Expenses ──────────────────────────┐
│        A         B          C          D            E      ⬆ F│
│ 1  Date      Expense   Amount    Vendor                       │
│ 2            salary                                           │
│ 3                                                             │
│ 4            =DSUM()                                          │
│ 5                                                             │
│ 6                                                             │
│ 7                                                             │
│ 8                                                             │
│ 9                                                             │
│ 10 Date      Expense   Amount    Vendor                       │
│ 11     1/1/88 overhead  $1,000  A.B. Properties               │
│ 12     1/5/88 overhead    $566  Ace Power & Light             │
│ 13     1/5/88 overhead    $600  Wheelin's Gas Co.             │
│ 14     1/5/88 overhead    $200  Ralph J Cook Garbage          │
│ 15     1/5/88 overhead    $440  City of Franklin              │
│ 16     1/6/88 inventory $16,000 SW Wholesale                  │
└──────────────────────────────────────────────────────────────┘
  Enter
```

For the DSUM function to work, Microsoft Excel needs to know where to look for the information, what records to use, and what fields to total.

In this case, you tell Microsoft Excel to:

■ Look in the range named Database
■ Find the salary records as specified in the range named Criteria
■ Total the "Amount" fields of the salary records

You will provide this information between the parentheses after the function name.

Instead of typing in cell references, you can paste in the names that Microsoft Excel created for your database and criteria ranges.

1 Paste the Database name into the formula by choosing Paste Name from the Formula menu and then double-clicking Database in the list box.

This name tells Microsoft Excel to look for information in the database range.

2 The blinking insertion point in the formula bar indicates that you can enter text. Type a comma after Database in the formula bar.

3 Type *"Amount",* making sure to include the comma and quotation marks.

"Amount" is the name of the field you want to sum.

4 Paste the Criteria name by choosing the Paste Name command from the Formula menu and double-clicking Criteria.

This tells Microsoft Excel to use the criteria range when looking for records.

5 Click the enter box in the formula bar.

When you click enter, the total appears in B4.

```
  ❡  ♠  File  Edit  Formula  Format  Data  Options  Macro  Window          ┐
        B4              =DSUM(Database,"Amount",Criteria)
┌──────────────────────── Expenses ════════════════════════════┐
│        A           B           C              D              E      ⇧
│ 1 │Date       │Expense   │Amount   │Vendor                │         │ ▯
│ 2 │           │salary    │         │                      │         │
│ 3 │           │          │         │                      │         │
│ 4 │           │ $282,625 │         │                      │         │
│ 5 │           │          │         │                      │         │
│ 6 │           │          │         │                      │         │
│ 7 │           │          │         │                      │         │
│ 8 │           │          │         │                      │         │
│ 9 │           │          │         │                      │         │
│10 │Date       │Expense   │Amount   │Vendor                │         │
│11 │  1/1/88   │overhead  │  $1,000 │A.B. Properties       │         │
│12 │  1/5/88   │overhead  │    $566 │Ace Power & Light     │         │
│13 │  1/5/88   │overhead  │    $600 │Wheelin's Gas Co.     │         │
│14 │  1/5/88   │overhead  │    $200 │Ralph J Cook Garbage  │         │
│15 │  1/5/88   │overhead  │    $440 │City of Franklin      │         ⇩
│16 │  1/6/88   │inventory │ $16,000 │SW Wholesale          │      ⇦⇨
└──────────────────────────────────────────────────────────────┘
  Ready
```

Now change "salary" to "overhead" in the criteria range to find the total overhead expenses.

1 Click B2.

2 Type *overhead* and press Return.

This changes your criterion from "salary" to "overhead."

*Microsoft Excel looks in the Database range
and finds all the overhead records.*

	A	B	C	D	E
				Expenses	
1	Date	Expense	Amount	Vendor	
2		overhead			
3					
4		$91,840			
5					
6					
7					
8					
9					
10	Date	Expense	Amount	Vendor	
11	1/1/88	overhead	$1,000	A.B. Properties	
12	1/5/88	overhead	$566	Ace Power & Light	
13	1/5/88	overhead	$600	Wheelin's Gas Co.	
14	1/5/88	overhead	$200	Ralph J Cook Garbage	
15	1/5/88	overhead	$440	City of Franklin	
16	1/6/88	inventory	$16,000	SW Wholesale	

Menu bar: **⁂ File Edit Formula Format Data Options Macro Window**

B3 | overhead

Ready

*Microsoft Excel uses the DSUM function
to total the amount fields.*

The total for the overhead records appears in B4, the cell containing the DSUM function.

Use a Table to Get Information

Using different criteria in cell B2 allowed you to find the totals for different expense categories. A table can be used to automate this process. Microsoft Excel can use the table to automatically test all three expense categories in the criteria cell B2, and then display the resulting totals.

Once you get the three expense totals, you can copy them into your budget worksheet to show actual expenses.
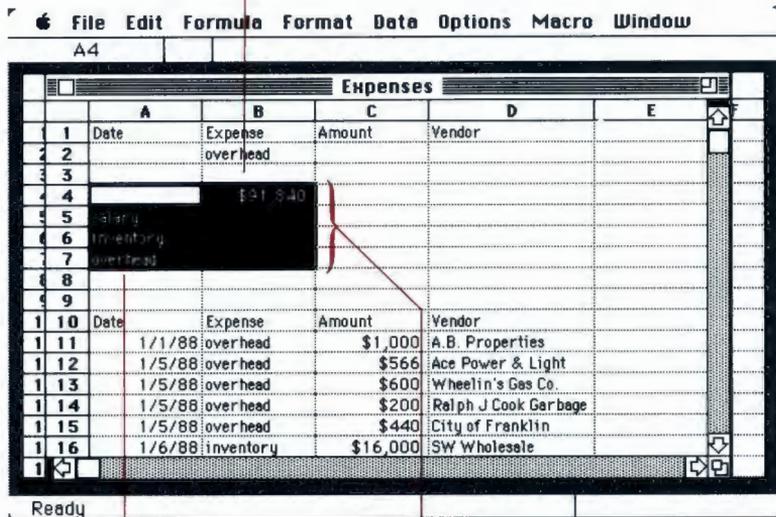
Use a table

Use a table to show the totals for the three expense categories:

[1] Select A5 through A7 by dragging.

[2] Type the following expense categories, pressing Return after each one: *salary, inventory, overhead*

These are the categories you will test in the criteria cell B2.

[3] Select A4 through B7 by dragging.

Microsoft Excel uses "salary," "inventory," "overhead," and the DSUM function to build a table. Microsoft Excel then displays the results in B5 through B7.
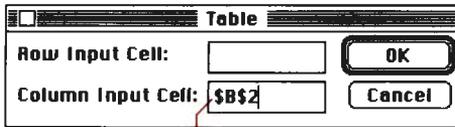
[4] Choose Data Table.

Microsoft Excel uses the DSUM function in cell B4...

&	**File**	**Edit**	**Formula**	**Format**	**Data**	**Options**	**Macro**	**Window**

A4

	A	**B**	**C**	**D**	**E**	**F**
1	Date	Expense	Amount	Vendor		
2		overhead				
3						
4		$41,840				
5	salary					
6	inventory					
7	overhead					
8						
9						
10	Date	Expense	Amount	Vendor		
11		1/1/88 overhead	$1,000	A.B. Properties		
12		1/5/88 overhead	$566	Ace Power & Light		
13		1/5/88 overhead	$600	Wheelin's Gas Co.		
14		1/5/88 overhead	$200	Ralph J Cook Garbage		
15		1/5/88 overhead	$440	City of Franklin		
16		1/6/88 inventory	$16,000	SW Wholesale		

Ready

...to total the amount field for each expense type...

...and display the results in these cells.

[5] Click the Column Input Cell box in the dialog box.

The values you are testing are in the left column of this table.

[6] Click B2 in the criteria range.

```
┌─────────────────────────────────────────┐
│ ▤□═══════════════ Table ═════════════════ │
├─────────────────────────────────────────┤
│ Row Input Cell: [          ]  ( ▐ OK ▌ ) │
│                                           │
│ Column Input Cell: [$B$2|   ] ( Cancel )  │
└─────────────────────────────────────────┘
```

*Click here to position your insertion
point, then click on B2.*

---

⑦ Click the OK button.

After you click the OK button, Micro-
soft Excel uses each of the names you
typed in the left column — "salary,"
"inventory," and "overhead" — in B2
of the criteria range. B2 is the **input
cell**.

Microsoft Excel uses the DSUM function to test each category, and then
displays the totals.

Totals for each expense type

```
 ┌────────────────────────────────────────────────────────────────────┐
 │ ▪  File  Edit  Formula  Format  Data  Options  Macro  Window         │
 ├────────────────────────────────────────────────────────────────────┤
 │   A4  │      │                                                        │
 │ ┌───────────────────════ Expenses ═══════════════════════▣═┐         │
 │ │▤□        A        B          C          D          E    ⇧│         │
 │ │  1  Date       Expense   Amount    Vendor               │          │
 │ │  2             overhead                                 │          │
 │ │  3                                                      │          │
 │ │  4  [       ]                                           │          │
 │ │  5  salary                                              │          │
 │ │  6  inventory                                           │          │
 │ │  7  overhead                                            │          │
 │ │  8                                                      │          │
 │ │  9                                                      │          │
 │ │ 10  Date       Expense   Amount    Vendor               │          │
 │ │ 11     1/1/88  overhead  $1,000  A.B. Properties        │          │
 │ │ 12     1/5/88  overhead    $566  Ace Power & Light      │          │
 │ │ 13     1/5/88  overhead    $600  Wheelin's Gas Co.      │          │
 │ │ 14     1/5/88  overhead    $200  Ralph J Cook Garbage   │          │
 │ │ 15     1/5/88  overhead    $440  City of Franklin       │          │
 │ │ 16     1/6/88  inventory $16,000 SW Wholesale        ⇩ │          │
 │ └──────────────────────────────────────────────────────────┘        │
 │   Ready                                                              │
 └────────────────────────────────────────────────────────────────────┘
```

DSUM is just one of the many functions available with Microsoft Excel.
Microsoft Excel Functions and Macros provides more information about
using Microsoft Excel functions.

Copy Figures to the Budget Worksheet

Copy the figures

The totals for the 1988 Actual column on the Budget worksheet are ready to be copied. If you closed the Budget worksheet at the end of the previous chapter, open it again so that you can copy the actual figures to it.

1. Make sure the disk that you saved Budget on is in one of the disk drives.
2. Choose File Open.
3. Double-click Budget in the list box.

Now you can copy the figures from the Expenses worksheet to the Budget worksheet:

1. Choose Window Expenses to make the Expenses worksheet active.

2. Select B5 through B7 on the Expenses worksheet by dragging.

3. Choose Edit Copy.   A marquee appears around the cells to be copied.

4. Choose Window Budget to make the Budget worksheet active.

5. Click C2.

6. Choose Edit Paste.

Microsoft Excel copies the values from the Expenses worksheet to the Budget worksheet.

*When you copy these values
from the Expenses worksheet...*

```
 File  Edit  Formula  Format  Data  Options  Macro  Window
      C2              282625
```

	A	B	C	D	E	F
1		1988 Forecast	1988 Actual			
2	Salary	$192,000	$282,625			
3	Inventory	$95,500	$93,897			
4	Overhead	$87,000	$91,840			
5						
6	Total Expenses	$374,500	$468,362			
7						
8	Revenues	$995,000	$995,000			
9						
10	**Operating Income**	$620,500	$526,638			
11						
12						

*...these values adjust
automatically.*

Save and Close the Expenses Worksheet

Now you can close the Expenses worksheet. Before closing Expenses, save it under a different name. This leaves the original worksheet unchanged in case someone else wants to work through the lessons. Keep the Budget worksheet on the screen if you plan to continue working through the lessons.

Close the worksheet

1 Choose Window Expenses.
2 Choose File Save As.
3 Type *Expenses Summary* in the Save As dialog box.
4 Click the Save button.
5 Choose File Close.

In the next chapter, you will make a chart based on the figures in your Budget worksheet.

Quitting

If you want to quit for now:

1 Choose File Quit.
2 Click the Yes button when Microsoft Excel asks if you want to save the Budget worksheet.

For More Information

For more information on	See
Criteria	"Database" core topic in *Microsoft Excel Reference*
Databases	"Database" core topic in *Microsoft Excel Reference*
	"Databases" in *A Microsoft Excel Tour*
Tables	"Data Table" in *Microsoft Excel Reference*

Change the Chart Format

Unless you specify otherwise, Microsoft Excel displays information in a simple column chart format. If you want a different format, you can choose from the options on the Gallery menu. Each chart type can be fine-tuned with Microsoft Excel formatting commands.

Try changing the column chart to get a different view of the Forecast and Actual figures.

1 Choose Gallery Column.

2 Click on format 6.
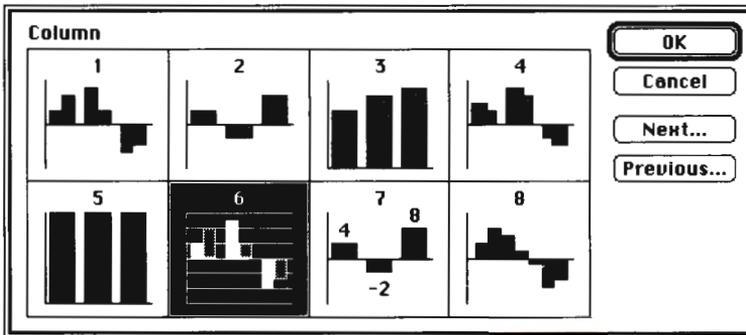
3 Click the OK button.

Microsoft Excel plots a simple column chart with a horizontal grid. Now try using some of the Format commands to emphasize certain aspects of the chart so that it's easier to read.

1 Choose Format Main Chart.

2 Turn on Overlapped.

3 Type *50* in the % Overlap box.

```
┌─────────────────────────────────────────────────┐
│ Format Main Chart            ┌───────────────┐   │
│ ┌Type──────────────────────  │      OK       │   │
│ │ ○ Area   ○ Bar   ● Column  └───────────────┘   │
│ │ ○ Line   ○ Pie   ○ Scatter ┌───────────────┐   │
│ └───────────────────────────│    Cancel     │   │
│ ┌Format──────────────────── └───────────────┘   │
│ │ □ Stacked          □ 100%                      │
│ │ □ Vary by Categories   ⊠ Overlapped           │
│ │ □ Drop Lines       □ Hi-Lo Lines              │
│ │ % Overlap: │ 50 │  % Cluster Spacing: │ 50 │  │
│ │ Angle of First Pie Slice (degrees): │ 0 │     │
│ └───────────────────────────────────────────────│
└─────────────────────────────────────────────────┘
```
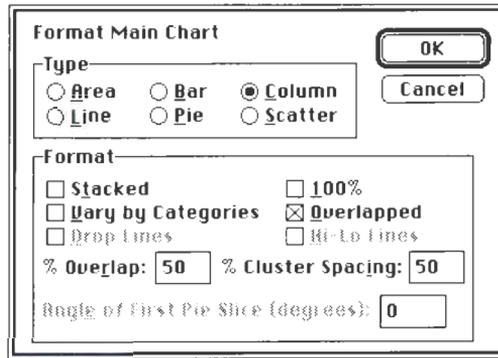
4 Click the OK button.
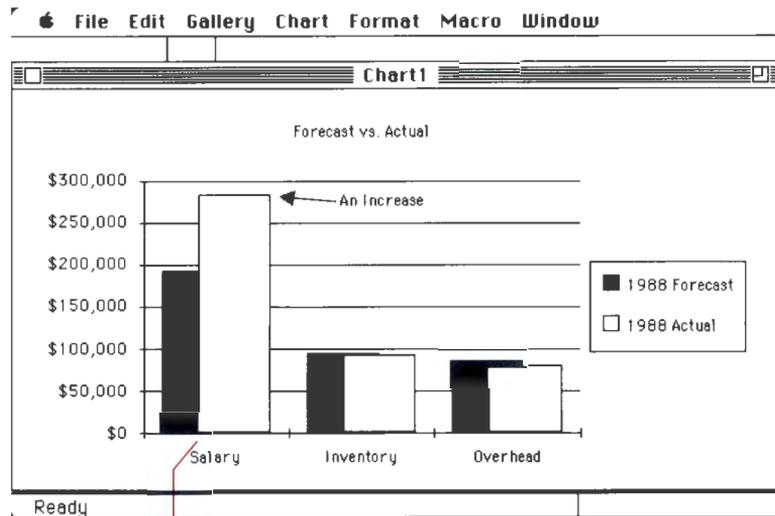
Microsoft Excel creates a column chart with columns overlapping by 50 percent.

The overlap emphasizes your Actual figures.

Now change the pattern for the Actual series markers to make your chart more attractive.

Change a pattern in the chart

1 Click a column in the Actual data series to select the series.

With most formatting commands, you first select the objects you want to format, and then choose a command to format your selection.

2 Choose Format Patterns.

You can also bring up the Patterns dialog box by double-clicking the chart item that you want to format.

3 Click the grid pattern from the set of area patterns.
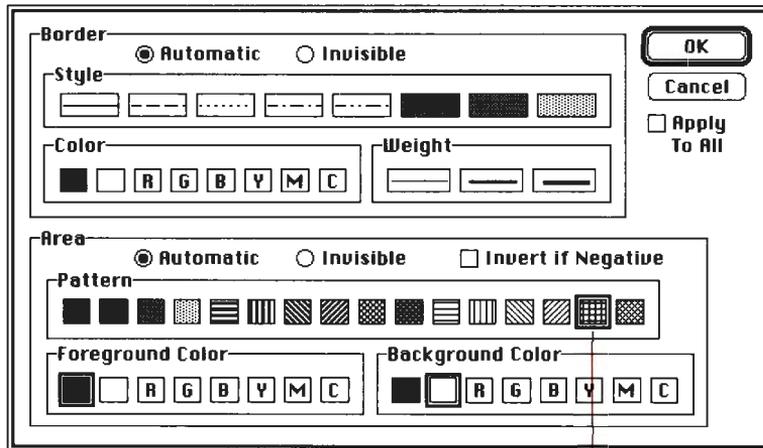
Choose this pattern.
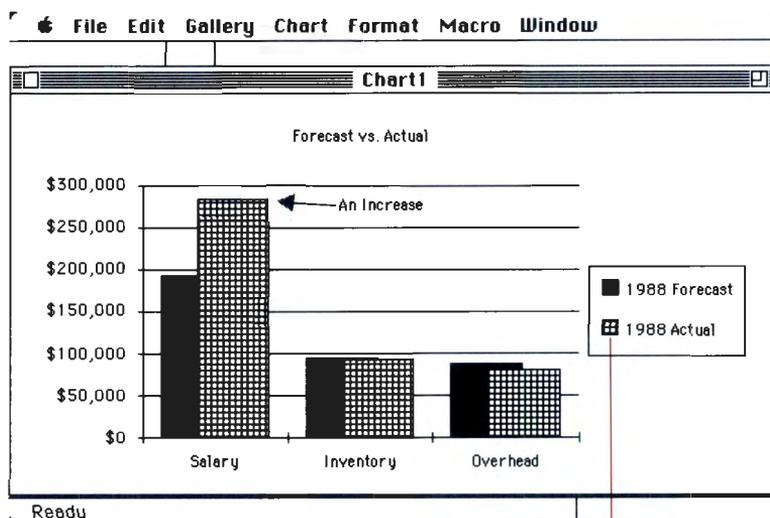
The legend changes to show the new pattern.

The pattern in the Actual data series columns changes to the new pattern.

Save the Chart

Charts can be saved the same way you save worksheets.

1. Make sure Chart1 is the active window.
2. Choose File Save As.
3. In the text box, type *Expenses Chart*
4. If the name in the upper-right corner of the dialog box is not the disk that you want to save to, click the Drive button to select the disk you want.
5. Click the Save button.

Print the Chart

Now you can print the chart.

1. Choose File Print.
2. Click the OK button.

Microsoft Excel prints your chart.

Close the Chart

You can close the chart now since you won't be using it in any of the following lessons.

■ Choose File Close.

Quit Microsoft Excel

The next chapter contains six lessons which cover some of Microsoft Excel's more advanced features. You can choose to work through these lessons, or you can spend some more time on the lessons that you just finished. You can also quit Microsoft Excel.

■ Choose File Quit.

For More Information

For more information on	See
Charts	"Chart" core topic in *Microsoft Excel Reference*
	"Charts" in *A Microsoft Excel Tour*

4 Advanced Topics

In chapters 1 through 3, you used just a few of Microsoft Excel's many powerful features and commands. This chapter introduces you to several of Microsoft Excel's advanced features. The lessons in this chapter show you how to:

- Create a custom number format
- Use a function in place of a formula
- Extract data from a database
- Link worksheets
- Create a chart using multiple selections
- Add information to a chart with the Paste Special command

You will use the Budget and Expenses Summary worksheets from the earlier chapters as you do these advanced lessons. If you closed the worksheets after the previous lessons, you need to open them before you can continue.

1. Make sure that the disk with the Budget and Expenses Summary worksheets is in one of the disk drives.
2. Choose File Open.
3. Double-click Expenses Summary in the Open dialog box.
4. Choose File Open.
5. Double-click Budget in the Open dialog box.

Create a Custom Format

In a previous lesson, you formatted the numbers on the Budget worksheet using one of Microsoft Excel's built-in dollar formats. Microsoft Excel also lets you create custom number formats.

Suppose that your Budget spreadsheet will be used in Japan; instead of dollars, you need a format that displays numbers in yen.

Select the cells that you want to format:

1 Choose Window Budget.

2 Click the zoom box so that the Budget worksheet fills the entire screen.

3 Drag across the column headings for columns B and C.

Create a custom format:

1 Choose Format Number.

The format you used previously is highlighted in the text box in the Format Number dialog box.

2 Select the first dollar sign in the format in the text box.

```
Format Number                    ┌──────────┐
General                    ⇧     │    OK    │
0                                └──────────┘
0.00
#,##0                            ┌──────────┐
#,##0.00                         │  Cancel  │
$#,##0 ;($#,##0)                 └──────────┘
$#,##0 ;[Red]($#,##0)      ⇩     ┌──────────┐
                                 │  Delete  │
Format  [$#,##0 ;($#,##0)    ]   └──────────┘
```
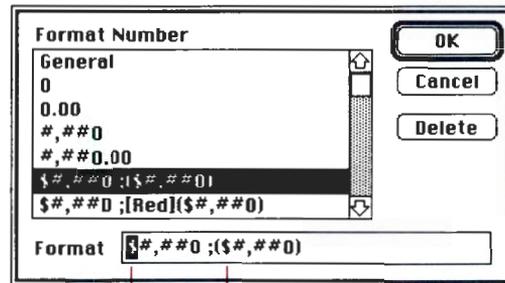
Change the dollar signs to yen signs.

3 Press Option + y to replace the dollar sign with a yen sign.

4 Select the second dollar sign in the format.

5 Press Option + y to replace the dollar sign with a yen sign.

6 Click the OK button.

The numbers in columns B and C are now displayed with yen signs.

7   Choose Format Number.

The new format appears at the end of the list of formats. You can use it to format other numbers in the worksheet as well.

8   Scroll up the list of formats and double-click the dollar format nearest the top of the list.

The entries in columns B and C are once again displayed with dollar signs.

To find out more about formatting numbers, read "Format Number command" in *Microsoft Excel Reference*.

For more information

Using Functions

Lengthy formulas can often be shortened or eliminated by using functions. In chapter 1, you used a formula to sum three expense categories on the Budget worksheet. Now you're going to replace that formula with the SUM( ) function.

To replace the formula with the SUM( ) function:

Replace the formula

1   Click B6.

2   Choose Formula Paste Function.

3   Scroll down the list of functions and double-click SUM( ).

```
┌─────────────────────────────────────────────┐
│  Paste Function              ┌──────────┐     │
│  ┌─────────────────────┐┌─┐  │    OK    │     │
│  │ STDEV()            ║⇧│  └──────────┘     │
│  │ STDEVP()           ║ │  ┌──────────┐     │
│  │ SUBSTITUTE()       ║ │  │  Cancel  │     │
│  │ SUM()              ║ │  └──────────┘     │
│  │ SYD()              ║ │                    │
│  │ T()                ║⇩│                    │
│  └─────────────────────┘└─┘                  │
│  ☐ Paste Arguments                           │
└─────────────────────────────────────────────┘
```
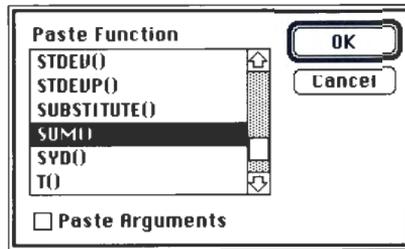
4 Drag from B2 to B4.

5 Click the enter box to the left of the formula bar.

Microsoft Excel displays the same result as before, but you didn't have to enter plus signs and all of the cell names. The SUM( ) function is especially useful for adding many numbers.

For more information   To find out more about using functions, read "Function" in the *Microsoft Excel Reference*.

Extracting from a Database

Earlier you used the Data Find command and the Data Form command to find records in your Expenses database. Locating records one at a time can be useful if you're looking for specific information — a phone number, for instance. However, Microsoft Excel has a better way to find several records that meet specific criteria. To find a group of related records, you use Microsoft Excel's Data Extract command.

To extract data from your worksheet, you must define three ranges:

- Database range
- Criteria range
- Extract range

You defined the first two ranges in a previous lesson. Now you need to define the extract range:

1 Choose Window Expenses Summary.

2 Click the zoom box so that the Expenses Summary worksheet fills the entire screen.

3 Drag to select A10 to D10.

4 Choose Edit Copy.

5   Use the horizontal scroll bar to move the worksheet until you can see columns G through J.

6   Click G4.

7   Choose Edit Paste.

```
 &  File  Edit  Formula  Format  Data  Options  Macro  Window
        G4            Date
                          Expenses Summary
          E          F          G          H          I          J
  1
  2
  3
  4                          Date      Expense    Amount     Vendor
  5
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17
 18
    Ready
```
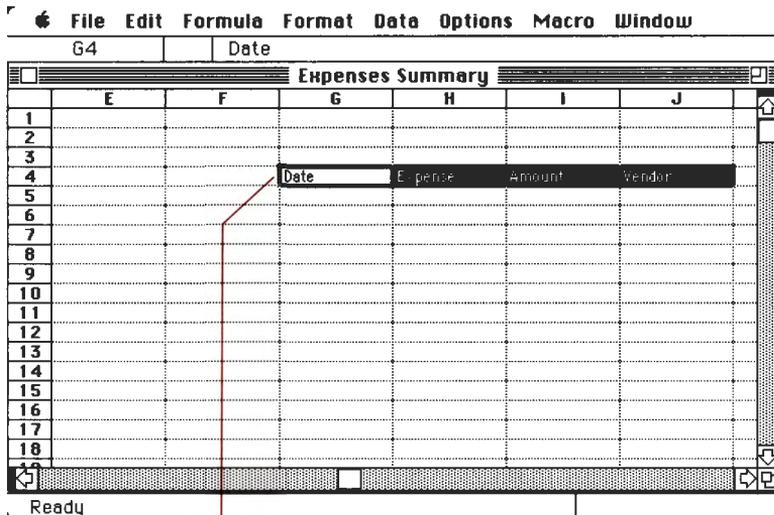
These field names are at the start of the extract range.

To extract the records that meet the criteria:

Extract the records

1   Make sure that the field names are still selected.

2   Choose Data Extract.

Important   Microsoft Excel clears all of the cells below the field names before it extracts the records. If you drag to select the field names and an area below the field names, Microsoft Excel will clear only the area you selected before extracting the records. If the selected area isn't big enough, Microsoft Excel will display a message telling you that the extract range is full.

3   Click the OK button.
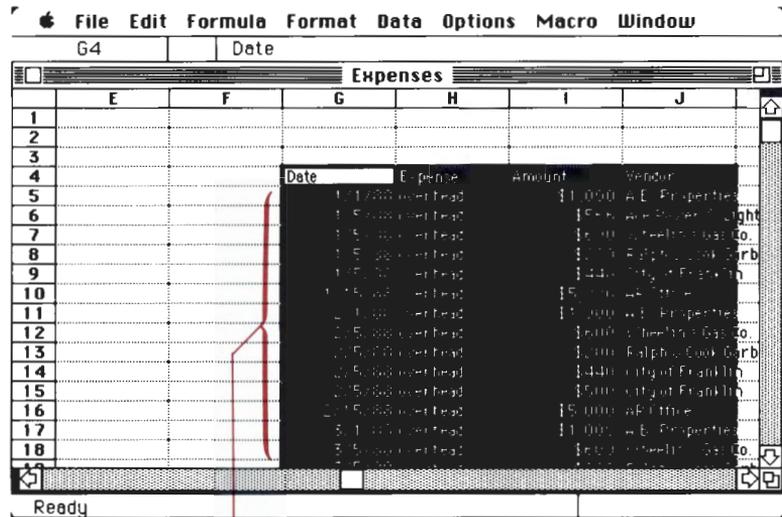
Microsoft Excel displays just
the overhead records.

Microsoft Excel first clears the extract range and then lists the records it finds which match your criteria. The records are listed in the same order in which they appear in the database.

Microsoft Excel highlights all of the records as they are extracted. If you want to put the records into a report, you can use the Copy or Cut command after you are finished extracting.

For more information   To find out more about extracting data, read "Database" and "Data Extract command" in the *Microsoft Excel Reference*.

Linking Worksheets

Copying through the Clipboard is just one way to transfer information between worksheets. In chapter 2, you used the Clipboard to copy the 1988 Actual figures from the Expenses Summary worksheet to the Budget worksheet. Microsoft Excel also lets you link worksheets so that information can be transferred between them automatically. If you link the Budget and Expenses Summary worksheets, for example, changes on the Expenses Summary worksheet will be reflected on the Budget worksheet automatically.

Display the worksheets side by side:

■ Choose Window Arrange All.

You can now link the two worksheets.

1. Scroll the Expenses Summary worksheet until you can see column B.
2. Select B5 to B7 by dragging.

3. Choose Edit Copy.
4. Choose Window Budget.
5. Click C2.
6. Choose Edit Paste Link.

```
  File   Edit   Formula   Format   Data   Options   Macro   Window
```

| C2 | | {='Expenses Summary'!$B$5:$B$7} |

Expenses Summary

	A	B	C
1	Date	Expense	Amount
2		overhead	
3			
4		$92,340	
5	salary	$282,625	
6	inventory	$93,897	
7	overhead	$91,840	
8			
9			
10	Date	Expense	Amount
11	1/1/88	overhead	$1,000
12	1/5/88	overhead	$566
13	1/5/88	overhead	$600
14	1/5/88	overhead	$200
15	1/5/88	overhead	$440
16	1/6/88	inventory	$16,000
17	1/5/88	salary	$1,000
18	1/5/88	salary	$1,270
19	1/5/88	salary	$945
20	1/5/88	salary	$700

Budget

	B	C	D
1	1988 Forecast	1988 Actual	
2	$192,000	$282,625	
3	$95,500		
4	$87,000		
5			
6	$374,500	$468,362	
7			
8	$995,000	$995,000	
9			
10	$620,500	$526,638	

Copy (Select destination and press Enter or choose Paste)

The Paste Link command copies the three amounts to the Budget worksheet as an array. If any of the expense totals change on the Expenses Summary worksheet, they will also change on the Budget worksheet. Now try changing one of the totals on the Expenses worksheet:

1 Choose Window Expenses Summary.

2 Click C11.

3 Type *1500*

4 Click the enter box.

Microsoft Excel recalculates the totals in the table on the Expenses Summary worksheet and then updates the 1988 Actual figures on the Budget worksheet.

For more information   To find out more about linking documents, read "Linking Documents" in the *Microsoft Excel Reference*. To find out more about arrays, read "Array" in the *Microsoft Excel Reference*.

# Creating a Chart Using Multiple Selections

Information that you want to present in a chart isn't always in one part of a worksheet. Fortunately, Microsoft Excel can create a chart using multiple selections on a worksheet. For example, suppose you wanted to plot the forecast and actual values for Revenues and Total Expenses. To create such a chart, you would make multiple selections on the Budget worksheet.

1. Choose Window Budget to make the Budget worksheet active.
2. Click the zoom box in the upper-right corner of the window.
3. Select A1 to C1 by dragging.
4. Hold down the Command key and select A6 to C6 by dragging.
5. Hold down the Command key and select A8 to C8 by dragging.

	A	B	C	D	E	F
1						
2	Salary	$192,000	$282,625			
3	Inventory	$95,500	$93,897			
4	Overhead	$87,000	$92,340			
5						
6						
7						
8	Revenues					
9						
10	Operating Income	$620,500	$526,138			
11						
12						

Microsoft Excel plots only this information.

6. Choose File New.
7. Click Chart.
8. Click the OK button.
9. Choose Chart Add Legend.
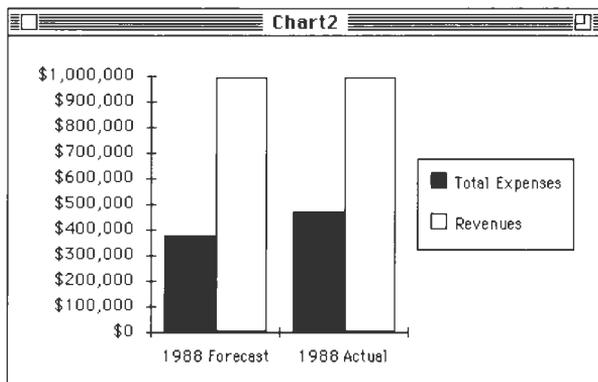
Microsoft Excel plots the information from the Revenues and Total Expenses categories only. It uses the row headings to name the data series and the column headings to name the categories.

For more information   To find out more about creating a chart with multiple selections, read "Data Series" in the *Microsoft Excel Reference*.

Changing a Chart with the Paste Special Command

You can add information to an existing chart by using the Paste Special command. Pasting a data series into a chart is a sensible alternative to creating a new chart from scratch. For example, suppose you want to include the Operating Income information in the chart you just produced:

1 Choose Window Budget to make the Budget worksheet active.

2 Select A10 to C10, the Operating Income information, by dragging.

**🍎 File Edit Formula Format Data Options Macro Window**

| A10 | | Operating Income |

Budget

	A	B	C	D	E	F
1		1988 Forecast	1988 Actual			
2	Salary	$192,000	$282,625			
3	Inventory	$95,500	$93,897			
4	Overhead	$87,000	$92,340			
5						
6	Total Expenses	$374,500	$468,862			
7						
8	Revenues	$995,000	$995,000			
9						
10	**Operating Income**	$620,500	$526,138			
11						
12						

Microsoft Excel will add this information to your chart.

3 Choose Edit Copy.

4 Choose Window Chart2 to make the chart active.

5 Choose Edit Paste Special.

6 Click the OK button.

The new series appears in the chart and a new entry appears in the legend.
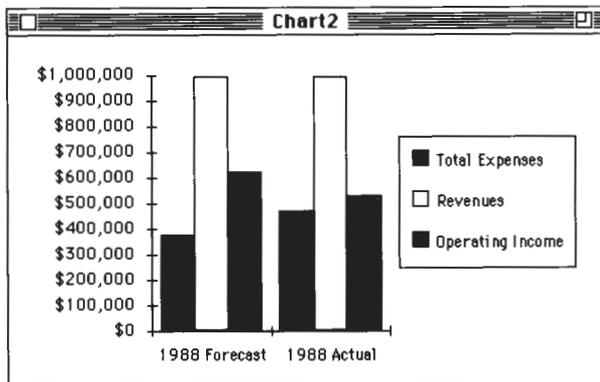
Chart2

Quit Microsoft Excel

Congratulations, you have completed all of the lessons in this tutorial. You can go back and work through the lessons again, or you can quit Microsoft Excel. If you want to save the last chart you created, you will need to give it a name. If others will be working through these lessons, you should rename your Budget and Expenses Chart documents so your documents don't get mixed up with other people's.

For more information   To find out more about adding information to a chart, read "Data Series" in the *Microsoft Excel Reference*.

5 Where to Go Next

The material in *Getting Started with Microsoft Excel* is meant to introduce you to the basic features of Microsoft Excel. As you begin to use Microsoft Excel's more advanced features, you will want to consult other sources of information. Microsoft Excel's online help system and online tutorial are a good place to start. There are also three books, *Microsoft Excel Reference, Microsoft Excel Functions and Macros,* and *Microsoft Excel Sampler,* to help you understand Microsoft Excel's many commands and features.

Learning More About Microsoft Excel

As you learn more about Microsoft Excel, you are likely to have questions.

Microsoft Excel contains built-in Help information that you can use at any time. When you finish reading the Help information, Microsoft Excel always returns you to your worksheet or chart with everything exactly as you left it. The Microsoft Excel Help document is on the Microsoft Excel Help and Examples disk.

Online Help

There are three ways you can ask for help. You can choose the Window Help command from the menu, you can press Command + /, or you can press Command + ?. Each of these commands will get you Help in a different way.

Use the Window Help command when you want to browse through the Help topics:

1. Choose Window Help.   Microsoft Excel displays a table of contents showing all of the Help topics.

2. Click the topic you want to read.   You should read the Using Help topic first for information on moving through Help.

3. To return to the Help topics list, click the Topics button.

4. To quit Help, click the Help window's close box or click the cancel button.

Help on messages or dialog boxes

You can get Help about a message or dialog box by pressing Command + /. When the message or dialog box appears on the screen:

■ Press Command + /.

Microsoft Excel opens the Help window and displays the topic related to the message or dialog box.

Help on commands or screen items

You can get Help about any command or part of the screen by pressing Commmand + ?.

1. Press Command + ?.   The pointer turns into a question mark.

2. Choose a command from a menu or click an area of the screen.   Microsoft Excel opens the Help window and displays the topic related to the command or region you have selected.

A Microsoft Excel Tour

An online tutorial called *A Microsoft Excel Tour* is included with Microsoft Excel.

Note You must have HyperCard version 1.2 or greater to use this online tour.

The tour is broken into five sections. The first section introduces the tour and explains some of the features of Microsoft Excel and the Window Help command. The remaining sections explain individual features in detail. Each section also contains exercises to help you better understand and use Microsoft Excel.

To start *A Microsoft Excel Tour:*

1 Make sure that HyperCard is either installed on your hard drive or present on a disk in one of your floppy drives.

2 Insert a copy of the Microsoft Excel Tour disk into one of your drives.

3 Double-click the Tour icon.

The *Microsoft Excel Reference* is an in-depth guide to using Microsoft Excel. The entries in the Reference are arranged alphabetically and contain information on all of the commands and procedures that you will need to use Microsoft Excel. There are also core topics which explore a particular subject in depth — databases, for example.

The Microsoft Excel books

For more information on functions and macros, refer to *Microsoft Excel Functions and Macros*. This book lists Microsoft Excel's many functions and macros alphabetically. It also provides information on writing macros and creating custom menus and dialog boxes.

The *Microsoft Excel Sampler* is designed to help you use Microsoft Excel in your everyday tasks. The examples in this book show you how worksheets, macros, and charts can be used for a variety of tasks.

For More Information

For more information on	See
Help	Help in the *Microsoft Excel Reference.*

Microsoft ®

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