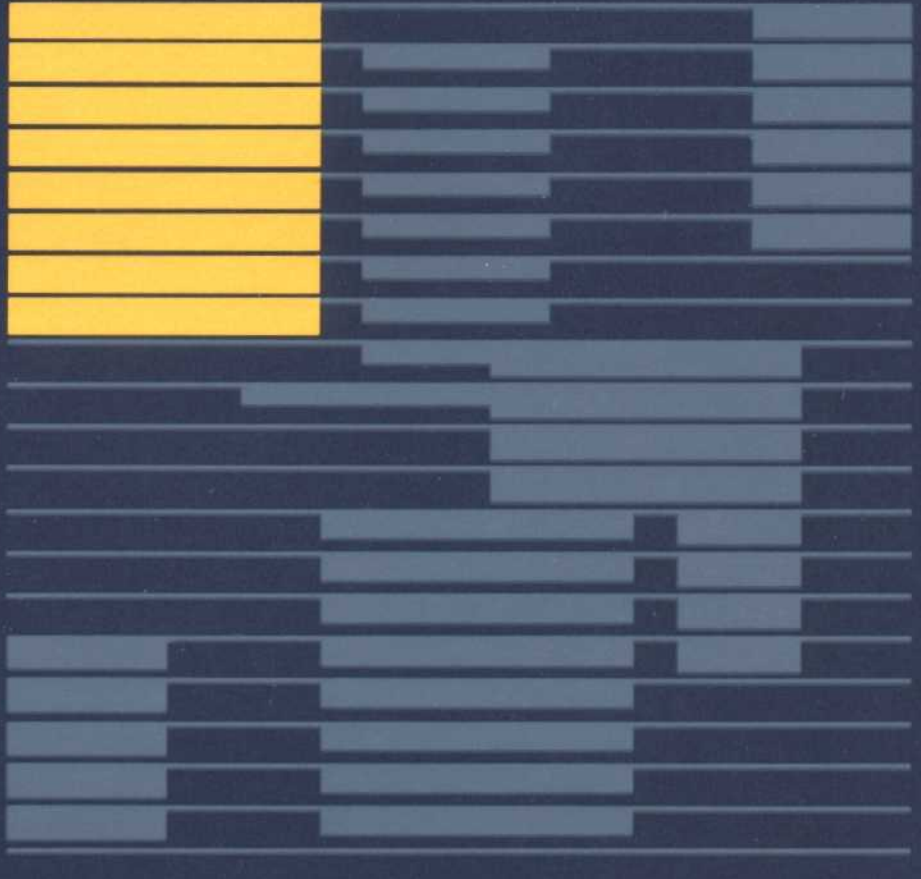
VISI ON™

VISI ON CALC™

User's Guide



VISICORP™

VISI ON™

VISI ON CALC™

User's Guide

VISICORP™

Table of Contents

Table of Contents

Using this Guide

1 Overview

2 Saving, Getting, and Organizing Worksheets

3 Entering Labels, Formulas, and Named Cells

4 Replicating Areas of the Worksheet

5 Editing Information in Cells

6 Recalculating the Worksheet

7 Changing the Way a Worksheet Is Displayed

8 Moving Information around the Worksheet

Appendix B Visi On Calc™ Formulas

Glossary

Function Index

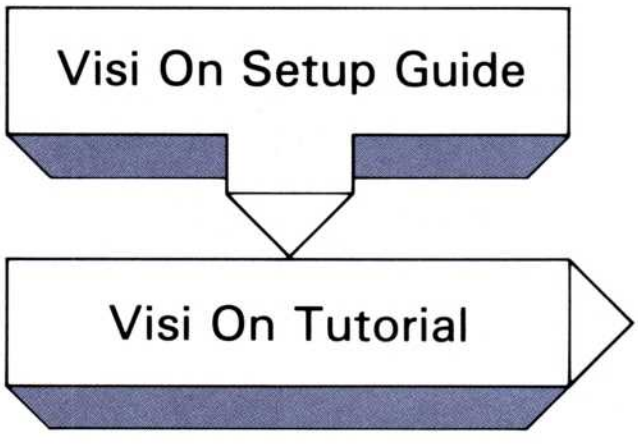
Index

Using this Guide

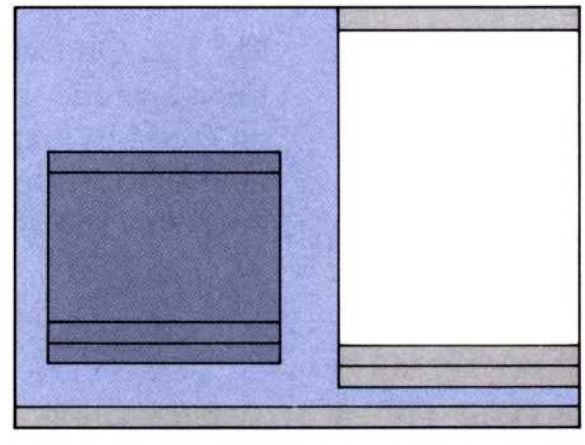
Using this Guide

This guide contains additional information you may need for using the Visi On Calc™ program to create worksheets for your own specific needs, update them, and transfer information in them with the Visi On Calc program or among the other Visi On™ programs.

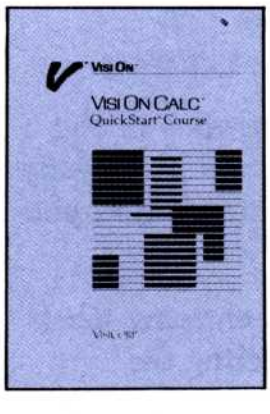
It is designed to be used *after* you have learned the basics of the program through the Visi On Calc QuickStart™ Course. Figure 1 illustrates the relationships among the learning tools that are available to you.



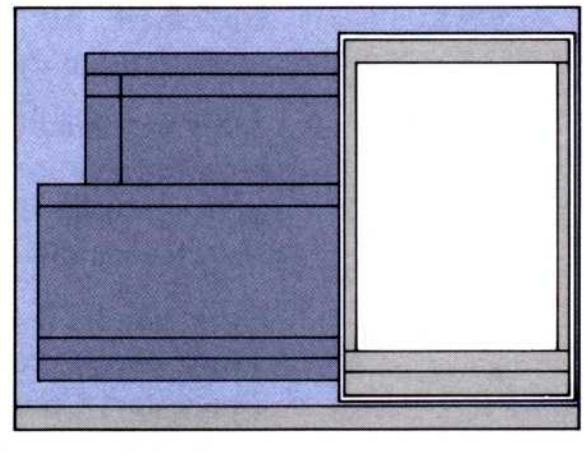
1 Follow the instructions in the Setup Guide first; then read "Taking the Visi On Tutorial"



2 Take the Visi On online tutorial to learn the system's basics



3 Then do the exercises in the program QuickStarts for any Visi On program you want to learn



4 Now you're ready to create your own spreadsheets, documents, and graphs. Refer to the User's Guides whenever you need more details or advanced techniques.

Figure 1. *The Tools available to you, including Help instructions, the Visi On Calc QuickStart Course, the Visi On Calc User's Guide, and the Glossary/Index in the User's Guide.*

Learning the Basics

The Visi On Tutorial is an introduction to the Visi On environment. It teaches you, by having you actually use the computer, how to use the Visi On system with any of the Visi On programs. Anyone using the Visi On system should complete this Tutorial first.

The *Visi On User's Guide* provides a complete reference to the Visi On system. In addition to supplying a complete overview of the system, each chapter discusses one basic set of functions that you use within the system.

The Visi On Calc QuickStart Course teaches you the basic operations of the Visi On Calc program. Its hands-on exercises prepare you for entering data and creating your own worksheets. Before you use the Visi On Calc program, you should take this QuickStart Course.

After the QuickStart™ Course

In this guide, instructions about the basic types of tasks you can perform with the Visi On Calc program are grouped together. Each chapter covers basic operations of the program, such as entering values or labels in a worksheet. All tasks related to carrying out that operation are described in detail within that chapter.

After you read Chapter 1, which is an overview of the program's concepts and terminology, you can go directly to the chapter that discusses the specific information you need to complete a task.

For example, if you feel comfortable with entering labels and values in your worksheet after completing the QuickStart Course, you can either begin creating simple worksheets or turn to Chapter 7, "Changing the Way a Worksheet Is Displayed," to get more information about changing a worksheet's appearance. Or if you need details on printing, go directly to Chapter 10, where you'll find more information on controlling how your worksheet prints.

In either case, and at any time, you can choose the pace of instruction you need.

Getting Help

In addition to the information in this guide, help is always available to you on your computer screen as you learn to use the program.

The Visi On Calc Help facility, which is available to you any time you select "HELP" from the Visi On menu line at the bottom of your screen, provides additional instructions that will help you with the task you are doing, without changing the information on the screen. You simply point to and select the item you need help with on the screen, and a special Help window opens that contains these instructions.

Help topics generally display information about the item you selected and how to use it. Other cross-referenced topics may also be displayed in your Help window. For more information, select the bullet next to the listed topic.

Organization of this Guide

This guide consists of five major sections:

- OVERVIEW contains the basic terminology and concepts of the program, as well as summaries of basic program operations, such as starting and quitting the program.

- BASIC OPERATIONS consists of ten chapters that contain step-by-step procedures for performing all the tasks related to each basic program operation. You can select which section of each chapter you need to read or review, depending on the task you want to perform.

- EXAMPLES guide you through representative applications you may use with the Visi On Calc program.

- MESSAGES lists all the error messages the program may give you from time to time. Each message explains what could have caused the error and details what you can do to correct it.

- GLOSSARY/INDEX provides a glossary that defines all the terms used in the Visi On Calc program. It can be effectively used for learning or reviewing special terms that might be unfamiliar to you. An index lists and cross references all major topics and terms used in this guide, providing a quick reference for locating any program function or command.

In addition, the Appendixes give you reference information that you might need to do certain procedures or to enhance your understanding of specific areas in the User's Guide.

CHAPTER 1: OVERVIEW introduces the Visi On Calc program and its basic concepts and features.

CHAPTER 2: SAVING, GETTING, AND ORGANIZING WORKSHEETS teaches you how to load, store, and delete worksheets from the computer's memory.

CHAPTER 3: ENTERING LABELS, FORMULAS AND NAMED CELLS gives you instructions on how to move the cursor around the worksheet and how to enter labels and formulas to create headings and do calculations. Also included are special Visi On Calc functions to help you do calculations and instructions for naming cells so you can use them in other worksheets.

CHAPTER 4: REPLICATING AREAS OF THE WORKSHEET shows you how you can copy areas of a worksheet to take full advantage of the labels and formulas you have created.

CHAPTER 5: EDITING INFORMATION IN CELLS shows you how you can save time in changing information in cells by using the edit features of the program.

CHAPTER 6: RECALCULATING THE WORKSHEET gives you information that will allow you to take full advantage of the Visi On Calc program's method of calculation.

CHAPTER 7: CHANGING THE WAY A WORKSHEET IS DISPLAYED teaches you how to change how a worksheet displays by fixing certain worksheet areas in place and increasing the width of columns. It shows you how to create two views to help you work with large

worksheets. This chapter also gives you instructions on using display characteristics (attributes) for cells so that your information is displayed the way you want it to be.

CHAPTER 8: MOVING INFORMATION AROUND THE WORKSHEET shows you how to use a number of commands that will allow you to rapidly modify your worksheet. Included are instructions on moving, copying, and deleting worksheet information and inserting rows and columns.

CHAPTER 9: CONSOLIDATING WORKSHEET DATA describes the process of bringing selected data into a worksheet from other worksheets.

CHAPTER 10: PRINTING WORKSHEETS gives you instructions for printing all or part of your worksheet. It shows you how to use print options to control the way your worksheet is printed.

CHAPTER 11: TRANSFERRING DATA WITH THE VISI ON CALC PROGRAM describes how you use the transfer feature to move information into or out of the Visi On Calc program.

CHAPTER 12: EXAMPLES combines many of the tasks in the manual to show you how to use the Visi On Calc program to create such problem solving tools as budgets, financial worksheets, forecasts, and projections.

CHAPTER 13: MESSAGES lists the error messages that might display when you are using the Visi On Calc program. Each message description contains an explanation of what caused the error and what you can do to correct the problem.

APPENDIX A: CONVERTING VISICALC® WORKSHEETS FOR USE WITH THE VISI ON CALC PROGRAM describes the procedures for converting Visi Calc worksheets so you can use them with the Visi On Calc program.

APPENDIX B: VISI ON CALC FORMULAS lists the mathematical formulas used for calculating the financial functions and standard deviation.

GLOSSARY gives you a definition of the most commonly used terms in the User's Guide. This serves as a ready reference you can use to become more familiar with terms used in the Visi On Calc program.

INDEX provides a quick reference to any topic in the manual. You will find the Index particularly useful in locating commands that are used in more than one task.

When You're Looking at the Screen...

Menu commands, prompts, and messages that you see on your computer screen appear in this guide in quotation marks.

Characters that you type at your keyboard—to enter data, for example—are in boldface type.

While You're Using the Program...

Built-in prompts and messages will guide you through most of the basic operations. You may be asked to supply information by typing it at the keyboard or selecting an item with your pointer, for example.

The Visi On system is designed so that you can work with it in a natural way. After you've become used to it, you may need to refer to this guide only to explore some of the more sophisticated applications of the Visi On Calc program.

Key	Representation	Meaning and Use
Escape	ESC	Escape—pressed before the first letter of a command name as an alternate way to select that command.
Return	↵	Return—ends entry of data in a cell or the edit of cell information.
Backspace	BKSP	Backspace—deletes characters to the left of the cursor position.
Delete	DEL	Delete—deletes characters at the cursor position.
End	END	End—deletes the entire contents of a cell.
Tab	→	Tab—moves the cursor to the next tab cell on the worksheet.
Left arrow	←	Left arrow—moves the cursor to the left on the worksheet or edit line.
Right arrow	→	Right arrow—moves the cursor to the right on the worksheet or edit line.
Up arrow	↑	Up arrow—moves the cursor up on the worksheet.
Down arrow	↓	Down arrow—moves the cursor down on the worksheet.

Figure 2. *Keycap representations used in this guide.*


VISI ON™

1 Overview

Chapter 1 Overview

Welcome to the Visi On Calc™ Application Program

This brief chapter introduces you to the basic concepts of the Visi On Calc™ application program, an advanced "electronic spreadsheet" for planning, budgeting, controlling, and costing business needs. You should know how to use the basic Visi On™ commands, the mouse pointing device, and how to open and close windows as described in the Visi On Tutorial.

If you have taken the Visi On Calc QuickStart™ Course, you will know the basic concepts discussed in this chapter. You can skim this chapter as a refresher and go directly to any subject in this User's Guide that you want to learn more about.

If you are completely new to the Visi On Calc program, you should read this chapter for a basic understanding of the Visi On Calc program, how it is used, and what steps you should take to get started using it.

What Is the Visi On Calc™ Program?

The Visi On Calc program is a versatile spreadsheet program that maximizes your ability to manage, plan, forecast, budget, calculate, and cost out projects. This program not only replaces pencil, paper, and calculator, but it also is an advance over conventional spreadsheet programs. It saves you time and energy for the creative and thoughtful parts of your tasks.

The concept of an "electronic spreadsheet" is simple, yet revolutionary. A *spreadsheet* is simple because it is only a large sheet with rows and columns for entering data, usually numbers. An *electronic* spreadsheet is revolutionary because it lets you enter numbers and time-saving *formulas;* formulas do the tedious mathematical and logical calculating for you. You can play "what if ...," try out alternatives, and change your assumptions. The program recalculates each possibility as you try it out.

The Visi On Calc spreadsheet gives you a large area to work with, 511 rows down and 128 columns across. Using this large work area, you can create almost any model budget, report, or forecast to meet your needs and perform a wide range of tasks. Figure 1-1 shows the first few rows and columns of a blank Visi On Calc worksheet.

With the Visi On Calc program, you have an array of commands and design features that make the program easy to use and responsive to your creative needs. For example, you format your worksheet to look exactly the way you want it to; you enter information with the fewest of keystrokes; you do complex financial and logical calculations using special functions that are built into the program; you rearrange your worksheet at any time with the minimum of fuss; you include information from other worksheets; and, as with all Visi On programs, you simply point at commands and options to make the program do what you want it to do.

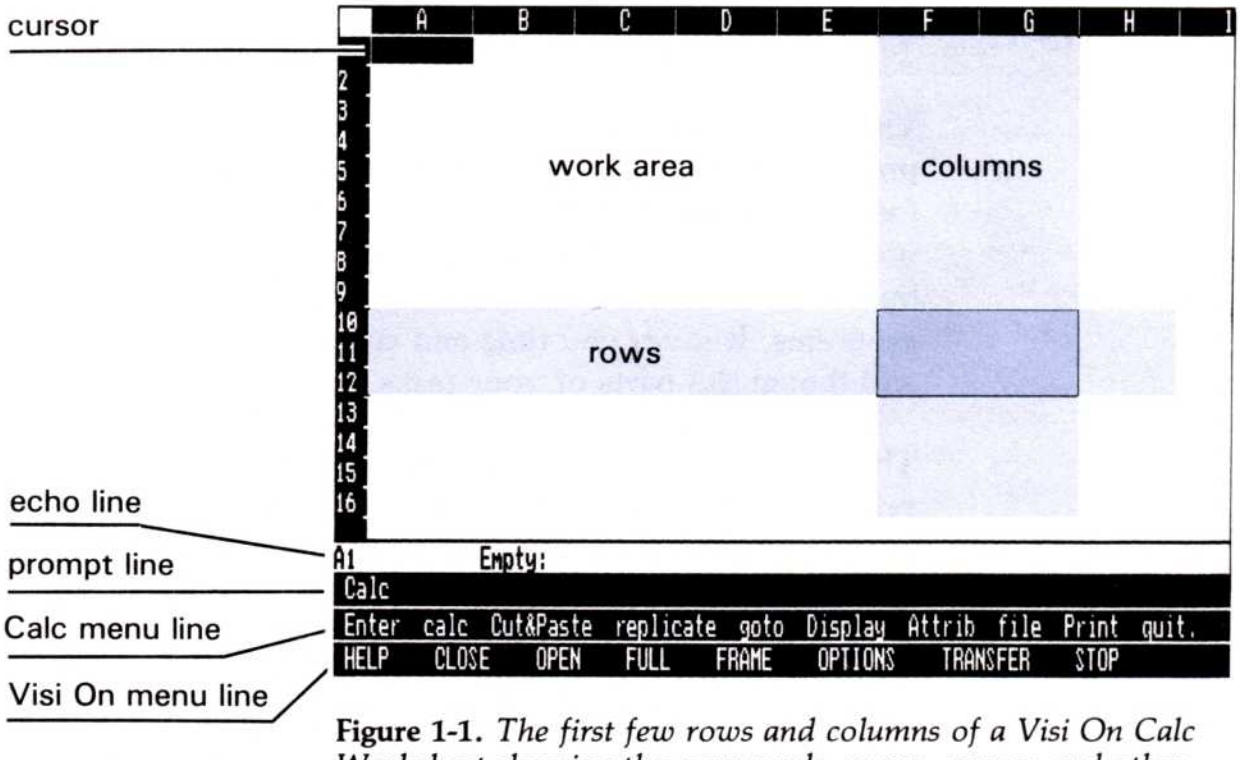


Figure 1-1. *The first few rows and columns of a Visi On Calc Worksheet showing the commands, menu, cursor, and other features. The work area extends down 511 rows and across 128 columns.*

How Do You Use the Visi On Calc™ Program?

You use the Visi On Calc program in two basic ways:

- You *enter* data directly by typing it into the work area of the worksheet. You type in data at any intersection of a row and column (an intersection of a row and column is called a *cell* and is highlighted by the cursor as a rectangle). The cursor indicates where on the worksheet you can enter data. It can be moved by the pointing device or by the cursor moving keys on the keyboard.

- You also instruct the program to do special tasks for you by selecting *commands* from the command menu at the bottom of the program window. Each command that you select either leads you through a special sequence of choices or gives you another set of choices that you can pick from. You can choose commands quickly with the pointer.

  You can also choose commands by using the *single key activation* feature. To use the single-key activation feature, press the ESC key and then type the first letter of the command you want to use. You can use single-key activation on any command that begins with a lowercase letter. Note that single-key activation works only after you have enabled it using the "Keyboard Menu Select" options on the Visi On Services options sheet.

Typing in data (entering it) is generally straightforward. The program offers special ways to enter data in the most efficient manner. Here we will give you an overview of the Visi On Calc basic commands. Each command is discussed in detail in the appropriate chapter of this User's Guide.

When you start the Visi On Calc program by selecting it from the Services window, you are prompted whether you want to create or a worksheet. These commands allow you to select either a blank worksheet or select an existing worksheet to update. After you have completed either command, a worksheet is displayed, with the Calc main menu of ten commands displayed in the bottom part of the window.

The basic Visi On Calc commands in the main menu are:

Enter—The "Enter" command gives you a variety of ways to enter information into your worksheet. For example, you can enter all information as values or labels, edit the contents of a cell, blank out (erase) the contents of a cell, copy the contents of a cell, set special formats in a cell, and set up a cell to receive information from another worksheet.

calc—The "calc" command recalculates the worksheet whenever you select it. You use this command when the worksheet is set to manual recalculation.

Cut&Paste—The "Cut&Paste" command has functions you use to change the structure of the worksheet. These functions allow you to move, copy, insert, and delete rows and columns, sort information in numerical or alphabetical order, overlay data from one worksheet onto another worksheet, and erase the entire worksheet.

replicate—The "replicate" command lets you copy the contents of one or more cells into another area of the worksheet. It is a key command for building your worksheet with a minimum of effort.

goto—The "goto" command lets you move the cursor (highlight) to any cell on the worksheet by typing in the cell name or coordinates.

Display—The "Display" command has functions for controlling how an entire worksheet displays. Using the commands in this area, you can change the width of one or more columns, fix an area adjacent to the left edge or top of the worksheet (usually you want to fix titles in place) so that it does not scroll, and create two views of a worksheet.

Attrib—The "Attrib" command has options you use to control how information on the worksheet displays. Attributes (formatting characteristics) can be assigned to cells, rows, columns, areas, or to the entire worksheet (globally). Attribute options include aligning data left, right, and center; allowing only formulas, numbers, or labels to be entered in a cell; protecting cells from any entry; hiding cells; setting the number of decimals to be displayed; and putting limits on the highest and lowest value that can be entered into a cell.

file—The "file" command lets you store your worksheets permanently and retrieve them from storage. When you are creating a new worksheet or revising an old worksheet, it is only in temporary storage and must be stored permanently if you want to reuse the worksheet in the future.

Print—The "Print" command lets you specify what you want to print and prints it out for you so that you can have a paper copy of your work for reports or presentations.

quit—The "quit" command makes it possible for you to remove the Visi On Calc window from the Visi On screen.

Commands that are spelled with an initial capital letter allow you to select a number of other related commands from a menu. There is also an *options sheet* for each of these menus of commands. The options on these sheets let you set special characteristics for your worksheet that are associated with the main command that you choose; for example, "Cut&Paste" options let you determine if you want to sort in ascending or descending order and "Attributes" options make it possible to set many different formats any place on your worksheet.

The Visi On Calc commands are grouped in menus so that one menu logically follows another when you do a particular task. It's a straightforward, commonsense structure that you will find easy to use as you learn the Visi On Calc program.

Using Visi On Calc™ Menus

Now that you are familiar with what the commands do, how do you actually use them to do various tasks? You perform tasks in the Visi On Calc program by selecting commands from one or more menus. For example, if you want to move a section of your worksheet to another location:

1. Select either "revise" or "create" to display a worksheet.
2. Select "Cut&Paste" from the Calc menu.
3. Select "move" from the Cut and Paste menu.

Figure 1-2. *The Visi On Calc options sheets let you set special characteristics for your worksheets.*

Spreadsheet

Recalculate:
automatically
manually

Recalculation Method:
natural order
row first
column first

Label 'Type Thru':
yes no

Track Mouse Pointer:
yes no

Payments for Financial
end of period
beginning of period

Stand.Dev. Denominator
(N)
(n - 1)

Options

Enter

ENTER Key Moves Cursor
(for value & label)
down 1 row
right 1 column
to next TAB cell
does not move

Attributes Below Apply
to new & edit cells
to cell-attrib only

Attribute Settings:

Set Attributes First,
Then Pick Menu Option

Attribute Settings:
use default for all
use settings below

Display Format:
as-is
default =d
decimal
thousands
millions
scientific

Decimal Places:
as-is
default =2
floating (variable)
0 (1234567)
1 (123456.7)
2 (12345.67)
3 (1234.567)
4 (123.4567)
5 (12.34567)
6 (1.234567)

Alignment:
Values: Labels:
as-is as-is
default=r default=l
left left
center center
right right

Special Formats:
as-is
default =n
floating $($12.34)
fixed $ ($ 12.34)
trailing $(12.34$)
percent (1234%)
nothing

Tabstops:
as-is
default J=n L=n
set-to-on
set-to-off

Data Type Allowed:
as-is
default =a
formulas
numbers
labels
all
nothing

Cell Contents:
as-is
default =
visible
hidden

Cell Protection:
as-is
default =c
protected
changes-allowed

Upper-bound:
as-is
default
none
limit to

Lower-bound:
as-is
default
none
limit to

Options

Cut & paste

Sort Order
ascending
descending

Confirm on Delete
yes no

Options

Display

Synchronized Scrolling
yes no

Default Column Width:
9

VIEW 1
Display:
values
formulas

Display Grid:
yes no

VIEW 2
Display:
values
formulas

Display Grid:
yes no

Global Display Options

Separators:
1,234,567.89
1234567.89
1.234.567,89
1234567,89

Show Value's Sign With
minus sign
plus and minus signs
parenthesis
CR and DB
CR only
DB only

CR and DR mean:
CR is -, DR is +
CR is +, DR is -

Monetary Sign:
$

Options

Attributes

Set Attributes First,
Then Pick Menu Option

Attribute Settings:
use default for all
use settings below

Display Format:
as-is
default =d
decimal
thousands
millions
scientific

Decimal Places:
as-is
default =2
floating (variable)
0 (1234567)
1 (123456.7)
2 (12345.67)
3 (1234.567)
4 (123.4567)
5 (12.34567)
6 (1.234567)

Alignment:
Values: Labels:
as-is as-is
default=r default=l
left left
center center
right right

Special Formats:
as-is
default =n
floating $($12.34)
fixed $ ($ 12.34)
trailing $(12.34$)
percent (1234%)
nothing

Tabstops:
as-is
default J=n L=n
set-to-on
set-to-off

Data Type Allowed:
as-is
default =a
formulas
numbers
labels
all
nothing

Cell Contents:
as-is
default =
visible
hidden

Cell Protection:
as-is
default =c
protected
changes-allowed

Upper-bound:
as-is
default
none
limit to

Lower-bound:
as-is
default
none
limit to

Options

Print

PRINT LOCALLY ON

PRINT DOCUMENT

Print from page 1

to page 999

Print Page numbers
yes no

Print titles
yes no

LAYOUT PAPER

Length 10.43 in

Width 7.99 in

Top Border 1.00 in

Bottom Border 1.00 in

Left Border 1.00 in

Right Border 1.00 in

Page printing order
rows-then-columns
columns-then-rows

Show Page Partitions
yes no

CONTROL PRINTING

Number of copies 1

Pause after page
yes no

Characters per inch
10 12 15

Lines per inch
6 8

Double space
yes no

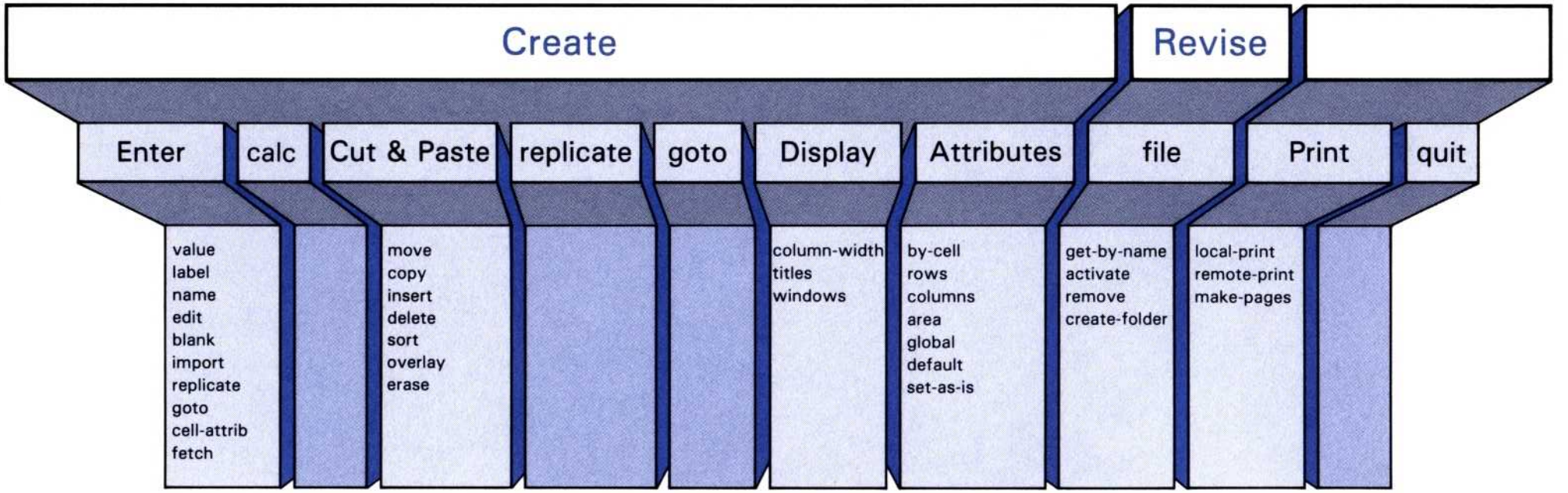
Options

VISI ON™

VISI ON CALC™

Options Sheets

Figure 1-3. *The Visi On Calc Command structure is simple and easy to understand. Commands are grouped in menus.*



VISI ON™

VISI ON CALC™

Command Structure Chart

4. Respond to the series of on-screen prompts to complete moving an area.

Figure 1-4 shows you the menus you would use for this example.

As you use a *menu path* (sequence of menus), notice that it tells you where you are in the program. After the program completes a command, the program returns you to the menu from which you selected that command.

For example, when you finish moving a section of the worksheet, you are returned to the Cut and Paste menu. When you leave that menu, you are returned to the Calc menu, from which you could perform other tasks or leave the Visi On Calc program.

Hints on Designing and Using Worksheets

Whether you are a new or an experienced worksheet user, there are several factors to keep in mind as you design and use Visi On Calc worksheets. Following are hints that will help you use these valuable tools more efficiently.

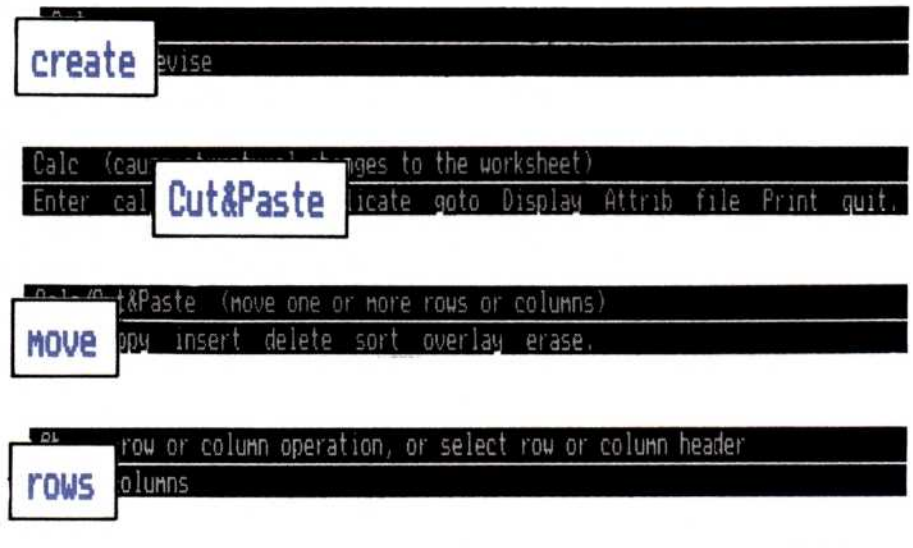


Figure 1-4. *To move a section of your worksheet, you follow this typical Visi On Calc menu path.*

1. Before you create a new worksheet, plan what information you want to put in it.

2. As part of your worksheet planning, decide how you want that information formatted. For example, what information are you going to put in rows or columns? Where do you want to enter headings and areas for totals?

3. Decide what general display characteristics you want for the whole worksheet. For example, do you want numbers to display centered in a column? Do you want titles aligned right or left? Do you want to display dollar figures?

4. Become familiar with the many options you have for controlling how information can be displayed in cells, rows, or columns. Then decide if you want to change any of these options.

5. Formulas are the key to efficient worksheets that do not require much work to use. After you have decided what information you want the worksheet to process, write down the complex formulas that will give you the results you desire.

   This procedure is not only a timesaver when you have a large number of formulas, but it also gives you a good look at the formulas that are used together to produce certain results. This helps reduce mistakes when you are entering a large number of formulas.

6. If you are going to use several worksheets together, you will find it helpful to plan how you want to use them.

   For example, if you are going to use data from one worksheet in another, you can make sure that all worksheets involved have provisions for that specific type of data. You can also be sure that you take full advantage of importing, overlaying, and transferring choices that you have.

Enhancements over VisiCalc® and VisiCalc® Advanced Version Programs

Many of you may have already used VisiCalc® or VisiCalc® Advanced Version programs. The Visi On Calc program gives you even more powerful worksheet capabilities.

- The maximum worksheet size is 511 rows by 128 columns. This gives you up to 65408 cells in which to enter data, which is a tremendous advantage if you need to create large worksheets.
- You can name a cell, or range of cells, and use the name to refer to the cell or range of cells in any formulas you create. This makes referencing cells intuitive and natural.
- You can create references to named cells or named ranges in another worksheet and bring data from those named areas into a worksheet. For example, you can name a range of cells Salaries, specify in another worksheet where you want Salaries to go, and simply "fetch" Salaries any time you want to include that information in your other worksheet.
- Special entry methods allow you to enter large quantities of labels, numbers, or formulas quickly and efficiently. For example, you can enter formulas and labels without first having to type a special character; you can set the program so the cursor will jump to the next tab or next cell down when you enter data, and you can use the pointer to jump to another spot on the worksheet.
- You can transfer data from one worksheet to another very simply by using the Visi On transfer facility. Consolidating information from detail worksheets to summary worksheets is a matter of minutes.
- You can sort data using both a primary *and* a secondary key. The secondary sort key allows you to use a second sorting criterion to resolve any conflicts in data sorted according to the primary key.
- You can create two-dimensional tables for looking up data using multiple criteria.

These features of the Visi On Calc program give you great flexibility. Responsive features that take full advantage of the easy-to-use pointing method of the Visi On system make this program a powerful asset to the business professional.

Summing up

This overview of the Visi On Calc program gives you the basic concepts necessary to understand what the Visi On Calc electronic spreadsheet can do for you, how the program works, and a few ideas on how to get the most out of the program's sophisticated features.

If you have not taken the Visi On Calc QuickStart Course, you should do so before proceeding with the rest of this manual. Use the *Visi On Setup Guide* for instructions on how to get your program ready to be used.

After the QuickStart Course, you have several options open to you:

1. Start using the Visi On Calc program on your own to build whatever worksheets you need. Refer to this User's Guide only when you need help with specific procedures. Otherwise, read the prompt messages that guide you through most operations or select "HELP" whenever you need assistance in doing or understanding a task.

   This manual was designed for flexible access to information about the program. Each chapter is independent and need not be read in order. Topics related to each other are grouped together and treated with step-by-step discussions. Use this manual as your need arises.

2. Go to the Examples chapter in the manual if you would like more practice using the features of the program. The features are numerous, however, and you should not feel that you must learn them all before proceeding. Most can be learned as you go.

3. If you are an experienced VisiCalc user, you may want to go to Chapter 3 on special functions so that you can learn many of the program's advanced features to create efficient worksheets.


VISI ON™

2 Saving, Getting, and Organizing Worksheets

Chapter 2 Saving, Getting, and Organizing Your Worksheets

After you create worksheets with the Visi On Calc™ program by typing in your formulas, numbers, and labels, you usually want to use your worksheets again at a later time. To do this, you need a permanent copy that you can get easily any time you want it. This chapter shows you how to save worksheets and get them from the Visi On Calc filing system. In addition, it shows you how you can organize these *files* (saved worksheets) into folders for efficient use.

Saving, Getting, and Organizing Worksheets: An Overview

In this section, we describe the basic concepts of saving, getting, and organizing worksheets into folders. Later in this chapter, exact instructions are given for each procedure.

You *save* a worksheet when you want to keep a permanent record of it. When you are creating a worksheet or changing a worksheet that has been saved, the new worksheet or the changes you have made to a saved worksheet are not permanently stored. If you turn off the computer or erase the worksheet, you lose the information that has not been saved. To save the new worksheet or changes, you use the Visi On Calc "file" command.

You *get* a saved worksheet when you want to use it again or modify it. You can get a worksheet immediately after you open a Visi On Calc window (by selecting "revise" from the initial screen menu) or at any other time you are in a Visi On Calc window (by selecting "file" from the Calc menu).

When you select the "file" command to save or get a worksheet (or when you select "revise" to get a worksheet after starting a program window), the *Files display* appears in the Visi On Calc window (see Figure 2-1). The Files display is the heart of the storage and retrieval system.

The Files display is your view into the Visi On Calc Archives, your personal filing system for worksheets you create. The Visi On Calc Files display is basically the

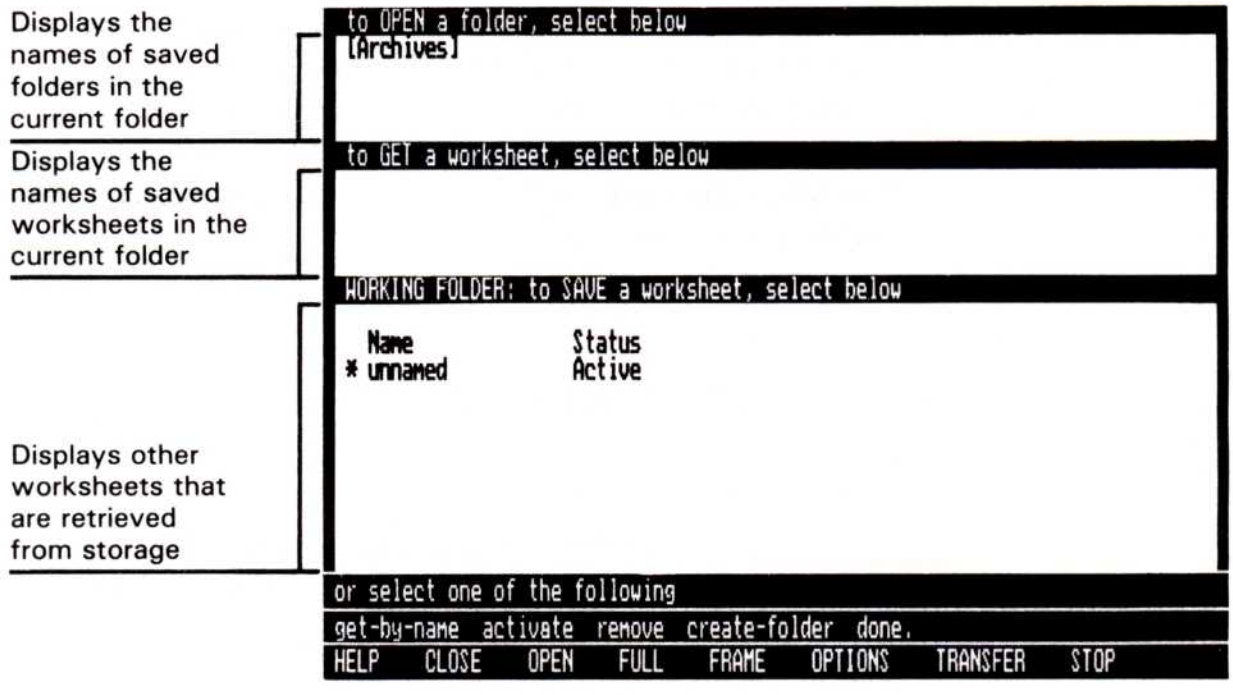


Figure 2-1. *The Visi On Calc Files display is where you save worksheets permanently, get worksheets to work on (put them in the working folder), and organize worksheets into folders.*

same as all Visi On Files displays. Certain commands that you can use differ from one Files display to another, but the three parts—top, middle, and bottom—of the display function in the same way.

The bottom part of the Files display—the working folder—has in it the name of the worksheet that is active. The *active* worksheet is the one that is in the program window. The working folder also has worksheets that you put into the working folder by selecting them from the middle part of the Files display. An asterisk (*) next to a worksheet is the program's way of telling you that the worksheet has not been saved or has been modified since it was last saved. To save it, simply select it from the working folder and follow the prompt messages (exact procedures are described later in this chapter).

The middle part of the Files display is where a saved worksheet is put for permanent storage. It also is where you select a saved worksheet to get it for the working folder so you can work on it. You can, if you want, save all of your worksheets here without ever using the

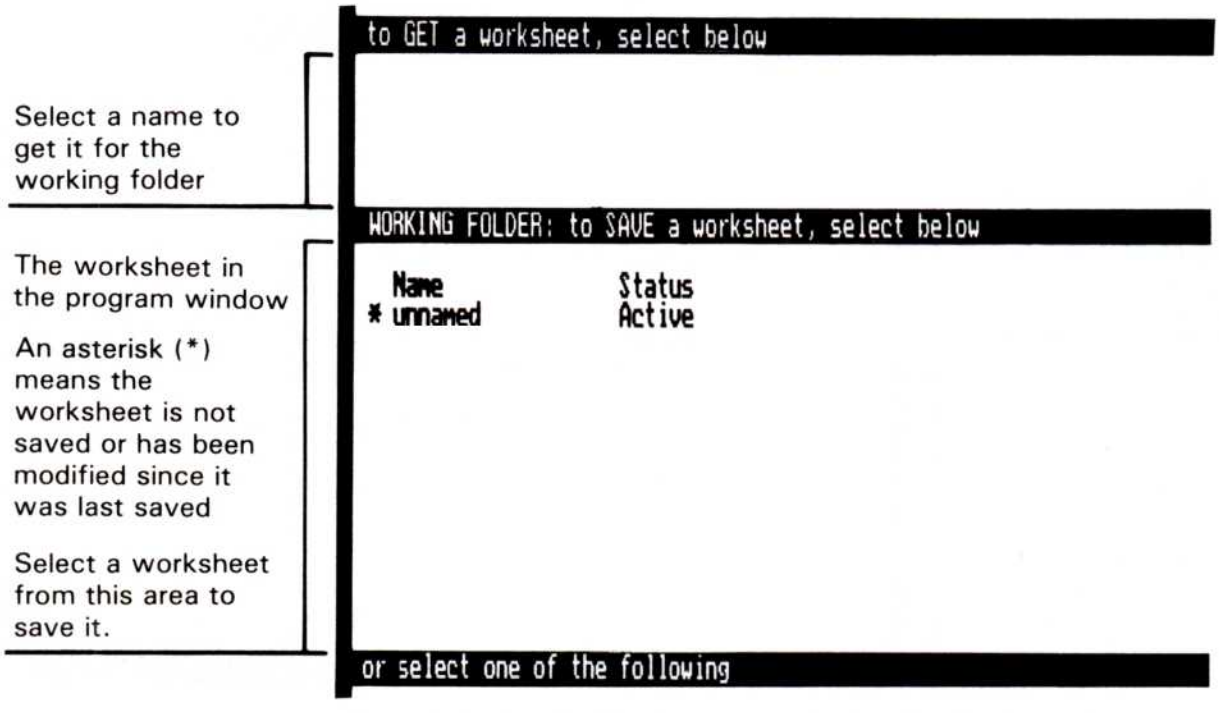


Figure 2-2. *Use the bottom part of the Files display—the working folder—for saving a worksheet that has not been saved, or has been modified since the last time it was saved (any worksheet with an asterisk) and to hold worksheets that you want to work with or use.*

top part of the Files display. In this case, all of your worksheets are saved in one master folder called the Archives folder.

However, the top part of the Files display lets you organize files (saved worksheets) into folders. A *folder* is simply a collection of worksheets and, if you create them, other folders. You can create a folder, collect related worksheets in it, and display the name of the folder in the top part of the Files display. Documents, tables, or series from other Visi On programs may also be in this folder, but they will not be displayed in the Calc Files display. To see them you use the Visi On Services window and select "Archives."

You can see the contents of a folder when you make it the *current folder* by selecting the folder you want from the top part of the Files display. When you select it, the name of the current folder is displayed on the same line as Archives.

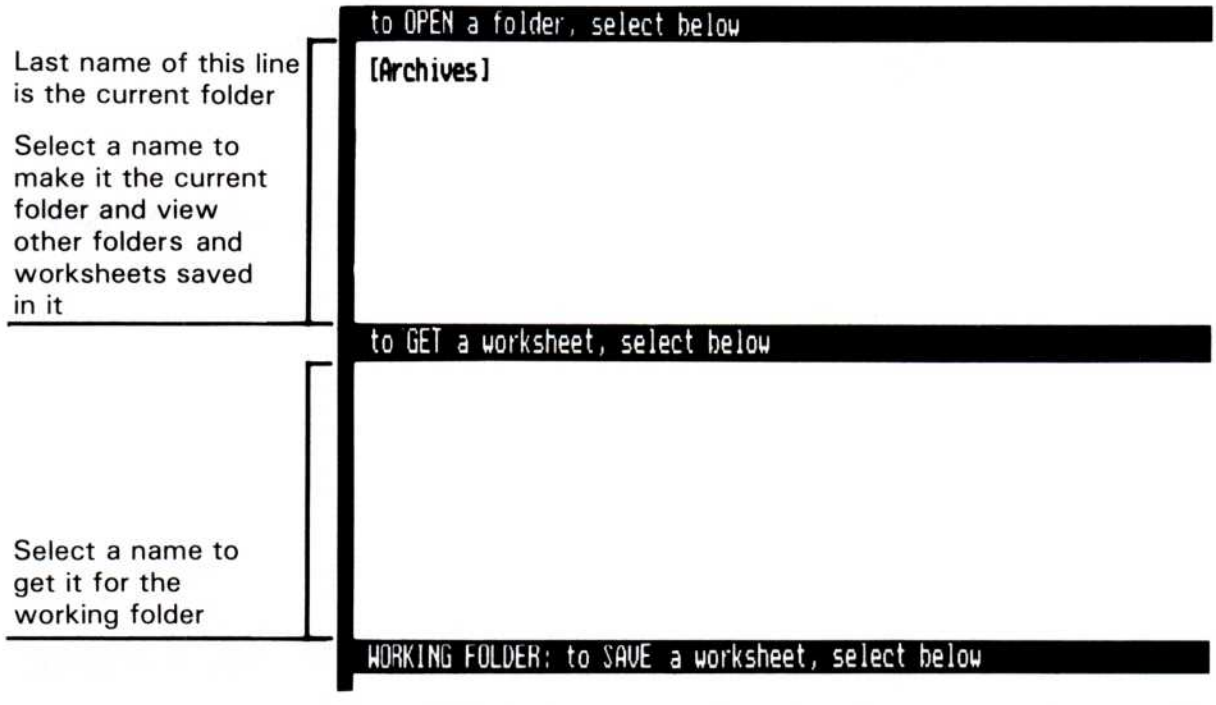


Figure 2-3. *The top part of the Files display is used for creating folders for collecting related worksheets.*

Any folders in the current folder are displayed in the top part of the Files display, and any worksheets in the current folder are displayed in the middle part of the Files display. By selecting a folder from the top part to make it the current folder, you can browse through your folder, viewing the worksheets in it. When you find the worksheet you want to work with, you select it from the middle part, and a copy is put in the working folder. The process of organizing your worksheets into folders is illustrated in Figure 2-3.

At the bottom of the Files display are the Visi On Calc Files display commands. In brief, these commands let you do the following operations:

get-by-name Lets you type in the name of any worksheet you want to get out of storage by its exact name. You can thus get a worksheet that is inside a folder (or several folders) without browsing through all the folders to search for it. You must know the folder(s) in which the worksheet is saved and you must type in their names and the worksheet's name.

activate	Lets you select the worksheet in the working folder that you want to be active so you can work on it in the program window.
remove	Lets you select worksheets that you want to erase from the working folder and from the middle part of the Files display. Removing a worksheet completely erases it, but if it was the last worksheet you removed, you can retrieve it by using the "wastebasket" in the Services window Archives.
create-folder	Lets you create and name a new folder. When you name it, it becomes the current folder and you can put worksheets into it.
done	Lets you return to the program window where the active worksheet will be displayed.

With this overview of the Visi On Calc Files display, we can now describe the specific steps you take to save, get, and organize your worksheets for easy handling.

Saving a Visi On Calc™ Worksheet

Menu Path "Calc/file"

After you have created a new worksheet by typing in your labels and formulas, you save it by selecting "file" and viewing the Files display. Also, while you are creating or revising a worksheet, you may want to periodically save it so that your work is not lost; for example, in case of a power failure. The procedures for saving a new worksheet are slightly different from the procedures for saving a revised worksheet that has been saved previously.

When you save a new worksheet, you must name it. The worksheet is filed under this name. Names can have up to 12 characters. Each worksheet you save should have a unique name. For example, if you name a worksheet with the name of a saved worksheet, you are

prompted whether you want to replace the saved worksheet with the new worksheet; selecting "yes" replaces the saved worksheet. The differences in the way you save new and revised worksheets have to do with naming the worksheet you want to save.

The Files display working folder contains the active worksheet and worksheets that you have available to work on. The unsaved worksheets you have created or modified are indicated by an asterisk (*) beside the name of the worksheet.

Saving a New Worksheet

To save a new worksheet after you have selected "file" from the Calc menu

1. Select from the top part of the Files display the folder that you want the worksheet to be saved in.

   The folder you select becomes the current folder, and its name is displayed as the last name on the Archives line.

   - ☐ If you don't select a folder, the worksheet will be saved in the folder that is currently displayed.
   - ☐ If you want to save your worksheet in a new folder, select "create-folder," type in the folder name, and press ↵. The worksheet will be saved in this folder.
   - ☐ If you have no folders and you don't want to save the worksheet in a specially named folder, you can save the worksheet in the Archives central folder. The worksheet will be saved in the Archives central folder when you complete the following steps.

   The active worksheet (the one in the program window) is unnamed if it is a new worksheet. It is displayed in the working folder.

2. To save the active worksheet, select "unnamed" from the working folder.

3. Name your worksheet. You have two choices:

   - ☐ If you want to create a new name for your worksheet file, select "create" from the menu line. (If you wish to use the default name, press ↵, and the name of your file will be "worksheet.")
     - Type up to 12 characters for the new name that you want. You can use the DEL and

(BKSP) keys to delete single characters or the (END) key to delete the entire line. Do not type in the name of any file that already exists in the current folder unless you want to overwrite that file with the new file. If you do type in the name of a worksheet that has already been saved in the same folder, a prompt message asks you if you want to overwrite the saved worksheet. If you select "yes," the old saved worksheet is overwritten by the new worksheet.

Press (↵).

- Alternatively, you can save a worksheet in a folder that is not the current folder.

  If the folder is not the current folder and is *not in* the current folder, type a slash (/), then the folder name followed by a slash (/), any subsequent folder names followed by slashes, then the worksheet name you want. The leading slash tells the system to start from [Archives].

  If the folder is not the current folder but is *in* the current folder, you do not need to type the first slash. Type the folder name followed by a slash, any subsequent folder names followed by slashes, then the worksheet name you want. See the section "Organizing Your Worksheets" later in this chapter for details.

☐ If you want to use the name of a file that is displayed in the middle part of the Files display, select that name from the middle part. The old file will be overwritten by the worksheet you selected from the working folder. Its name remains displayed in the middle part. The overwritten file goes into the Visi On program's wastebasket folder. For details on how to retrieve a worksheet from the wastebasket, see "Getting a File Out of the Wastebasket" in Chapter 5 of the *Visi On User's Guide*.

Your worksheet is saved permanently in the current folder you selected or in the Archives central folder. A copy of the worksheet remains in the working folder. You can now return to the Visi On Calc window by selecting "done" from the Files display menu. You may also get a saved worksheet or activate another worksheet

in the working folder for revisions. See the appropriate sections under "Getting a Visi On Calc Worksheet."

Saving a Revised Worksheet

After you have saved a worksheet, then get it to revise it, you will likely want to save it again. The procedure for doing this is similar to saving a new worksheet. However, in this case the worksheet already has a name, so the steps you take to name it can be slightly different, depending on whether you want to completely replace the original or to keep both the original *and* the revised version.

If you want to completely replace the original saved worksheet with the revised worksheet, select the "file" command from the Calc menu; then follow these steps:

To replace a saved worksheet

1. Select from the working folder the name of the revised worksheet.
2. Select "replace" from the menu line.

   It is that simple. You do not need to be concerned about folders. The program finds the original saved worksheet even if it is not in the currently displayed folder and replaces it with the worksheet that you selected from the working folder. The original worksheet is gone, but under some circumstances you can retrieve it (see "Getting a File Out of the Wastebasket" in Chapter 5 of the *Visi On User's Guide* for exact procedures). The worksheet that is now saved retains the name of the original.

Your worksheet is saved permanently in its original folder. A copy of the worksheet remains in the working folder. You can now return to the Visi On Calc window by selecting "done" from the Files display menu. You may also want to get a saved worksheet or activate another worksheet in the working folder for revisions. See the appropriate sections under "Getting a Visi On Calc Worksheet" later in this chapter.

You can keep track of each version of a worksheet that you create by giving each revised worksheet a related but different name; for example, Sales 1, Sales 2, Sales 3. If you want to preserve the original saved worksheet and save the revised version also, follow these steps after you have selected "file" from the Calc menu:

To save each version

1. Select from the top part of the Files display the folder that you want the worksheet to be saved in.

   In this case, you will likely want to select the folder that has in it the original worksheet. The folder you select becomes the current folder, and its name is displayed as the last name to the right of [Archives] in the top part of the Files display.

   - ☐ If you don't select a folder, the worksheet will be saved in the folder that is currently displayed.
   - ☐ If you want to save your worksheet in a new folder, select "create-folder," type in the folder name, and press ↵. The worksheet will be saved in this folder.
   - ☐ If you have no folders and you don't want to save the worksheet in a specially named folder, you can save the worksheet in the Archives central folder. The worksheet will be saved in the Archives central folder when you complete the following steps.

2. Select the active worksheet from the working folder.

3. Select "create" from the menu line to create a new name for your worksheet file.

   (You could have selected a name from the middle part of the Files display, but the worksheet would then be saved under that name. You could have also replaced the original, but in this case, you want to preserve the original and save the revision.)

4. Type up to 12 characters for the new name that you want.

   You can use the DEL and BKSP keys to delete single characters or the END key to delete the entire line.

   Do not use the default name or type in the name of any worksheet that already exists in the current folder unless you want to overwrite that worksheet with the new worksheet. If you do type in the name of a worksheet that already exists, you can still change your mind when the prompt message asks you to confirm that you want to replace the old worksheet. The old worksheet will be lost. In some instances you can get it back. See "Getting a File Out of the Wastebasket" in Chapter 5 of the *Visi On User's Guide* for exact procedures.

You can distinguish this name from the original by simply adding a number or letter to indicate it is a revision. For example, if the original name was Sales, you can name this revision Sales 1.

5. Press ↵.

   Your worksheet is saved permanently in the current folder you selected or in the Archives central folder. A copy of the worksheet remains in the working folder.

   You can now return to the Visi On Calc window by selecting "done" from the Files display menu. You may also get a saved worksheet or activate another worksheet in the working folder for revisions. See the appropriate sections under "Getting a Visi On Calc Worksheet" later in this chapter.

Saving a Worksheet When You Quit the Program

Before you leave the session of Visi On Calc by selecting "quit" from the Calc menu, you should save any worksheets that you have created or modified but not yet saved. For specific steps, see "Saving a New Worksheet" or "Saving a Revised Worksheet" earlier in this chapter.

If you have any unsaved worksheets when you select "quit," a prompt message asks you: "do you wish to save before quitting?" If you select "no," the program window is completely removed from the screen and all unsaved worksheets are also removed. You cannot get them back.

If you select "yes," the Files display appears and you can save any worksheets in the same way as described earlier under "Saving a New Worksheet" or "Saving a Revised Worksheet." However, in this case you cannot get or remove any worksheets, only save them. You can create new folders to save worksheets in by selecting "create-folder." Again, refer to the appropriate sections earlier for details.

When you have saved the worksheet, you can select "done" from the Files display window. The program continues to prompt you for any unsaved worksheets until they have all been saved or until you select "no" in response to the prompt. The Visi On Calc window is removed from the Visi On screen.

Selecting "quit" from the Calc menu when there are no unsaved or revised worksheets removes the Visi On Calc window from the Visi On screen.

Getting a Visi On Calc™ Worksheet

Menu Path "Calc/file"

You get a worksheet when you want to use or modify a worksheet that has been saved. Getting a worksheet puts it into the working folder and makes it the active worksheet (the worksheet that is in the program window). You can only get a worksheet from the middle part of the Files display. Getting a worksheet does not remove it from storage.

The general procedure for getting a worksheet is:

- Go to the Files display.
- Browse through the contents of the folders until you find the worksheet you want.
- Select the worksheet's name from the middle part of the Files display.
- Select "done" from the Files display menu.

You can also get a worksheet directly by using the "get-by-name" command of the Files display. In this case, you must know the worksheet's name and the names of any folders it is in; for example, /Folder1/Folder1A/Worksheet1AB or Folder/Worksheet4.

You can get a worksheet when you first start up a Visi On Calc window by selecting "revise" from the Visi On Calc initial menu. Or you can get a worksheet from any Visi On Calc window by selecting "file" from the Calc menu. Either selection displays the Files display, from which you get your worksheet.

Sometimes it is handy to get several worksheets for the working folder before you work on any one of them. You can then go quickly to the working folder to activate any worksheet you want. You can activate any other worksheet in the working folder by selecting "activate" from the Files display menu, then selecting from the working folder the name of the worksheet you

want to be active. The worksheet that you select is displayed in the working folder as the active worksheet.

Getting a Worksheet by Looking through Your Folders

You can get a worksheet by looking through the folders when you don't know the names of the folders it is in. From the Files display, you follow these steps:

To browse through the Archives folder

1. Scroll the middle part of the Files display. When you see the worksheet you want, select it.
   - ☐ If your worksheet is stored in a folder other than the Archives folder, select that folder from the top part of the Files display. If your worksheet is stored in a folder inside another folder, select each folder in turn, until you find the one with the worksheet you want.

     That folder becomes the current folder and displays the worksheets that are in it in the middle part of the Files display. Select the worksheet you want from the middle part.
   - ☐ If you are not sure which folder the worksheet you want is saved in, select "[Archives]" from the top part of the Files display.
     - Select a folder and view its contents in the middle part.
     - Continue to select folders by selecting "[Archives]" from the top part of the Files display and selecting the folders from the Archives central folder, viewing each folder's worksheets, until you find the worksheet you want. If the folder you select has other folders in it, select each folder in turn, until you find the worksheet you want to get.
     - Select the worksheet.

   The worksheet you selected becomes the active worksheet in the working folder.

2. Select "done" from the Files display menu to display the worksheet in the program window.

   (You can, if you wish, select several worksheets for the working folder before you return to the program window. The last worksheet you select is always the active worksheet.)

If you wish to activate any other worksheet in the working folder, simply select "activate" from the Files display menu; then select the worksheet you want from the working folder.

Getting a Worksheet by Name

You get a worksheet directly by name when you know the folder names in which the worksheet is saved and the worksheet name. Getting a worksheet by name saves you time by not requiring you to browse through your folders.

To get a worksheet by name

1. Select "get-by-name" from the Files display menu. The prompt line asks you to enter a worksheet name.
2. The worksheet you want to get is not in the current folder (otherwise you would simply select it from the middle part of the Files display window). The worksheet you want is in another folder in the current folder or it is in a folder that is not in the current folder.
   - ☐ If the worksheet you want to get is in another folder in the current folder, you type the names of each folder the worksheet is in separated by slashes (/), then you type the name of the worksheet.

     The general form is:

     foldername/foldername/worksheetname

     For example, if the current folder is the central Archives folder, and the worksheet you want to get is filed in the folder in Archives named Sales and in the folder in Sales named West, you would type Sales/West, then type the worksheet's name. For example, if the name of the worksheet is Territory1, the full name that you would type is Sales/West/Territory1.

     If the current folder is Sales, you would type West/Territory1.
   - ☐ If the worksheet you want to get is not in a folder in the current folder, you must type a slash (/) first, then type the names of each folder the worksheet is in separated by slashes, then type the name of the worksheet. The first slash simply represents the Archives central folder.

The general form is:

/foldername/foldername/worksheetname

Using the example above, if the current folder is not Archives, Sales, or West, and you want to get the worksheet Territory1, the full name that you would type is /Sales/West/Territory1. The first slash is the equivalent of typing in the name "[Archives]."

3. Press ↵.

   The worksheet you want is retrieved from the folder and displayed in the working folder. The worksheet is active.

4. Select "done" to display the active worksheet in the Visi On Calc window.

   (Before you select "done" you can also "get-by-name" other worksheets for the working folder or by browsing through your folders. You can also do other Files display tasks such as saving unsaved worksheets or removing files.)

Organizing Your Worksheets

Before long, you will have amassed a large number of worksheets. This section explains how to keep track of your worksheets by organizing them within the Visi On Calc filing system. Using the instructions in this section, you can logically group worksheets so they will be easy to retrieve and use.

Organizing Your Worksheets: An Overview

The Visi On Calc filing system allows you to group related worksheets together as you would in a normal filing system.

In a normal filing system, you might have a folder named Sales. This folder might contain other folders; for example, Sales-West and Sales-East. And inside the Sales-West folder, you might have a *folder* called Territories and a *worksheet* called Total Sales-West.

The Visi On Calc filing system works the same way. You can create a folder named Sales. You can then place

other folders, such as Sales-West, in that folder. And, just as you would in a normal filing system, you can then place other folders and worksheets in the Sales-West folder. Figure 2-4 illustrates the way you organize worksheets in the Visi On Calc filing system.

Creating Folders

Menu Path "Calc/file/create-folder"

Grouping related worksheets and folders in a single folder is the best way to organize your files. The "create-folder" command creates the folders you need for this task.

To create a folder

1. Do one of the following:

   ☐ If you want to create a folder in the Archives central folder, the Archives folder must be open.

   To do this, look at the top line of the Files display screen. It should contain only the word "[Archives]." If it reads differently—for instance, "[Archives]/Folder1"—then the Archives folder is not open.

   - To open it, select "[Archives]" from the top part of the Files display before creating your new folder.

     Select "create-folder" from the Files display menu.

   ☐ If you want to create a new folder within an existing folder, select "create-folder" while the existing folder is the current folder.

   The current folder is listed after "[Archives]" in the top part of the Files display. For example, if the top line reads "[Archives]/Folder1," then Folder1 is the current folder.

   You are prompted to give the new folder a name.

2. Type in a name up to 12 characters long.

3. Press ↵.

   The new folder is created and you are returned to the file menu.

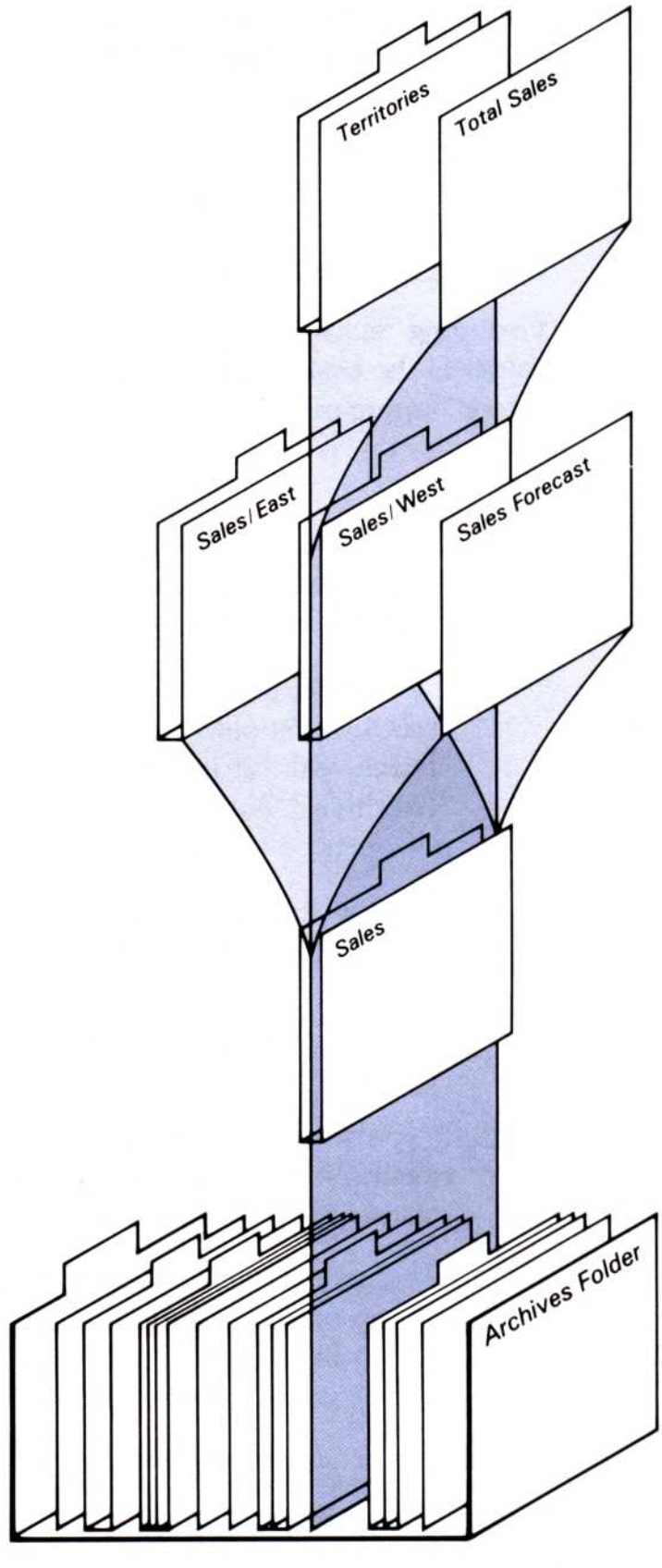


Figure 2-4. *The Visi On Calc filing system lets you organize your files just as you would in a normal filing system. Related worksheets are collected in folders; related folders and worksheets are collected in other folders.*

Placing Worksheets in Folders

You can place a worksheet in a folder two ways:

- If the folder that you want to save the worksheet in is the current folder, save the worksheet directly into it.
- If the folder you want to save the worksheet in is not the current folder and:
  - Is in the current folder, save the worksheet by typing the folder name followed by a slash (/), any subsequent folder names followed by slashes, and the worksheet name. The general form is:

    foldername/foldername/worksheetname
  - Is not in the current folder, save the worksheet by typing a slash (/) first, then the folder name followed by a slash, any subsequent folder names followed by slashes, and the worksheet name you want. The general form is:

    /foldername/foldername/worksheetname

Moving Worksheets from One Folder to Another

To move a worksheet from one folder to another

1. Select the folder containing the worksheet you want to move.
2. Select from the middle part of the Files display the worksheet you want to move.

   That worksheet is placed in the working folder.
3. Select "[Archives]."
4. Select the folder you want the worksheet moved to.

   You may want to select a folder that is in another folder. In this case you keep selecting the folders you want until the current folder is the one you want.
5. Select the worksheet you want moved from the bottom part of the Files display.

   You are prompted to select whether to create a name for the worksheet you want to move into the current folder or to replace the worksheet in the Archives master folder.
6. Select "create" to place a copy of the worksheet in the current folder.

Do *not* select "replace." This saves the worksheet in the Archives master folder; that is, in the folder where it originally was.

After you select "create," you are prompted to enter a worksheet name.

7. Type in a new name and press ↵, or simply press ↵ to keep the same name.

   The open folder now contains a copy of the worksheet. If you want to remove the worksheet from the folder that originally contained it, open that folder and select "remove." See the section later in this chapter on "Removing Worksheets" for details.

Removing Folders

You cannot remove folders from a Visi On Calc window or from the Visi On Calc Files display; you must use Archives from the Visi On Services window to remove folders. See Chapter 5 of the *Visi On User's Guide* for instructions on how to remove folders.

Removing Worksheets

Menu Path "Calc/file/remove"

It is a good idea to get rid of outdated or redundant worksheets from time to time. Removing worksheets keeps your filing system uncluttered and easy to use.

For a worksheet to be removed, it must be present in either the middle or bottom part of the Files display. You must therefore either open the folder containing the worksheet you want removed, or put the worksheet you want removed into the working folder.

To remove a worksheet or set of worksheets

1. Select "remove" from the Files display menu.

   You are prompted to select a worksheet you want to remove or select "done."

2. Select the worksheet you want to remove.

   - If you selected a worksheet in the middle part of the Files display, you are prompted to either select another worksheet from the middle part of the display or select "done."

- If you selected a worksheet from the bottom part of the Files display, you are prompted to either select another worksheet from the bottom part of the display or select "done."

You may *not* remove worksheets from both the middle and bottom part of the Files display at one time. Remove worksheets from one first, then the other.

The worksheet or worksheets you select are highlighted.

3. Select "done" when you have finished selecting worksheets to be removed.

4. Select one of the following:
   - Select "yes" to confirm whether you really want to remove the worksheets you have selected.
   - Select "no" or "STOP" from the Visi On menu if you do not want to remove the highlighted worksheets.

   When the worksheets have been removed, they disappear from the Files display.

The last worksheet that has been removed is placed in the wastebasket folder. See "Getting a File Out of the Wastebasket" in Chapter 5 of the *Visi On User's Guide* for procedures to retrieve a worksheet from the wastebasket folder.

3 Entering Labels, Formulas, and Named Cells

Chapter 3 Entering Labels, Formulas, and Named Cells

Moving around the Worksheet

To enter any kind of information on your worksheet, you must position the cursor at the cell in which you plan to enter information. In Visi On Calc™, you can move the cursor to most cells by several methods. The method you choose will probably depend on the distance you have to move the cursor.

In some cases, you have to use one particular method to move to a particular cell. As you become familiar with moving around the worksheet, you will learn to use the fastest method for each situation.

Figure 3-1 illustrates some of the methods of moving the cursor around the worksheet.

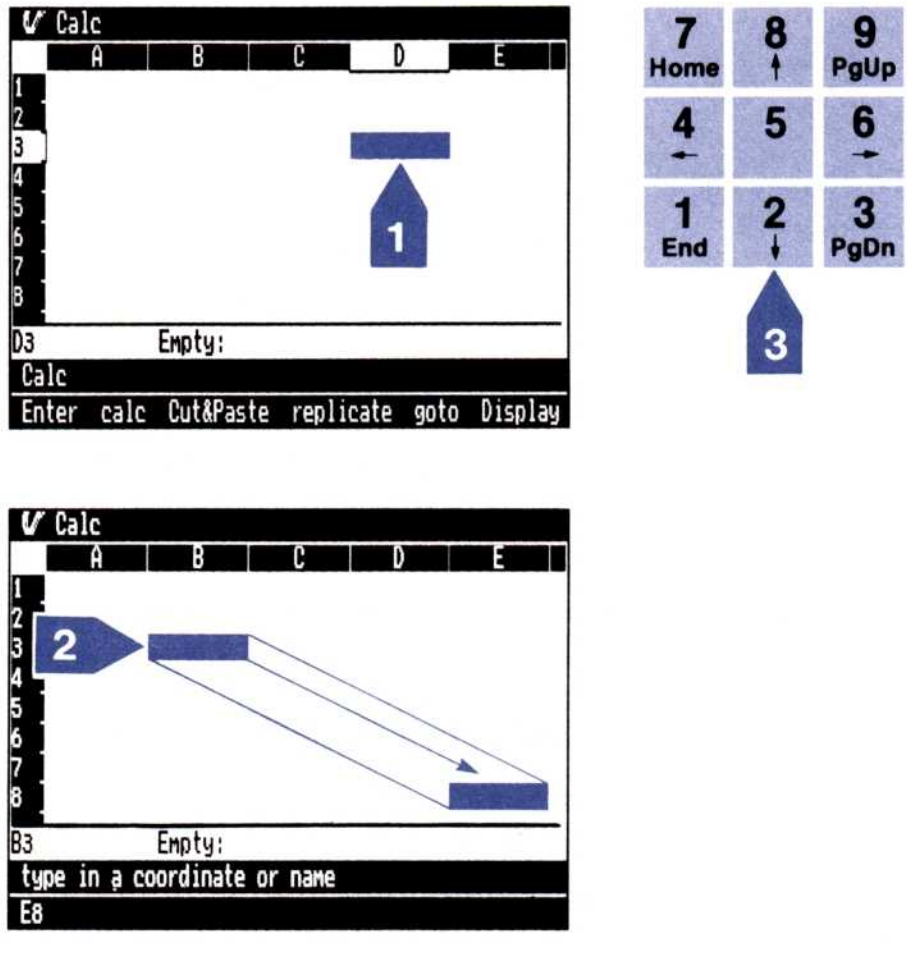


Figure 3-1. *You can move the cursor around the worksheet by: (1) selecting a cell with the pointer, (2) using the "goto" command, and (3) using the arrow keys.*

Using the Pointer Device

Using the pointer, you can move the cursor around the worksheet either by directly selecting a cell or by scrolling and then selecting a cell.

- The way you will probably use most often is to move the pointer to the cell you want and press SELECT.
- If the cell you want is not in view on the screen, you simply scroll the worksheet until you see it. You then move to it by using one of the methods described in this section.

Notice that cell row and column coordinates are highlighted as you move the pointer around the worksheet. The highlighted row number and column letter give you the location of the pointer.

You may, however, prefer that these coordinates not be highlighted as you move the pointer. You can easily make this change on the Calc options sheet, as shown in Figure 3-2.

To change the options for highlighting coordinates

1. Select "Calc."
2. Select "OPTIONS" from the Visi On™ menu.
   The Calc options sheet is displayed.
3. Select one of two options:
   - ☐ "yes"—This is the initial setting, with the coordinates fully highlighted.

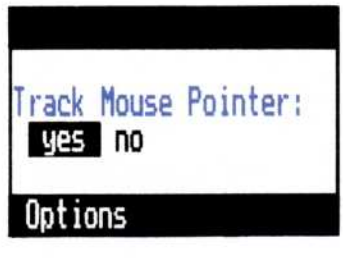


Figure 3-2. *The Calc options sheet lets you elect to highlight cursor coordinates with full highlighting ("yes") or remove highlighting completely ("no").*

- "no"—This turns off all highlighting in the coordinates.

The highlighting is adjusted according to the option you selected. The Calc options sheet remains displayed. To close it:

- Select "done" from the options sheet menu.

The options sheet is no longer displayed.

You can also select a cell by selecting either a row number or column letter in the worksheet margins. For example, if the cursor were in row 1, column A, you could move the cursor across row 1 by selecting other column letters at the top of the worksheet or down the worksheet by selecting other row numbers.

Using the Cursor Keys

The cursor, or arrow, keys allow you to move in any direction on the worksheet. Most frequently, you will use these keys to move the cursor short distances on the worksheet.

When you use the cursor keys to move the cursor long distances on the worksheet, the worksheet will scroll so that the cursor always stays in view in the window.

Note that you cannot use the arrow keys to enter information into a cell. The arrow keys simply move the cursor from one cell to another.

Moving the Cursor by Entering Cell Coordinates

While you are doing various tasks, you may be prompted to select a certain cell. In response, you often will type in the coordinates of that cell. For example, the coordinate for cell C22 is C for the column and 22 for the row. You can select a cell by typing its coordinate except when you are entering labels, formulas, and names in named or import cells.

For example, if you select "blank" from the Enter menu, you are prompted to select a cell. You can type in coordinates (such as **C22**) and press ↵. The cursor is then positioned on cell C22. This method allows you to rapidly move to a certain cell if you know what its

coordinates are. You can also type in only one of the coordinates. For example, if you were in column C, row 22, and wanted to move the cursor to C54, typing in only the number 54 and pressing ↵ would move the cursor to C54.

Moving the Cursor with the "goto" Command

Menu Path "Calc/goto" or
"Calc/Enter/goto"

The "goto" command allows you to move directly to any cell on the worksheet without having to scroll or use the cursor keys.

For example, what if you want to move from column B, row 3, to column BN, row 100? After you select the "goto" command, you are prompted to enter the coordinates (column and row number) of the cell you want to move to.

1. When prompted, type **BN100** and press ↵.

   The worksheet moves in the window, the cursor is positioned at cell BN100, and you are returned to the Calc or Enter menu.

You can also type in only one of the coordinates. For example, if you were in column BN, row 100, and wanted to move the cursor to BN20, typing in only the number 20 and pressing ↵ would move the cursor to BN20.

If you select the "goto" command and press ↵ without entering any cell coordinates, the cursor moves to cell A1.

Controlling Cursor Movement with ↵

Menu Path "Calc/Enter/OPTIONS"

When you are entering either labels or formulas into a worksheet, you press ↵ to signal the end of individual cell entries and to move the cursor from one cell to another when you use the "value" and "label" commands. This is the *power entry* feature for entering information into your worksheet.

When you are entering labels or formulas using the "value" or "label" commands, the cursor normally moves *down* one row when you press ↵. You can change the direction you want the cursor to move by using the Enter options sheet, as shown in Figure 3-3.

Note that the arrow keys cannot be used in place of the ↵ for entering information in cells.

To change the direction ↵ moves the cursor

1. Select "Enter" from the Calc menu.
2. Select "OPTIONS" from the Visi On menu.
   The Enter options sheet is displayed on the screen.
3. From the Enter options sheet, select the direction you want the cursor to move when you press ↵.
   - ☐ If you select "right 1 column," the cursor moves to the next column when you press ↵.
   - ☐ If you select "to next TAB cell," the cursor moves to the next cell in which you have set a tab when you press ↵ if you are using the "Enter" command. (The next section discusses how you set and use tabs in a worksheet.)
   - ☐ If you select "does not move," the cursor does not automatically move when you press ↵. You can then use the arrow keys to move the cursor from cell to cell.

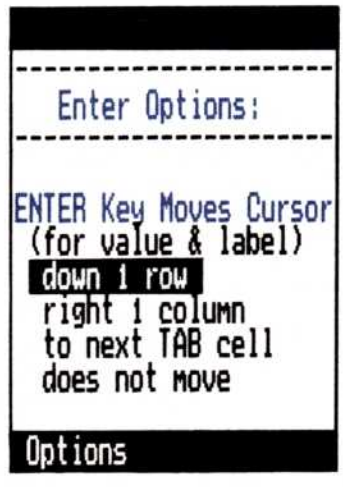


Figure 3-3. *You can select the way you want the cursor to move when you press ↵: (1) down to the next cell, (2) right to the next cell, (3) to the next tab cell, or (4) to not move when you press ↵.*

The direction the cursor moves changes when you select the option. The Enter options sheet remains displayed. To close the options sheet:

- ☐ Select "done" from the options sheet menu.

The options sheet no longer is displayed.

Note that you can move the cursor with the arrow keys after moving the cursor automatically by pressing ↵.

Setting Tabstops

Menu Path "Calc/Enter/cell-attrib"

You frequently may create worksheets in which you want to enter information only in certain cells. By creating tab cells, you can move the cursor to them by pressing →|.

For example, if you create a worksheet to record travel expenses, you set tabs only where you want to stop to enter expense figures. After you enter information in one cell, you press →| and the cursor jumps to the next cell that has a tab set for it.

Setting tabs can dramatically speed up the process of updating routine values in a large worksheet.

Figure 3-4 shows the tab cells in an expense sheet.

You use the Enter options sheet, as shown in Figure 3-5, to set tab stops.

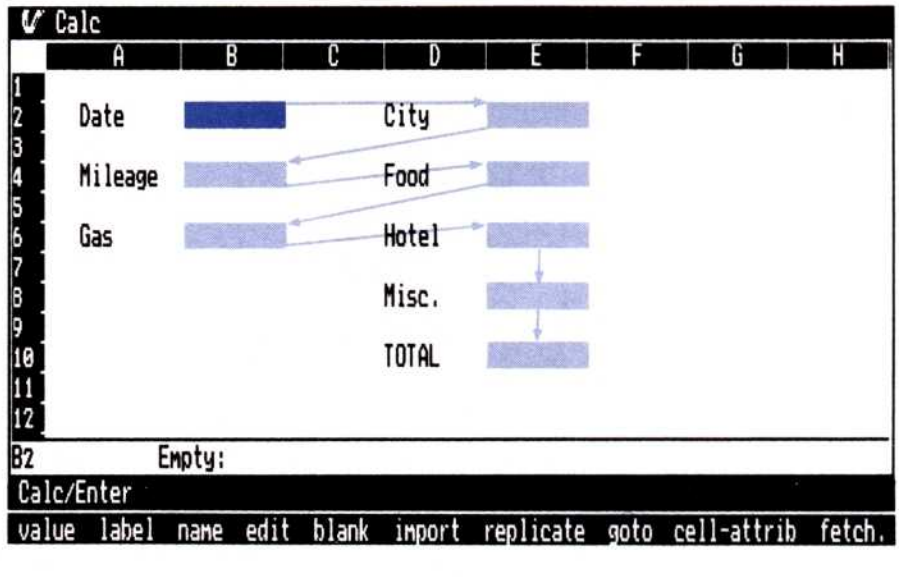


Figure 3-4. *When you press →|, the cursor moves first to the Date cell, next to the City cell, and then to the Mileage cell. The cursor continues to move in this direction when you press →|.*

Figure 3-5. *You can elect to have cells automatically become tab cells with the "set-to-on" option or turn off this automatic setting by selecting "set-to-off."*

To set tabs

1. Select "Enter" from the Calc menu.
2. Select "cell-attrib" from the Enter menu.

   If the Enter options sheet is displayed, you may have to scroll the Enter menu to the left to select this command.

   You are prompted to select the tab cells.
3. Select the cells you want to set tabs for.

   Tabs are set for the cells you select. You can then move between these cells by pressing ⇥. When you move the cursor with the ⇥ key, the cursor moves across a row until it reaches the last tab cell in that row and then moves to the first tab cell in the next row.

You may not want the cells you select to automatically be tab cells. You can set the tabs to "off" by changing the Tabstops option on the Enter options sheet.

To set the tabs to "off"

1. Select "Enter" from the Calc menu.
2. Select "OPTIONS" from the Visi On™ menu.

   The Enter options sheet appears on the screen.
3. If necessary, scroll the options sheet until you can see the *Tabstops* options.
4. If it is not the current option, select "set-to-off" to keep the cells you select from automatically being tab cells.

   Tabstops will not be set for those cells you subsequently select on the worksheet.

The Enter options sheet remains displayed. To close it:

☐ Select "done" from the options sheet menu.

The options sheet is no longer displayed.

While you are entering information using the "Enter" command, attributes set in the Enter options sheet will be used for all new cells in which you enter data if the "to new & edit cells" option is selected from the Enter options sheet.

Entering Labels

Menu Path "Calc/Enter/label"

Entering a Label with the Alphabetic Keys

Labels are titles, names, dates, or other headings that are used to describe a worksheet or part of a worksheet. A label may be up to 255 characters long and may contain letters, numbers, or symbols such as *, &, +, −, or > (Figure 3-6). When label cells are referenced in formulas, their value is calculated as zero (0).

You will normally enter a label by using the "Enter" and "label" commands. This "power entry" feature allows you to enter any type of information as a label. You can, however, enter a label that contains alphabetic characters by selecting a cell and typing in the label or

Figure 3-6. *Worksheet labels can be either letters or numbers, but are not used for calculations.*

enter a label whose first character is a number or symbol by typing a quotation mark (") as the first character in the label. If you should enter a label using the quotation mark and need to also have an initial quotation mark as part of the label you must type in the quotation mark twice (for example, ""Company).

The following steps describe entering labels using the "Enter" command.

To enter a label

1. Select "Enter" from the Calc menu.
2. Select "label" from the Enter menu.
3. Select the cell where you want to enter a label.

   You are prompted to enter a label or select "done."

   (The "done" command is displayed on the menu line.)
4. Type in the desired label.

   If the adjacent cells are blank, any extra characters in your label will be displayed in those cells. You can keep the additional characters from displaying in the adjacent cells by changing the Label Type Thru option on the Calc options sheet. Refer to the next section to learn how to change this option.
5. Press ↵ to end label entry for that cell and move the cursor to the next cell.

   The direction the cursor moves when you press ↵ is set in the Enter options sheet, as explained in "Controlling Cursor Movement with ↵" in this chapter.
6. When you have finished entering all the labels, select "done" from the menu line.

   The "done" command ends label entry and returns you to the Enter menu.

Changing the Label Type Thru Option

You may not want the characters that exceed the width of a cell to be displayed in adjacent cells if those cells are empty. You can keep labels from "typing thru" to adjacent cells by making a change on the Calc options sheet, as shown in Figure 3-7.

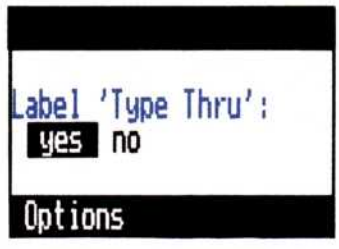


Figure 3-7. *If you want the label to type through into adjacent empty cells, you select the "yes" option. If not, you select the "no" option.*

To keep labels from typing through into adjacent cells

1. Select "Calc."
2. Select "OPTIONS" from the Visi On menu.
   The Calc options sheet is displayed.
3. Select "no" for the "Label Type Thru?" option.
   All "type-thru" into adjacent cells is disabled. The Calc options sheet remains displayed. To close it:
   - ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Naming a Cell or Range of Cells

Menu Path "Calc/Enter/name"

Being able to give a name to a cell or range of cells is a key feature of the Visi On Calc program. By naming a range of cells in one row or one column, you can refer to it quickly without having to remember its coordinates. This feature makes it simple to work with a named cells in a row or column.

For example, if you created a worksheet that forecasts a return on investment, you might need to frequently refer to the interest rate you are earning on a given invested amount. Instead of having to remember that a particular cell contains the interest rate, you can name that cell RATE and subsequently refer to it by that name.

To name a cell or range of cells

1. Select "name" from the enter menu.
2. When prompted, select the cell that you want to contain the name of the cell or range of cells.

   This cell you select becomes then the cell before the first cell, whether it is the name for one cell or a range of cells.

   In picking a name for a row or column range, do not use names that are cell coordinates; for example, A14. The Visi On Calc program interprets such names as actual cell coordinates when this type of name is referenced. Also, a name cell cannot contain spaces, operators, commas, parentheses, brackets, characters such as +, %, *, or be function names (SIN, COS).
3. Select the *last cell* in the range you are naming.

   You can pick this cell in either a horizontal or vertical direction, as shown in Figure 3-8.

   When you select the last cell, the range is named and you are returned to the Enter menu.

Note that you create a named range if you refer to those cells in another worksheet. You will find information on this "import" function using named areas in Chapter 9, "Consolidating Worksheet Data."

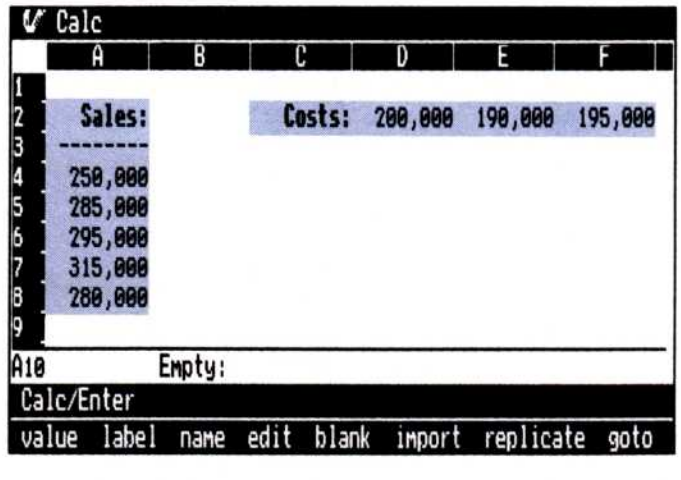


Figure 3-8. *You can have two types of named ranges in a worksheet: cells in a column (column A, Sales) or in a row (row 2, Costs).*

Using Named Cells and Ranges

You can use named cells and ranges much as you would use values in a formula. For example, in the formula B1+C2*Sales[1], the value for the first cell in the range named Sales is used in the calculation of this formula.

In the example, the cell referenced is the first cell in the range. You can also *qualify* a named range to refer to a cell within that range or to a common element with another range.

The following are examples of how you may qualify a named range, as shown in Figures 3-9 and 3-10:

- Sales[Cost]—The cell referenced is that at the intersection of the Sales and Cost ranges.
- Sales[2]—The second cell in the Sales range.
- Sales[<-1]—The cell before the cell currently being referenced within the Sales range.
- Sales[1->]—The cell following the cell currently being referenced in the Sales range.

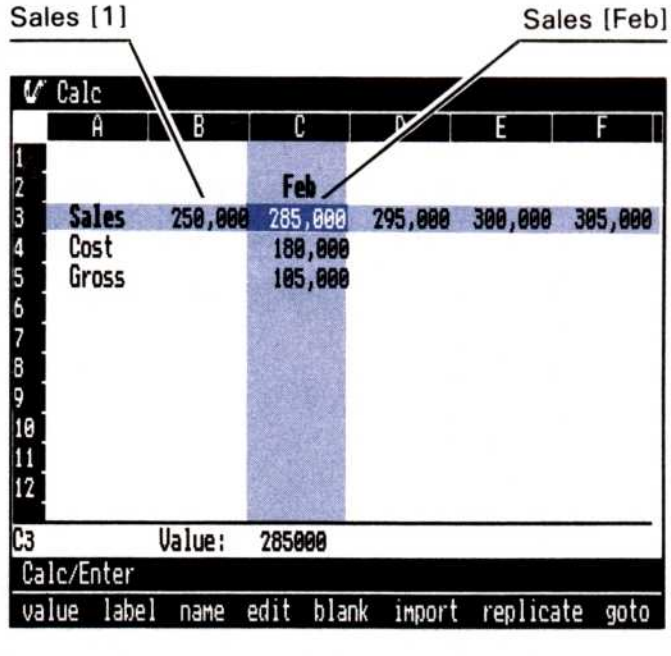


Figure 3-9. *You can refer to cells within ranges by absolute location. Sales[1] refers to the first cell in the Sales range. Sales[Feb] refers to the cell where these two ranges intersect.*

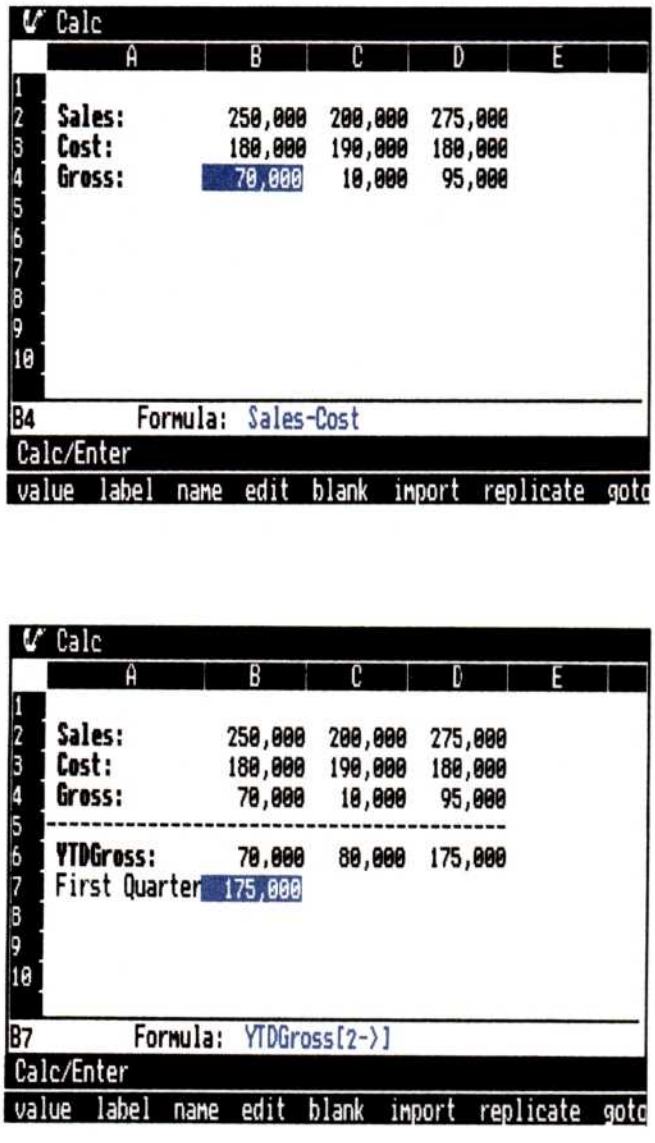


Figure 3-10. *You can refer to cells by their relative locations in named ranges. In Worksheet 1, entering "Sales-Cost" in cell B4 has the same effect as entering "B2-B3." That's because when you refer to the row named "Sales," it is assumed that you mean the cell in that row that is in the same column as your entry. Thus, typing "Sales-Cost" in cell D4 is the same as typing "D2-D3" there.*

In worksheet 2, the entry in cell B7 refers to "YTDGross[2->]," which means "the cell in the row named YTDGross two cells to the right of this entry."

If YTDGross were a named column instead of a named row, an entry referring to "YTDGross[<-1]" would mean "the cell in the column named YTDGross one cell above this entry." Similarly, "YTD Gross[3->]" would mean "the cell in the column named YTDGross three cells below this entry."

Entering Values and Formulas

Menu Path "Calc/Enter/value"

Values can be numbers or formulas that represent numeric quantities or relationships, and are used in calculations on your worksheet. Using formulas in your worksheet allows you to make "what-if" calculations almost instantly by simply changing the value of any one of the relationships your formulas express.

A value or formula consists of one or more of the following:

- A number: 1, −11, 25.5.
- A reference to the coordinates of another cell: A5, I23.
- An arithmetic operator: +, −, *, /, ∧, %.
- A function: SUM, PI.

Values and formulas may be up to 128 characters long.

Whenever you enter a formula on your worksheet, its calculated value is displayed. The formula itself appears on the "echo" line.

Figure 3-11 shows a worksheet containing typical values and formulas you might enter.

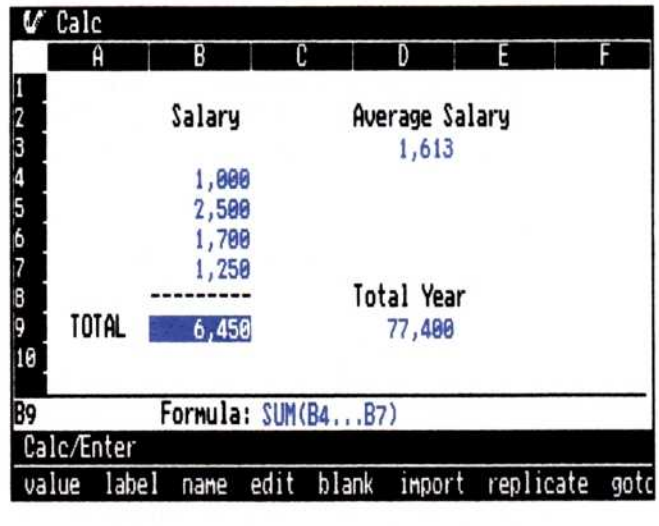


Figure 3-11. *A value is a number or the result of a calculation. Cells B4, B5, B6, and B7 contain numbers. The total for these four cells is calculated with a formula and placed in cell B9.*

You will normally enter a value or formula using the "Enter" and "value" commands. You must, however, enter a formula by prefixing it with a valid arithmetic operator (+, −, ., (,) when you are not using the "Enter" command.

The following steps describe entering values using the "Enter" command.

To enter a value or formula

1. Select "Enter" from the Calc menu.
2. Select "value" from the Enter menu.
3. Select the cell where you want to enter a value.

   You are prompted to enter a value or formula or pick "done."

   (The "done" command is displayed on the menu line.)
4. Type in the desired value.
5. Press ↵ to end value entry for that cell and move to the next cell.

   The direction the cursor moves when you press ↵ is set in the Enter options sheet, as explained in "Controlling Cursor Movement with ↵" in this chapter.
6. When you have finished entering all the formulas, select "done" from the menu line.

   The "done" command ends formula entry and returns you to the Enter menu.

You do not have to type in the coordinates of a cell when you create a formula. You can simply select the cell you want included in the formula. You still must type in the required operators, but this makes creating formulas easier.

Using Operators in Formulas

Operators are symbols that define the relationship between values. Operators may be either *arithmetic* or *logical*. Examples of these operators are:

- Arithmetic ∧ means "is raised to the power." $2\wedge6=2^6$

  * means "is multiplied by."

- Logical = means "is equal to."

The arithmetic and logic operators are:

Arithmetic Operator		Example
∧	Exponentiation	G5∧2
*	Multiplication	B7*C1Ø*D6
/	Division	A6/A4*B2
+	Addition	H16+H18/4
−	Subtraction	N22−(L4+L6)
%	Percent	6.5%A15

Logic Operator		Example
=	Equal to	A2=C5
>	Greater than	B12>C8
<	Less than	G6<G7
>=	Greater than or equal to	C14>=C22
<=	Less than or equal to	B2+B4<=B7
<>	Not equal to	D7−D6<>E3
AND	Conjunction	A1<1AND(B3>5)
OR	Conjunction	H12OR(B2+3)
NOT	Negation	NOT(B3<G3+6)

When AND, OR, or NOT are used in logical expressions, the expressions are evaluated as follows:

- AND—If both parts of the expression are true, then the value of the expression is TRUE. If any part of the expression is false, then the value of the expression is FALSE.
- OR—The value of the expression is TRUE if any part of the expression is true, and FALSE if all parts of the expression are false.
- NOT—The value of an expression using NOT is the opposite logical value. The value of NOT(B1) is FALSE if B1 is true, and TRUE if B1 is false.

Operators used in formulas are calculated in a sequence that affects the resulting value of the formula. This sequence must be taken into account to insure accurate results in your formulas. A misplaced / or + can cause the formula to yield different results than you want.

The Visi On Calc program uses the following sequence:

1. ∧, %
2. unary (single value such as −A1)
3. *, /
4. +, −
5. > < >= <= = <>
6. NOT
7. AND, OR

In all your formulas, operators will be calculated in this order. If your formulas contain expressions within parentheses, the expressions within the parentheses are calculated before the rest of the formula is calculated.

Where operators have equal precedence within a formula, the expressions containing these operators are calculated left to right.

A typical Visi On Calc formula might be A1+B1*(A1+D1*(C2+D1))+F3.

This formula is calculated as follows:

1. The expression B1*(A1+D1*(C2+D1)) is calculated first:
   - ☐ (C2+D1)
   - ☐ D1*the result of (C2+D1)
   - ☐ A1+the result of D1*(C2+D1)
   - ☐ B1*the result of (A1+D1*(C2+D1))
2. The beginning A1 and ending F3 remain to be calculated. Because these operators are of equal precedence, A1 is first added to the result of the multiplication; then F3 is added to that result.

When a formula or expression references an empty cell, a name cell, a label, or an import cell, that cell's value is zero. If these are used in logical expressions, a value of Ø or an expression that evaluates to Ø will be considered

FALSE and all other values will be considered TRUE. For example, in the expression A1*((D5>B9)*5.5), if A1 were an empty cell, its value would be Ø. The entire expression would then be evaluated to Ø.

Visi On Calc™ Functions

Functions are shorthand types of formulas for calculations that otherwise take a lot of time. Functions allow you to quickly pick values from a table, summarize a range of values, test a set of logical values, return certain financial values, or calculate a date, to name a few examples. You can use a function anywhere on the worksheet where you might use a formula.

To use a function in the Visi On Calc program, you must give the name of the function, followed by one or more arguments (values) in parentheses. An *argument* is a value used by a function to calculate its own value. An argument may be a number, an expression, a name cell, a cell reference, an import cell, a logical value, a function, or a list. As an example, the function SQRT(324) contains the function name SQRT (for square root) and its argument (value) 324.

There are some functions which do not take an argument, but simply return the value of the function. Two examples of this type of argument are PI and TODAY.

Arguments may be expressed in one of two ways:

- Single argument—A single argument is a single value or a single expression requiring one or more values.

  SQRT(324)

  In this example, the square root function yields (returns) 18, the square root of the argument 324.

  IF(F3>G3,H4,H3)

  In this IF function, if the value in cell F3 is greater than the value in cell G3, then the value in H4 is selected; otherwise, the value in H3 is selected. In this case, each value separated by a comma is an argument.

- List—You enter a list as an argument either by listing single values or expressions separated by commas, or

by entering a range defined by separating two values with an ellipsis. Examples of arguments using lists are:

AVERAGE(C10,C14,D12,F2)

This AVERAGE function gives the average of the arguments.

SUM(A3...A22)

This SUM function gives the total of all values in cells A3 through A22.

Note: If you have named a range of cells, then you can use that name as an argument. For example, if you named the range of cells A3 through A22 in the preceding example AMOUNT, then your SUM function argument would be simply SUM(AMOUNT).

You can find more information on named cells and ranges of cells in this chapter under the heading "Naming a Cell or Range of Cells."

For convenience and clarity, the Visi On Calc functions are divided into the following categories:

- Label and Value—functions that select a specified cell label or value.
- Mathematical—functions that perform common mathematical calculations.
- Logic—functions that perform calculations based on one or more logical arguments.
- Selection—functions that search for and select a value based on the argument(s) specified.
- Financial—functions that perform standard financial calculations.
- Trigonometric—functions that calculate the trigonometric value of an expression.
- Calendar—functions that calculate a specific date based on the argument(s).

Each function listed consists of the function name followed in parentheses by simple notation that tells you how many and what types of arguments are required. No parentheses will be shown for functions which require no argument.

The meaning of the notation used is:

- **c**—a coordinate or name of a cell.

  LABEL(c) could be, for example:

  LABEL(D5) or LABEL(PRICE)

- **clist**—list of cell coordinates.

  COUNT(clist) could be, for example:

  COUNT(A1,B1,C3,B14) or COUNT(B4...B21)

  Note that you can also type a range of cell coordinates as (B4.B21), with one period between beginning and ending cell.

- **e**—expression. May be a single value, including references to cells (including name and import cells), or expressions that use arithmetic operators.

  SORT(e) could be, for example:

  SQRT(441) or SQRT(B7+B10)

- **i**—integer. May be a number or expression which returns a whole number.

  LABELAT(c,i,j) could be, for example:

  LABELAT(A2,8,3) or LABELAT(B2,A5,4)

- **ie**—integer expression. A number, which can also be a formula.

  ROUND(e,ie) could be, for example:

  ROUND(B6-C1,2), which rounds the results of the subtraction to two decimal places.

  CHOOSE(ie,vlist) could be, for example:

  CHOOSE(3,A3,B4,C9,G6,I19), which gives the value of cell C9.

- **j**—integer. May be a number or expression which returns a whole number.

  VALUEAT(c,i,j) could be, for example:

  VALUEAT(D6,3,2) or VALUEAT(B4,2,C7)

- **le**—logical expression. An expression which evaluates to TRUE or FALSE. The expression may include both numbers and values represented by cell coordinates.

  NOT(le) could be, for example:

  NOT(A1<C4+3), which means that this function is checking to see if a value is not less than C4+3.

- **m, d, y**—month, day, and year.

  MDY(m,d,y) could be, for example:

  MDY(2,15,1983), which gives the number of days from January 1,1979 to February 15, 1983.

- **v**—value. The value of an argument. This value may be a number or expression that computes a value, such as a formula.

  IF(le,v1,v2) could be, for example:

  IF(B1>C1,C4,Ø), which chooses the value in C4 if B1 is greater than C1 and chooses Ø if it is not greater.

- **vlist**—list of values. The list may include numbers, coordinates, or expressions.

  AVERAGE(vlist) could be, for example:

  AVERAGE(A1,C6,D4,H31), which gives you the average of the values in the cells listed.

  MAX(vlist) could be, for example:

  MAX(F2.FIØ), which gives you the largest number in the range of cells listed.

The notation used in financial functions is listed in the section "Financial Functions" in this chapter.

Label and Value Functions

LABEL
LABEL2
LABELAT
VALUEAT

The Visi On Calc label and value functions let you specify that a cell's contents be displayed as either as a label or as a value.

The label functions display the results returned by the function as a label. The value function, however, returns only a value, and displays ERROR if the cell does not contain a value.

Label—LABEL(c) The LABEL function returns the label in the cell specified in the argument. The LABEL function is very useful when the same label is used in more than one place on a worksheet.

For example, if you want the same date to appear in

several places on your worksheet, you can enter the date in one cell and then use the LABEL function in the rest of the cells. When you change the date in that cell, it will appear in the other cells.

Example: LABEL(G10) returns and displays the entry in cell G10 as a label. If the referenced cell is empty, the value returned and displayed is ERROR.

Label Integer—LABEL2(ie,clist) The Label Integer function looks at a list of cells and returns the entry in the cell whose position is specified by the integer expression (ie) in the argument. If the integer expression is a cell coordinate or formula, the value will be truncated to its integer value.

Example: LABEL2(3,D6...D10) returns the label in cell D8, as specified by the value 3 in the argument.

Figure 3-12 illustrates the LABEL2 function.

Label At—LABELAT(c,i,j) The LABELAT function returns the entry of the cell whose coordinate position is determined by the integers *i,j* in the argument. The integer "i" is the number of cells across columns; integer "j" the number of cells down rows.

Example: LABELAT(B10,8,3) returns the label from cell J13.

Figure 3-13 illustrates arguments used with the LABELAT function.

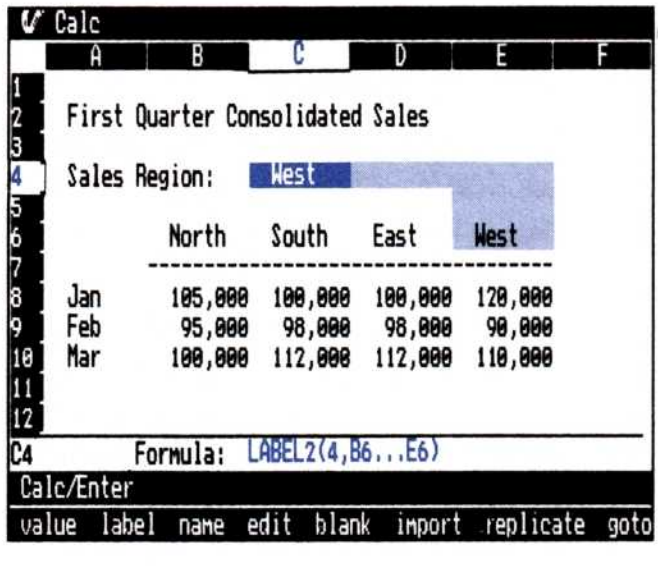


Figure 3-12. *The LABEL2 function returns the label "West" for cell C4 from the range of cells B6 through E6.*

Value At—VALUEAT(c,i,j) The VALUEAT function returns the value of the cell whose coordinate position is determined by the integers *i,j* in the argument. The integer "i" is the number of cells across columns; integer "j" the number of cells down rows. If the cell does not contain a value or formula, the VALUEAT function returns an error.

Example: VALUEAT(D6,3,2) returns the value in cell G8.

You can use this function in the same way you use the LABELAT function.

Figure 3-14 illustrates arguments used with the VALUEAT function.

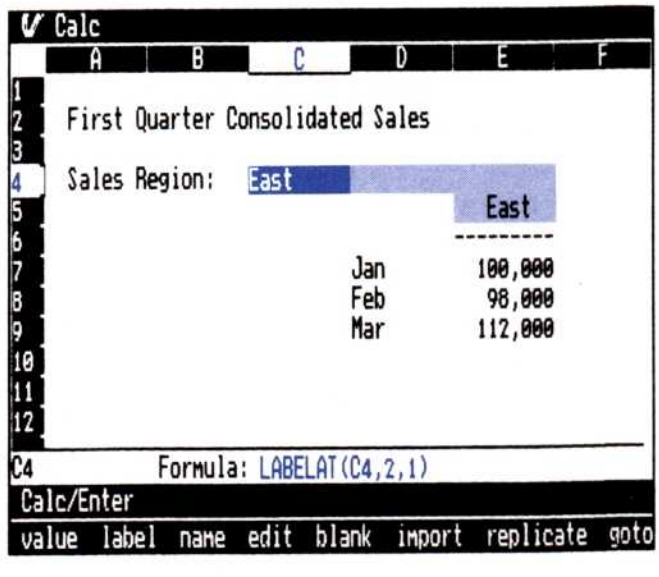


Figure 3-13. *The LABELAT function returns the label "East" for cell C4, which is two columns to the right and one row down from cell C4.*

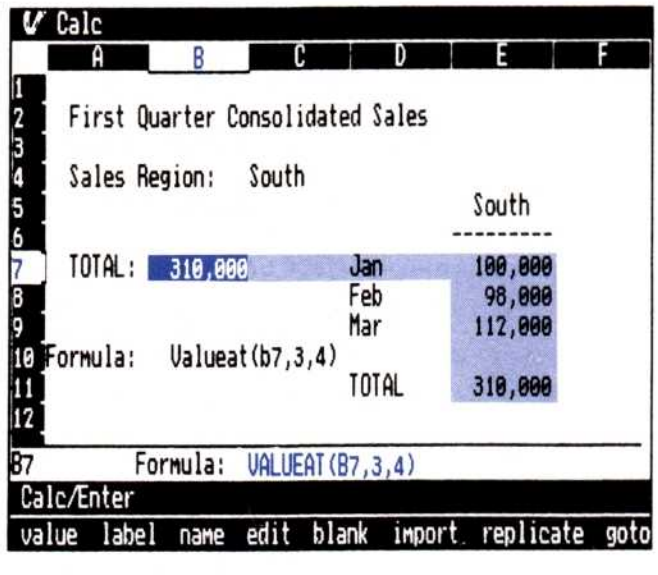


Figure 3-14. *The VALUEAT function returns the value "310,000" for cell B7. The value "310,000" is in cell E11, which is three columns to the right and four rows down from TOTAL in cell B7.*

Mathematical Functions

ABS (absolute value)
AVERAGE
COUNT
EXP (exponential value)
INT (integer part)
LN (natural logarithm)
LOG (logarithm base 10)
MAX (maximum)
MIN (minimum)
MOD (modulo arithmetic)
PI
RANDOM (random numbers around mean)
RANDU (uniform random numbers)
ROUND (rounding for less precision)
STANDEV (standard deviation)
SUM (summation)
SQRT (square root)

Mathematical functions include those that make standard mathematical calculations, such as taking the square root, calculating exponentiation, or computing values from a list.

Absolute Value—ABS(e) The Absolute Value function returns the *absolute value* of the single value specified in the argument (that is, a number stripped of its plus or minus sign).

For example, you cannot take the square root of a negative number. Therefore you could use the absolute value function to insure that the number returned is not negative.

Examples: ABS(10) returns 10.

ABS(−10) returns 10.

ABS(0) returns 0.

Average—AVERAGE(vlist) The Average function returns the arithmetic mean of the values in the list. The result of the Average function is equivalent to the result of SUM(list) divided by COUNT(list).

You can use the Average function for many different reasons. For example, in a sales summary, you could calculate the average number of sales for a given period

or employee, or the average dollar value of each sale. This is just one of the many uses you will find for the Average function.

Examples: AVERAGE(A4,A5,B10,B17)

AVERAGE(G3...G20)

AVERAGE(C4−C3,C7,D5*E5)

Count—COUNT(clist) The Count function counts the number of non-blank entries in the list. You can include either a list of cells or a range of cells as the argument.

One example of how you might use the Count function is to determine how many persons have worked during a given time. If the employees entered the number of hours during a given time, then you could count the number of employees who had recorded any hours worked.

Example: COUNT(B2...B14)

Exponential Value—EXP(e) The Exponential Value function gives the exponential value of an argument. The exponential value is equivalent to the mathematical constant e(2.718281828) raised to the power specified in the argument (e), an expression. This function is commonly used in scientific and engineering applications.

Example: EXP(6.122493) returns a value of 456.0001.

Note that the number of decimal places would be have to be set to 4 for this value to fully display.

Integer Part—INT(e) The Integer Part function returns the integer part of an argument without rounding. You might use this function with the LABELAT, LABEL2, and VALUEAT functions to ensure that integers are being returned.

For example, in the function LABEL2(A4,C10...C15), you want to use the label determined by the value entered in cell A4. To make sure that value is an integer, you could add the integer function to this example: LABEL2(INT(A4),C10...C15)).

Examples: INT(3.785) returns 3.

INT(−3.438) returns −3.

Natural Logarithm—LN(e) The Natural Logarithm function gives the natural logarithm of a number. The resulting value is the power to which the base e (2.718281828) must be raised to provide the result of expression (e).

Example: LN(456) returns a value of 6.122493.

In this example, notice that 456 is the exponential value of the natural logarithm.

Note that you would have to set the number of decimal places to 6 for this value to fully display.

Logarithm Base 10—LOG(e) The Logarithm Base 10 function returns the logarithm of an argument to base 10 (decimal logarithm). The resulting value is the power to which 10 must be raised to provide the result of expression (e).

Example: LOG(456) returns 2.658965.

Maximum—MAX(vlist) The Maximum function returns the maximum, or largest, numeric value in an argument list. The maximum function has many possible uses. You could use it to identify accounts with the greatest dollar figure, the largest volume of sales among different departments, the highest number of hours worked within a group of employees, to name just a few uses.

Figure 3-15 illustrates some sample worksheet values.

The following example shows what the maximum function returns.

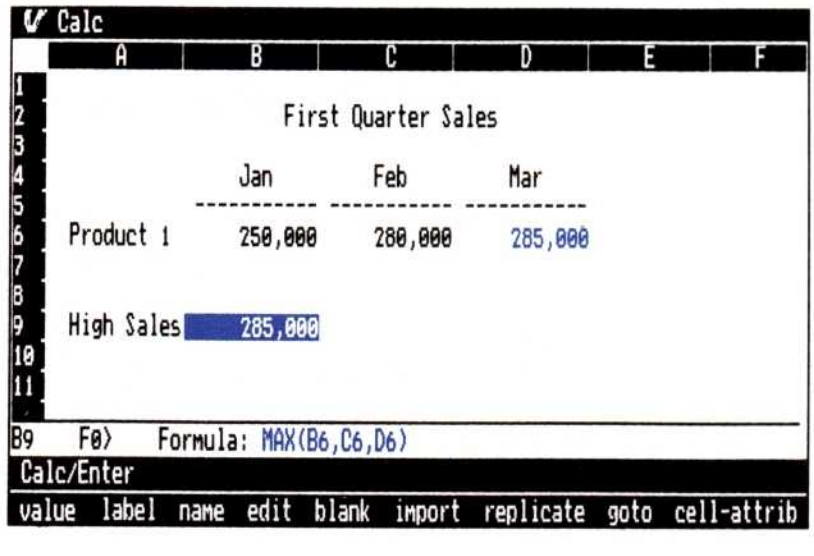


Figure 3-15. *The maximum sales for a product in cells B6 through D6 is "285,000," which is placed in cell B9, which contains this MAX function.*

Minimum—MIN(vlist) The Minimum function returns the minimum, or smallest, numeric value in an argument list. You can use the Minimum function for much the same reasons as you would the Maximum function. For example, you could identify the salesperson with the lowest volume, the lowest category of expenses in a budget, or the lowest percentage of profit among a number of items.

Figure 3-16 illustrates some sample worksheet values. Using these values, the following examples show what the Minimum function returns.

Modulo Arithmetic—MOD(e1,e2) The Modulo Arithmetic function returns the remainder after the first expression is divided as many integral times as possible by the second expression in the argument.

Both expressions must be numbers and may be nonintegers or formulas using numbers. The value returned takes the sign (+ or −) of the second expression in the argument.

You might, for example, use the MOD function with the Month-Day-Year (MDY) function to determine the day of the week to use financial calculations, such as paycheck totals.

Suppose you have a worksheet to calculate totals for paychecks. You want to check to determine if an employee worked on the weekend. You will pay double time ($7.00 per hour) if the work is on a weekend; otherwise, the pay is $3.50 per hour.

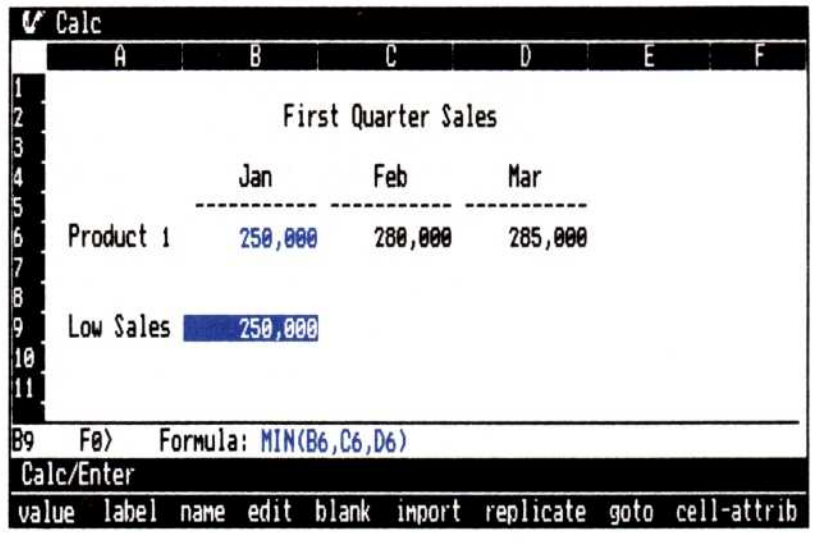


Figure 3-16. *The minimum sales for a product in cells B6 through D6 is "250,000," which is placed in cell B9, containing this MIN function.*

The formula to check for the correct pay is:

IF(MOD(MDY(3,13,1983),7)<5,3.5,7)

You would, of course, use this with other formulas to calculate the actual pay.

Refer to the sections on the MDY and IF functions for more information on how those functions work.

Examples: MOD(13,5) returns a remainder of 3.

MOD(18,6) returns a remainder of 0.

MOD(7.25*3,5) returns a remainder of 1.75.

MOD(6.77,−1.22) returns a remainder of −.67.

Pi—PI Pi is the ratio of the circumference of a circle to its diameter, and evaluates to 3.1415926536. The PI function takes no argument, and is normally used as part of an expression.

The first example illustrates a formula to return the sine of an angle, where the value in cell G8 is the angle in degrees and PI/180 calculates the conversion to radians (2 pi radians equals 360 degrees).

Examples: SIN(PI/180*G8)

SIN(PI*C7)

PI*D3

RANDOM(mean,stdev) The Random function returns random numbers around a mean based on the standard deviation entered.

Examples: RANDOM(1000,25)

RANDOM(1000,−20)

RANDU Based on an even distribution, the Randu function returns a random fractional value between 0 and 1. The RANDU function has no argument.

Rounding for Less Precision—ROUND(e,ie) The Rounding for less precision function takes the first expression in the argument and rounds it to the precision specified by the second expression.

If the second expression is a positive number, the first expression is rounded to that number of places to the right of the decimal point; if a negative number, then it

is rounded to that number of places to the left of the decimal point.

In the Visi On Calc program, numbers are rounded to fifteen decimal places. When you use the Round function to round to a smaller number of decimal places, the resulting number is subsequently used in storage.

You might use the Round function on a financial statement, such as a balance sheet, to round numbers in each cell to hundreds, thousands, or millions. You can then divide every number on the worksheet by 10, 100, 1000, and so forth to eliminate zeros and simplify the appearance of the worksheet.

Examples: ROUND(234.6789,2) is rounded to 234.68.

ROUND(234.6789,4) is rounded to 234.6789.

ROUND(234.6789,0) is rounded to 235.

ROUND(234.6789,−1) is rounded to 230.

Standard Deviation−STANDEV(vlist) The Standard Deviation function returns the standard deviation of values in a list.

Examples: STANDEV(5,10,12,15,19,27) returns 7.66.

STANDEV(B9,B11,B12) returns 90.748 when B9 = 160.87, B11 = 7.66, B12 = 0.

There are two options that allow you to select how you want the standard deviation to be computed. You select or change this option on the Calc options sheet, as shown in Figure 3-17.

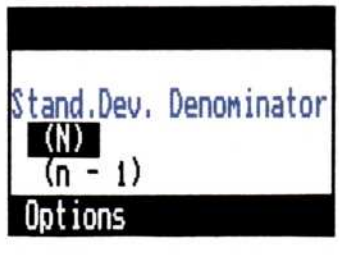


Figure 3-17. *You can elect to calculate the standard deviation, treating the list as either the entire value population (N) or as a small sample from some larger population (n-1).*

To change the Standard Deviation Denominator

1. Select " Calc."
2. Select "OPTIONS" from the Visi On menu.
3. Select one of the two standard deviation options:
   - ☐ N—This denominator option calculates the actual standard deviation, treating the list of values as the entire population. This is the option initially set by the Visi On Calc program.
   - ☐ n-1—This denominator option estimates the standard deviation of a larger population, treating the list of values as a sample.

   When you select one of the two options, standard deviation will be calculated based on that denominator.

   The Calc options sheet remains displayed. To close it:

   - ☐ Select "done" from the options menu.

   The options sheet no longer is displayed.

The formulas used for calculating standard deviation are in Appendix B, "Visi On Calc Formulas."

Sum—SUM(vlist) The Sum function adds all values specified in the list. You can use the Sum function in any case where you want to add a series of values. For example, in a budget, you would probably use the Sum function to total the budgeted dollars and actual expenditures for each time period and each category you have created.

Examples: SUM(B2...B10)

SUM(B3,B12,C4,C7)

SUM(A2*A3,B2,D4/D2)

SUM(G2...G7,F6*F8,F10)

SUM(COSTS)—sum of values in named range COSTS.

Square Root—SQRT The Square Root function returns the square root of the expression specified in the argument. This function is generally used in scientific and engineering applications.

Examples: SQRT(1Ø24) returns 32.

SQRT(542.44) returns 23.29Ø34.

SQRT(23*44) returns 31.81195.

SQRT(12*14/5) returns 5.796551.

Logic and Selection Functions

CHOOSE
ERROR
FALSE
IF
INDEX
ISERROR (is error)
ISNA (is not available)
LOOKUP
NA (not available)
TABLE
TRUE

Logical values are either *true* or *false*. Logical functions compare logical values specified in an argument to determine which values are true or meet certain logical conditions.

Logical operators and relational operators are commonly used in logical expressions to determine if values are true or false. For example, the expression 1Ø>8 is evaluated as true, while the expression 1Ø>2Ø is evaluated as false. You will see examples of the use of these operators in logical expressions in the discussions of the logical functions.

Selection functions make a selection based on a value specified in the argument. One common use of a selection function is to find a specific value in a table of values.

Choose—CHOOSE(ie,vlist) The Choose function selects a value from a list of values based on the relative position as specified by the value in the first argument. The value in the first argument must be an integer or evaluate to an integer if it is a reference to a cell.

You might use the Choose function to create a summary on a report. For example, if you had totals for several categories of expenses, you could use the Choose

function to select the appropriate total expenses for the summary.

Examples: CHOOSE(2,4,23,6,13) selects 23.

CHOOSE(B4,14,17,8,6) selects the value specified by B4. If B4=3, then 8 is selected.

CHOOSE(B4,G7−G3,H2,13,3) if B4=2, then value in H2 selected.

Error—ERROR The Error function is displayed when an error condition exists in a cell. An error condition may have several causes: divide by zero, overflow, underflow, or a reference to a cell containing ERROR.

You can use the Error function to cause an error to display if a certain condition exists. For example, you could check an employee time record for a number of hours larger than allowed for a certain period.

Example: IF(A1>B2,ERROR,Ø)

False—FALSE The False function is used to insure that the required value FALSE is always returned when this cell is referenced. For example, if you were giving a discount based on a certain numbers of items ordered, you could display FALSE to show that the order was not large enough to qualify for the discount.

Examples: IF(8Ø>125,TRUE,FALSE) displays FALSE because 8Ø is not greater than 125.

IF(45<=35,TRUE,FALSE) displays FALSE because 45 is not less than or equal to 35.

If you refer to a cell containing FALSE, the value FALSE will be returned.

If—IF(le,v1,v2) The IF statement is an extremely versatile tool that you will frequently use. For example, in determining sales discounts, you could use the IF statement to find out if a sale qualifies for a discount.

For a payroll, you could use the IF statement to determine which employees should be paid overtime for a given period. You could also use the IF function to determine when an employee should be given an increase in pay.

You will find many more uses for the IF statement as you create and work with worksheets.

The logical structure of an IF statement is easily explained with the following example:

IF(A,X,Y)

This example logically evaluates as follows:

If A is true, then the value for the statement is X. If A is false, then the value for the statement is Y.

Figure 3-18 illustrates some sample worksheet values. Using these values, the following examples show the values for some IF statements. These IF statements are in cells B6, C6, and D6.

IF(B6>=275000,1,0) returns 0.

IF(C6>=275000,1,0) returns 1.

IF(D6>=275000,1,0) returns 1.

Index—INDEX(e,clist) The Index function compares the first argument (the search value) to each value in a list to find a specific corresponding value.

The Index function first searches the list to find the largest value that is equal to or less than the search value. It then returns the coordinate position of that value.

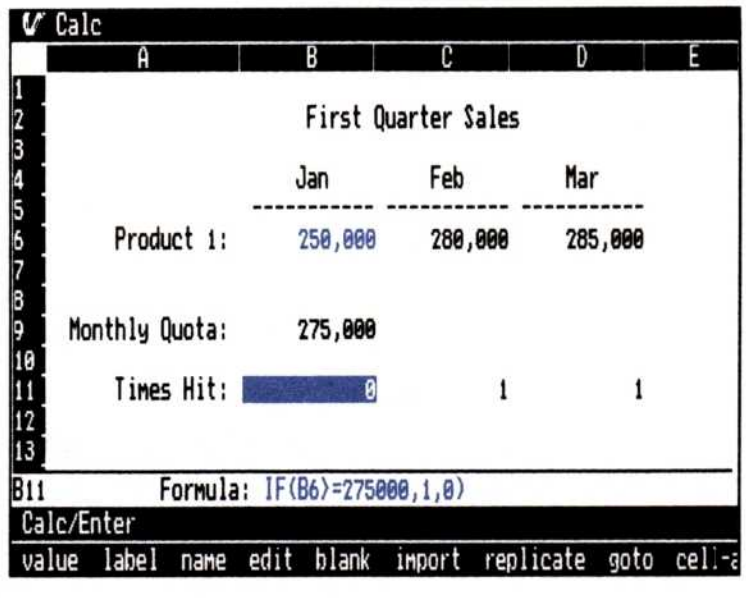


Figure 3-18. *The value in cell B6 (Jan) is not greater than or equal to 275,000, so the third argument, "0," is placed in cell B11. A "1" is returned for cells C11 and D11 because the values in cells C6 and D6 are greater than 275,000.*

To illustrate how this works, look at the example of a table in Figure 3-19. In the horizontal table in Figure 3-19, the search list is in row 2, with its corresponding values in row 3. The search argument for the table is in C9.

Is Error—ISERROR(e) The ISERROR function returns TRUE if the value specified in the argument is an error. Otherwise, the function returns FALSE.

You could use the ISERROR function to identify which customer orders do not meet the minimum number of items required for an order. For example, if the minimum number of items were 10, ISERROR could identify those orders that have fewer than 10 items:

IF(ISERROR(B4<10),LABEL(D4),LABEL(D5)).

If the order were valid, the label "yes" would be returned; invalid, the label "no" would be returned.

Is Not Available—ISNA(e) The Is-Not-Available function returns TRUE if the value specified in the argument is:

- NA (not available)—The expression cannot be computed because part of it does not exist. Such an example might be (G2+L10), where row L10 has been deleted.
- UNAVAIL (unavailable)—The expression cannot be computed because it relies on a value from another worksheet by importation that is not available for use.

  This condition can only occur when you are using import cells. For example, if you have named a cell that represents net profit NETPROFIT, you might use it in a formula, as shown in this example:

  IF(ISNA(NETPROFIT<=(G17−H17),0,H15/4)

  If NETPROFIT is unavailable for use, then 0 is returned by the Is-Not-Available function.

If the value specified in the argument is not one of these two conditions, the ISNA function returns FALSE.

Lookup—LOOKUP(e,clist) The LOOKUP function compares the first argument (the search value) to each value in the search list specified to find a specific corresponding value.

The LOOKUP function first searches the list to find the largest value that is equal to or less than the search value. It then selects and returns the corresponding value from the adjacent series.

To illustrate how this works, look at the examples of two types of tables in Figure 3-20. In this example, there are two sets of figures in each table. The quantities with their corresponding discounts are in the two sets of table figures (rows 2 and 3, columns E and F).

In the horizontal table in Figure 3-20, the search list is in row 2, with its corresponding values in row 3. For the vertical table, the search list is in column E and its corresponding values are in column F. The search argument for both tables is in C6.

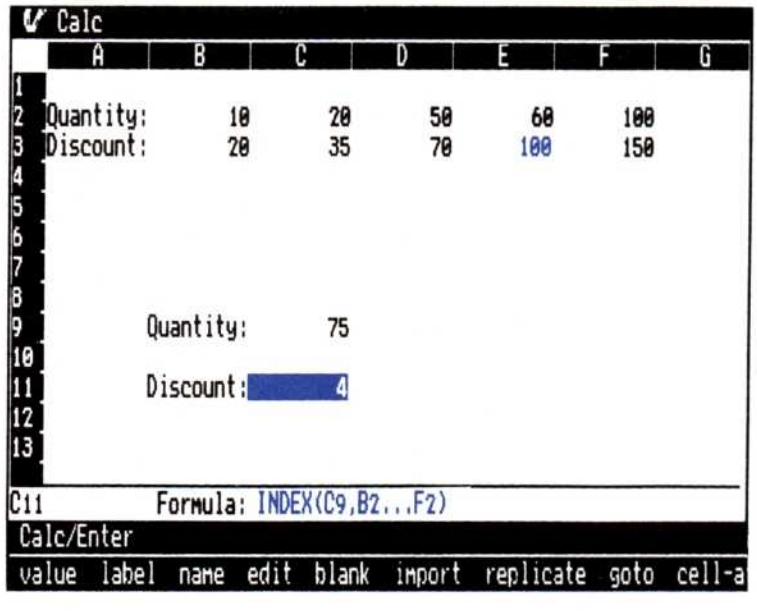


Figure 3-19. *The INDEX function returns the value for the cell coordinate E3. In this case, the search finds the value "100," which is the fourth value in the list. Therefore "4" is returned for cell C11.*

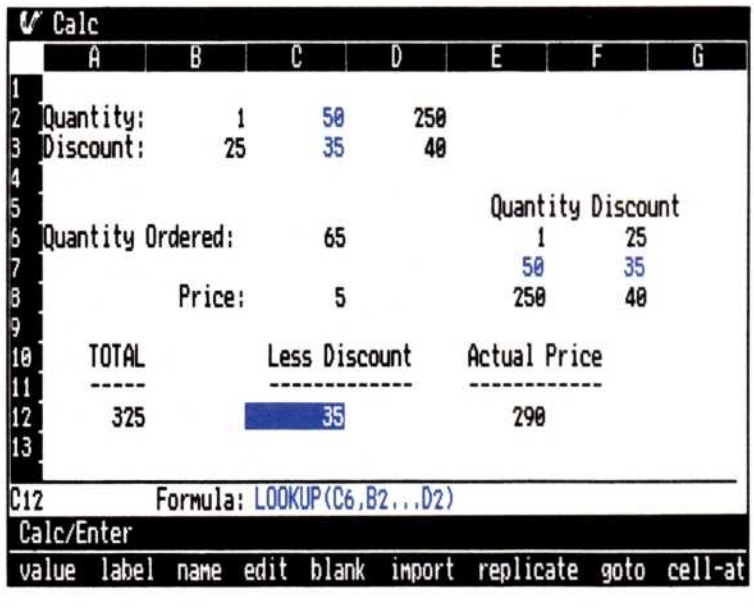


Figure 3-20. *This LOOKUP function returns the same value "35" for cell C12. In this case, the search finds the value "35," which corresponds to the Quantity "50." The same value would be returned if the function were LOOKUP(C6,E6...E8).*

Not Available—NA NA is displayed in a cell when a reference is made to a cell off the worksheet; for example, during a replicate.

When you first set up your worksheet, you can use the NA function for referenced cells that have no values entered.

If you refer to a cell containing NA, the value returned will be NA.

TABLE(e,i,clist) The Table function is much like the Lookup function, but with the additional feature that you can specify the position (i) where you want to search for the corresponding value to that in the list specified by the first argument (e).

The Table function first searches the list to find the largest value that is equal to or less than the search value. It then searches for the value in the row or column that corresponds to the one specified by the integer argument.

You could use the Table function to find values in a tax table. For example, you enter your income in cell D1 and your number of deductions in cell D2. The different levels of income are in column E and the taxes for the income levels are in columns F through L. An example formula for this function might be:

TABLE(D1,D2,E3...E20)

If the income entered in D1 were 13,500 and the number of exemptions were 3, the value returned would be the tax (from columns F through L) for that income based on three exemptions.

True—TRUE The TRUE function is used to insure that the required value TRUE is always returned when this cell is referenced. For example, if you were giving a discount based on a certain number of items ordered, you could display TRUE to show that the order is large enough to qualify for the discount.

Examples: IF(45<=35FALSE,TRUE) displays FALSE because 45 is not less than or equal to 35.

If you refer to a cell which contains TRUE, the value TRUE will be returned.

Financial Functions

FMRR (financial management rate of return)
FV (future value)
IRR (internal rate of return)
NPV (net present value)
NPER (number of periods)
PMT (payment)
PV (present value)
RATE (interest or discount rate)

The Visi On Calc financial functions perform standard financial calculations such as present value, future value, and net present value.

It is not the intent of this section to teach you the principles behind financial calculations but to briefly describe the financial functions of the Visi On Calc program. If you want to learn more about financial calculations, you might consult a finance or accounting textbook.

The notation used in the arguments for the financial functions is as follows:

- **dr**—discount rate. An expression that can be either positive or negative, but not zero.
- **fv**—future value. An expression, the future value of an investment or series of payments. Future value may be positive or negative, but not a range.
- **i**—interest rate. An expression that can be either positive or negative, but not zero.
- **ir**—reinvestment rate. An integer expression that can be either positive or negative, but not zero.
- **is**—"safe" rate of investment. An integer expression that must be positive and greater than zero.
- **n**—number of periods. Must be a number greater than zero.
- **p**—the payment for each period specified by **n**. Can be positive or negative.
- **pv**—present value. An expression, the present value of an investment or series of payments.

You can select an option to have the financial functions calculate all values based on either the *beginning* or *end* of period. The Visi On Calc program uses end of period unless you make a change on the Calc options sheet, as shown in Figure 3-21.

To change the type of period used in financial calculations

1. Select " Calc."
2. Select "OPTIONS" from the Visi On menu.
3. Select one of the two options for type of period used in financial calculations.

   All financial calculations will then use the type of period you select.

   The options sheet remains displayed. To close it:

   ☐ Select "done" from the options sheet menu.

   The options sheet no longer is displayed.

Financial Management Rate of Return—FMRR(is,ir,vlist)
The Financial Management Rate of Return function, like the Internal Rate of Return function, calculates the effective return on a capital purchase or other internal investment. However, it gives you the options of specifying the return on a safe investment and the reinvestment rate for the initial investment.

Like the internal rate of return, the financial management rate of return is the interest rate that discounts a series of unequal cash flows to a present value equal to the negative of the initial investment. This allows you to compare the return on the investment to

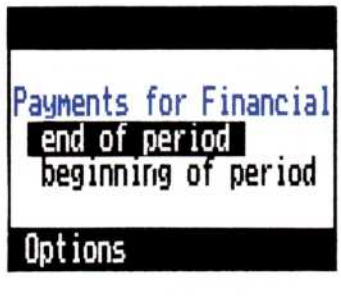


Figure 3-21. *You can elect to use either use "end of period" or "beginning of period" as the basis for your financial calculations.*

the return available by investing the same amount of money at the prevailing interest rate.

Example: FMRR(.12,.15,B12...B36)

Future Value—FV(i,n,p,pv) The Future Value function calculates the future value of a series of payments. Its arguments must be entered in the following order: interest rate in decimal form (i), number of periods (n), payment (p), and present value (pv).

You must enter the interest rate (i) and periods (n) arguments.

Example: FV(i,n,p,pv)

Internal Rate of Return—IRR(guess,vlist) The Internal Rate of Return function calculates the effective return on a capital purchase or other internal investment. It is a special case of net present value. The internal rate of return is the interest rate that discounts a series of unequal cash flows to a present value equal to the negative of the initial investment. This allows you to compare the return on the investment to the return available by investing the same amount of money at the prevailing interest rate.

The "guess" option allows you to enter what you consider to be a reasonable rate of return on the initial investment.

Example: IRR(.12,A4...A40)

Net Present Value—NPV(dr,vlist) The Net Present Value function calculates the net present value of future cash flows. You must enter, in order, the discount rate (the cost of money used to discount the future cash flows) and a range of locations that include the cash flows.

Example: NPV(F3/100,B12...B22)

Number of Periods—NPER(i,p,pv,fv) The Number of Periods function calculates the number of periods required to satisfy the arguments specified in the function. Its arguments must be entered in the following order: interest rate in decimal form (i), payment (p), present value (pv), and future value (fv). This function returns a number.

You must enter the interest rate.

Example: NPER(i,p,pv,fv)

Payment—PMT(i,n,pv,fv) The Payment function calculates the payment that must be made each period to satisfy the requirements of the arguments specified in the function. The arguments must be entered in the following order: interest rate in decimal form (i), number of periods (n), present value (pv), and future value (fv).

You must enter the number of periods (n) and the interest rate (i).

Example: PMT(i,n,pv,fv)

Present Value—PV(i,n,p,fv) The Present Value function calculates the present value of a series of payments. The present value of a series of payments is an amount of money at the present time that is the economic equivalent of the entire series of payments.

The arguments must be entered in the following order: interest rate in decimal form (i), number of periods (n), payment (p), and future value (fv).

You must specify the number of periods (n) and interest rate (i).

Example: PV(i,n,p,fv)

Interest or Discount Rate—RATE(n,p,pv,fv) The Interest or Discount Rate calculates the interest rate (for loans) or discount rate (for annuities). The arguments must be entered in the following order: number of periods (n), payment each period (p), present value of the payments (pv), and future value of the payments (fv).

You must specify the number of periods (n).

Examples: RATE(n,p,pv,fv)

Trigonometric Functions

ACOS (arc cosine)
ASIN (arc sine)
ATAN (arc tangent)
COS (cosine)
SIN (sine)
TAN (tangent)

The Visi On Calc trigonometric functions calculate the desired trigonometric value using a single argument. All resulting angles are specified in radians (2 pi radians equal 360 degrees).

Arc Cosine—ACOS(e) The Arc Cosine function yields the arc cosine of the argument. It is the inverse of the cosine function.

Example: ACOS(−.470087) yields a value of 2.060186.

Arc Sine—ASIN(e) The Arc Sine function yields the arc sine of the argument. It is the inverse of the sine function.

Example: ASIN(−.872446) yields a value of −1.06019.

Arc Tangent—ATAN(e) The Arc Tangent function yields the arc tangent of the argument. It is the inverse of the tangent function.

Example: ATAN(.0795747) yields a value of .0794074.

Cosine—COS(e) The Cosine function yields the cosine of the argument.

Example: COS(4.223) yields a value of −.470087.

Sine—SIN(e) The Sine function yields the sine of the argument.

Example: SIN(5.223) yields a value of −.872446.

Tangent—TAN(e) The tangent function yields the tangent of the argument.

Example: TAN(3.221) yields .0795747.

Calendar Functions

DAY
MONTH
MDY (month-day-year)
TODAY
VMDY (valid-month-day-year)
YEAR

You can use the Visi On Calc calendar functions to perform date arithmetic. You can use calendar functions to determine past or future dates and use these dates with financial functions to make such calculations as the accrued interest on a bond or certificate of deposit.

All calendar functions either calculate the *absolute date* or use it as an argument. The absolute date is the number of days before or since January 1, 1979.

If a function returns a negative number, that number is the number of days before January 1, 1979. For example, the function MDY(10,11,1920) returns −21,265, which is the number of days from October 11, 1920 to January 1, 1979.

Day—DAY(ie) The Day function takes an absolute date as its argument and returns the day portion of the calendar date that corresponds to the absolute date.

Examples: DAY(100) returns 11, which is the day portion of the calendar date April 11, 1979.

DAY(−100) returns 23, which is the day portion of the calendar date September 23, 1978.

Month—MONTH(ie) The Month function takes an absolute date as its argument and returns the month portion of the calendar date that corresponds to the absolute date.

Examples: MONTH(100) returns 4, which is the month portion of the calendar date April 11, 1979.

MONTH(−100) returns 9, which is the month portion of the calendar date September 23, 1978.

Month-Day-Year—MDY(m,d,y) The Month-Day-Year function calculates the absolute date just like the Valid Month-Day-Year function but gives a reasonable interpretation to invalid dates specified in an argument.

Because the Month-Day-Year function calculates based on *any* year specified, the interpretation applies to days and months. The Month-Day-Year function assumes in its calculation that the value entered in the argument is the intended value.

Examples: MDY(13,20,1983) evaluates to (1,20,84).

MDY(1,33,1983) evaluates to (2,2,1983).

Even though this function does evaluate invalid dates in a logical fashion, it is recommended that you not enter invalid dates.

Today—TODAY The Today function takes no argument, and returns today's (the current) date as the number of days since January 1, 1979.

Valid-Month-Day-Year—VMDY(m,d,y) The Valid-Month-Day-Year function takes a date as specified in the three arguments and returns the absolute date for the calendar date specified. You must enter the arguments in Month (m), Day (d), Year (y) sequence.

Month must be an integer. Single-digit months do not have to be preceded by a zero. Zero and negative numbers refer to the previous year; that is, zero is equal to 12 (December) of the previous year and −1 is equal to 11 (November) of the previous year.

Day can be any real number. Single-digit days do not have to be preceded by a zero. Decimal numbers refer to fractions of a day. Zero and negative numbers refer to the previous month; that is, zero is equal to either 31, 30, or 28 (29 in a leap year); −1 to one day before the end of the previous month.

Year must be a positive integer and must not be abbreviated. If you enter the year as 83, the function calculates the absolute date between the calendar date in 83 A.D. and January 1, 1979.

Examples: VMDY(−1,1,1983) returns 1400.

VMDY(11,1,1982) returns 1400.

Year—YEAR(ie) The Year function takes an absolute date as it argument and returns the year portion of the calendar date that corresponds to the absolute date.

Examples: YEAR(100) returns 1979, which is the year portion of the calendar date April 11, 1979.

YEAR(−100) returns 1978, which is the year portion of the calendar date September 23, 1978.

4 Replicating Areas of the Worksheet

Chapter 4 Replicating Areas of the Worksheet

Choosing the Type of Replication

Replication is one of the most powerful features of the Visi On Calc™ program. It allows you to duplicate one area of a worksheet so that you can use the same labels, values, or formulas in another area. In replication, name and import cells are replicated as label cells.

Similar in use to the "copy" command, the "replicate" command is more versatile because you can duplicate any rectangular area of the worksheet, just not rows or columns. In addition, replication allows you to set up different types of relationships, or references, between formulas when you copy them.

To use replication, you must first define the source and target areas. The *source area* is that part of the worksheet you want to duplicate. The *target area* is the part of the worksheet into which you want to duplicate the contents of the source area.

When you have defined the areas in the replication, the source area is then replicated if it contains only labels. If it contains formulas, you specify how those formulas are to be replicated, and the entire source area is then replicated.

When you replicate an area, with the exception of an explicit column width you have set, both the attributes (display characteristics) and contents of the cells in the source area are duplicated in the target area.

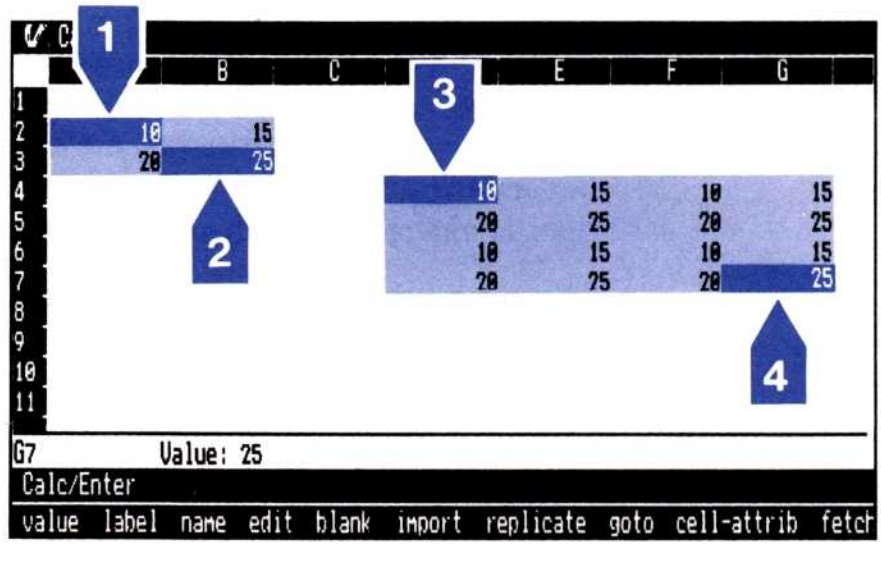


Figure 4-1. *To replicate an area, you define the area to be replicated (the source area, 1 and 2) and the area where it is to be replicated (the target area 3 and 4).*

Defining the Source Area

Menu Path "Calc/replicate" or
"Calc/Enter/replicate"

When you select the "replicate" command, you are prompted to define the source area for the replication.

To define the source area

1. When prompted, select the *first source cell.*

   The first source cell is the upper left corner of the rectangular area you want to replicate.

2. Select the *source endpoint.*

   The source endpoint is the lower right corner of the rectangular area you want to replicate.

When you have selected the endpoint of the source area, you have defined the source area. If you want to replicate only one cell, the beginning and ending of the source area is the same cell, and you must select that cell twice.

Defining the Target Area

To define the target area

1. When prompted, select the *first target cell.*

   The first target cell is the upper left corner of the rectangular area where the source area is to be replicated.

2. Select the *target endpoint.*

   The target endpoint is the lower right corner of the rectangular area where the source area is to be replicated.

When you select the target endpoint, you have defined the entire target area. If replicating only labels, the labels are immediately replicated in the target area. If replicating an area containing formulas, you are asked to specify references, as discussed in the following sections.

When you complete the replication, the cursor moves to the upper left corner of the target area, and you are returned to the menu from which you selected the "replicate" command (the Calc or Enter menus).

When you replicate a block of cells, the full block from the source area will be replicated into the target area as

many times as possible. For example, if you replicated a block of cells that were three columns wide and two rows deep into an area seven columns wide and five rows deep, the source block would fill all but the last row and last column of the target area. A partial block would not be replicated into the target area.

Note also that if you replicate a source row into a column, the source column will contain data from the first cell in the source row. The source row will not be replicated vertically down the column.

Establishing References

When you replicate areas that contain only labels or numeric values that are not formulas, the program duplicates these values in the target area.

However, if there are formulas in the source area, you must specify the relationships between them and the formulas in the source area. This is called *referencing*. You must establish references if there are formulas in the area you want to replicate.

When you select a source area that contains formulas, the program prompts you for the type of reference to establish for each formula in the target area.

Figure 4-2 shows what appears on the prompt line when you are replicating an area that contains formulas.

- Select "relative" and all references in the source area will be copied relative to their new positions in the target area.
- Select "absolute" and all references in the source area will be copied in the target area without change.

Figure 4-2. *When you are replicating cells that include formulas, the prompt line asks you to choose whether to replicate the formulas (1) relative to their new cell locations, (2) absolutely, (3) as you reply to a prompt for each cell reference, or (4) as you chose to do the last time you replicated cells.*

- Select "prompted" and you are prompted to specify the type of reference (absolute or relative) for each formula that is copied into the target area.
- Select "last-use" and the method you used for the previous replication or for the previous formula is used.

It is important to understand just how both types of referencing work and how you might use each.

Absolute Referencing

If you select "absolute," the formulas in the source area are duplicated in the target area without change. For example, if the formula in cell B2 is B1+1, that formula and any results of it are copied into all cells in the target area. If the value in cell B2 changes, the values of all cells in the target area also change.

Figure 4-3 illustrates absolute referencing.

Relative Referencing

If you select "relative," the formula in each cell in the target area will be relative to the new position of that cell. Using the same formula (B1+1 for the value of B2), the formula in cell D2 in the target area would be

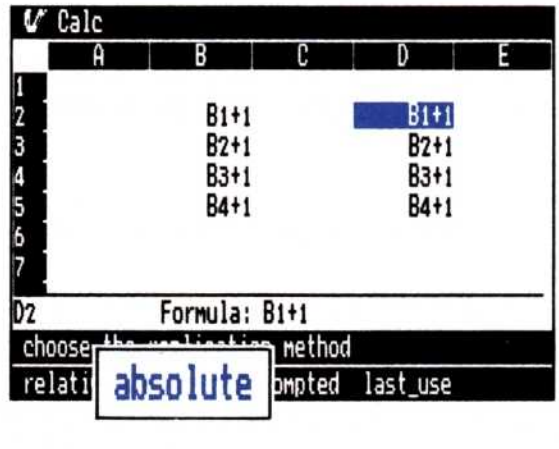


Figure 4-3. *When you choose to replicate formulas with absolute referencing, the formulas in the target range are identical to the original formulas in the source range; the formulas are replicated without any changes.*

D1+1. It would be the same formula relative to the position of cell D2 as B1+1 was relative to the value of cell B2.

Figure 4-4 illustrates relative referencing.

As discussed earlier in this chapter, when you replicate the formulas in an area, you will be prompted to select how you want those formulas to be replicated in the target area. You will be prompted how those formulas are to be referenced, starting at the top row in the target area. You then indicate how the formulas are to be used in each remaining row in the target area.

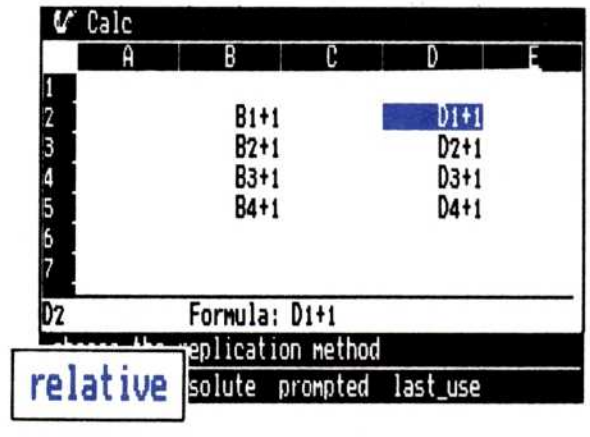


Figure 4-4. *When you choose relative referencing, a cell reference changes according to the position the referenced cell has relative to the cell with the formula. In the figure above, the formulas in cells B3-B5 each refer to the cell above it with the formula. Cell B3, for instance, refers to B2. When these cells are replicated using relative referencing, they change so that they still refer to the cell above. The formula in B3, for example, is replicated into cell D3, and refers to D2.*

5 Editing Information in Cells

Chapter 5 Editing Information in Cells

You may often want to change a label or formula in a cell. You could simply move to the cell and make a new entry. However, if you are working with a large number of characters, such as a long label (February Sales Projections) or a long formula (A20-B3+B4*C6/C5), you will find the "edit" command a faster way to change the contents of a cell.

Using Various Keys for Editing

Some keys have special functions that allow you to edit more efficiently. These special-function keys are:

(←)—**left arrow** moves the cursor to the left on the line. This key does not erase characters.

(→)—**right arrow** moves the cursor to the right on the line. This key does not erase characters.

(BKSP)—**backspace** erases characters to the left of the cursor, one character at a time.

(DEL)—**delete** deletes one character.

(END)—**End** deletes the entire contents of a cell.

Using the Edit Command

Menu Path "Calc/Enter/edit"

To edit a cell entry

1. Select "Enter" from the Calc menu.
2. Select "edit" from the Enter menu.
3. When you are prompted, select the cell whose contents you want to edit.

   The menu line displays the contents of the cell.
4. Select the point on the menu line where you want to begin editing.

   The character that you selected is highlighted by the blinking edit cursor, which moves one character at a time as you edit the entry.
5. Using the editing keys, make the changes to the cell contents.
6. Press (↵) to end editing of the selected cell.

   The cell is changed and you are returned to the Enter menu.

Editing by Selecting from the Echo Line

When you select a cell, the cell's value or label is displayed on the echo line at the bottom of the worksheet. When the cell information is displayed, you can select the echo line to begin editing.

As discussed in the previous section, when you select a cell to edit using the edit command, the edit cursor highlights the first character in the cell entry displayed. When you select a cell entry directly from the echo line, the edit cursor will highlight the character you select. You then edit the cell as you do when using the edit command.

There is an additional useful feature that allows you to rapidly edit formulas. You can add cell coordinates to the formula simply by selecting the point in the formula where you want that cell included and select that cell from the worksheet. You must, however, type in the required operators to make the formula complete.

6 Recalculating the Worksheet

Chapter 6 Recalculating the Worksheet

Whenever you change the value in any worksheet cells, the worksheet must be recalculated to keep cell values accurate. Your worksheet automatically recalculates each time you change a value unless you change the type of recalculation to manual. You can also choose three methods of recalculation, all of which are discussed in this chapter.

Changing the Type of Recalculation

Menu Path "Calc/OPTIONS"

Whenever you change a value on your worksheet, the Visi On Calc™ program automatically recalculates your worksheet unless you change the type of recalculation on the Calc options sheet.

In most cases, you will want your worksheet to automatically recalculate. However, what if you have a very large worksheet? You may want to change to manual recalculation so that you will calculate the worksheet only after you have changed a number of values.

Figure 6-1 shows the portion of the Calc options sheet that allows you to change to manual recalculation.

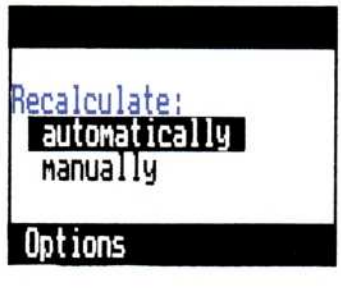


Figure 6-1. *You can choose to recalculate your worksheets two ways with the worksheet recalculation options: (1) manually, by selecting the "calc" command each time you want to recalculate the worksheet, or (2) automatically, every time you change a value on the worksheet.*

To change to manual recalculation

1. Select "OPTIONS" from the Visi On™ menu while the Calc menu is displayed.
2. Select "manually" for the type of recalculation.

   The type of recalculation changes to manual. The Calc options sheet remains displayed. To close the option sheet display:

   ☐ Select "done" from the options sheet menu.

   The options sheet no longer is displayed.

After you change to manual recalculation, you must then recalculate the worksheet by selecting the "calc" command in order to produce new values.

When you select the "calc" command, your worksheet is calculated according to the method of recalculation set in the Calc options sheet.

You can also recalculate the worksheet at any time by selecting the upper left corner of the worksheet where the row numbers and column letters intersect.

Methods of Recalculation

A worksheet can be recalculated in three different ways: by a method called natural order, by row, or by column. You would use recalculation by row and by column primarily for worksheets that you created using another spreadsheet program, such as the VisiCalc® or Visi Calc® Advanced Version programs.

All three of these methods are described in the following sections.

You can change the method of recalculation by changing the "Recalculation Method" option on the Calc options sheet.

Figure 6-2 illustrates the portion of the Calc options sheet that allows you to change the method of recalculation.

To change the method of recalculation

1. Select "OPTIONS" from the Visi On Menu while the Calc menu is displayed.
2. Select one of the three methods of recalculation.

   The method of recalculation changes to the option you selected. The Calc options sheet remains displayed. To close the option sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Natural Order Recalculation

Natural order recalculation is the method used by the Visi On Calc program to recalculate your worksheet unless you change the recalculation option on the Calc options sheet.

In natural order recalculation, the Visi On Calc program begins at the first cell that contains a formula, evaluates all the cells it refers to, and then evaluates the cell itself. Each cell is evaluated only once, so the next cell evaluated is the next cell which contains a formula and has not been evaluated.

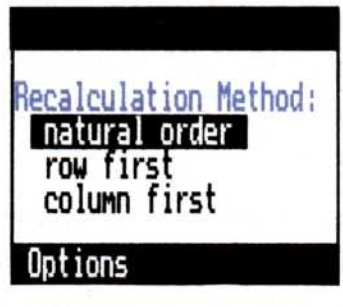


Figure 6-2. *The Recalculation Method options sheet lets you choose which of three ways you want your worksheet recalculated: (1) The worksheet's natural order, which means that beginning with the first cell on the worksheet, each formula and each cell it refers to is recalculated; (2) By rows, which means that all formulas in row 1 are calculated first, then those in row 2,3, etc.; (3) By columns, which means that all formulas in column A are calculated first, then those in columns B,C, etc.*

Recalculation by Row and Column

When the worksheet is recalculated by row, the Visi On Calc program begins the recalculation at the first cell in the worksheet that contains a value to be recalculated. All subsequent cells are then recalculated left to right in each row down the length of the worksheet.

When the worksheet is recalculated by column, the Visi On Calc program begins the recalculation at the top of the leftmost column that contains values to be recalculated. All subsequent cells are then recalculated top to bottom on each column across the worksheet.

If you are using a worksheet that has specifically been set up to use either recalculation by row or column, you will probably want to select one of these for the order of recalculation. Otherwise, you should use the default of natural order recalculation.

Resolving Forward and Circular References

Forward and circular references can cause misleading calculations or unpredictable results on your worksheet.

Forward References

If you are recalculating worksheets by row or column, they are calculated in a forward direction. For any cell, the formulas in the cells that follow it on the worksheet are always calculated always after that cell has been calculated.

If the cell being calculated refers to cells not yet calculated, the resulting values in those cells may be incorrect. For example, if the cell being calculated were A7, which referred to cell A15, the calculation for A7 would use the current value for A15. When A15 was then calculated, it would contain a new value that *had not* been used for calculating cell A7.

The results of the calculation of A7 would be inaccurate after A15 had been calculated. This might produce unreliable results for the worksheet.

If you are using natural order recalculation, forward references with not cause erroneous results.

Circular References

Circular references are cells with formulas which refer to themselves or to other cells which may contain a reference to the original cell. A simple circular reference might be 1+B7 for the formula in cell B7. A more complex, and harder to locate, circular reference might be when cell A1 contains the formula B1+1, cell B1 contains the formula C1+1, and cell C1 contains the formula A1+1, which refers back to cell A1 in a circular fashion.

In the case of the simpler circular reference above, each time the worksheet is calculated, the value of cell B7 will change even though B7 is not changed. Such circular references cause inaccurate results and should be avoided.

Regardless of the method of calculation you use to recalculate your worksheet, circular references will cause erroneous results.

7 Changing the Way a Worksheet Is Displayed

Chapter 7 Chainging the Way a Worksheet Is Displayed

There are many times when you will want to change how the worksheets you create are going to be displayed. There are several reasons why you might want to change how a worksheet is displayed:

- To make changes more easily on a large worksheet by creating more than one view of the worksheet.
- To fix areas of a worksheet in place so that you can view or print certain combinations of information.
- To see the formulas for cells in the worksheet.
- To change the width of columns to accommodate long labels or values.
- To change the display characteristics (attributes) for an area so that the worksheet information is more understandable and usable.

The following sections show you how to make each of these types of changes.

Establishing Fixed Rows and Columns (Titles)

Menu Path "Calc/Display/titles"

You may want certain parts of your worksheet to remain stationary, or fixed, while you are scrolling the rest of the worksheet. The "titles" command on the Display menu allows you to make rows and columns stationary so they will not scroll.

For example, if rows 1 through 5 on your worksheet contained headings that you wanted to print with information contained in rows 60 through 70, you could fix the first five rows in place, scroll rows 60 through 70 upward, and print the two areas together.

For all titles selections, the Visi On Calc™ program uses the last value you established. For example, if you had previously fixed 10 columns in place and you subsequently fix 5 columns in place, only 5 columns will remain stationary when you scroll.

When you select "titles," the prompt for the type of area to be fixed in place is then displayed. Figure 7-1 shows this prompt.

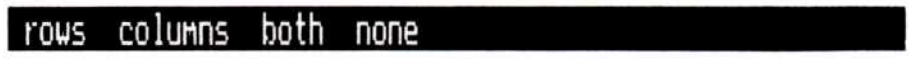


Figure 7-1. *You can elect to fix rows, columns, or rows and columns as titles. You can also elect to no longer have titles.*

Establishing Fixed Rows

To fix rows in place

1. Select "Display" from the Calc menu.
2. Select "titles" from the Display menu.
3. Select "rows" for type of area.
4. Select the *bottom* row you want fixed in place.

The row selected and all rows above it are then fixed in place for the entire width of the worksheet.

Figure 7-2 shows an example of fixed rows.

Establishing Fixed Columns

To fix columns in place

1. Select "Display" from the Calc menu.
2. Select "titles" from the Display menu.
3. Select "columns" for type of area.
4. Select the *rightmost* column you want fixed in place.

The column selected and all columns to the left are then fixed in place for the entire length of the worksheet.

Figure 7-3 shows you an example of fixed columns.

Establishing a Fixed Area of Rows and Columns

When you fix rows and columns in place, all the cells in the area you select are fixed in place for the entire width or length of the worksheet.

For example, if you wanted to fix rows 1 through 10 and columns A through G in place, you would select the the point at which those rows and columns intersect, (for example, at row 11, column H).

To fix both rows and columns in place

1. Select "Display" from the Calc menu.
2. Select "titles" from the Display menu.
3. Select "both" for type of area.
4. Select the *corner* where the rows and columns to be fixed in place intersect.

The rows and columns selected are fixed in place, and you are returned to the Display menu.

Figure 7-4 illustrates a typical fixed area.

Figure 7-2. *In this figure, the top two rows in the worksheet are fixed in place.*

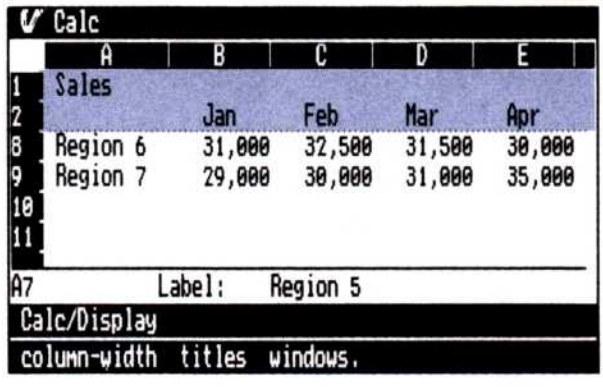


Figure 7-3. *In this figure, column A on the worksheet is fixed in place.*

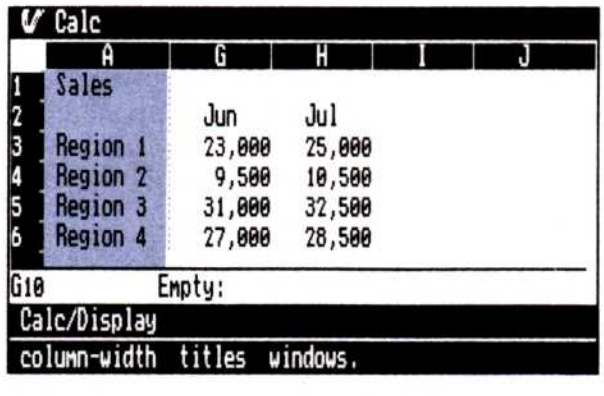
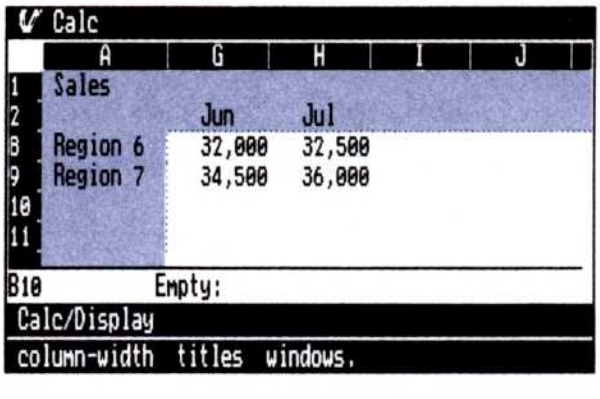


Figure 7-4. *In this figure, the column A and the first two rows are fixed in place.*



Re-establishing Full Scrolling

You may want to "unfix" fixed areas of the worksheet so that you can scroll the whole worksheet.

To re-establish full worksheet scrolling

1. Select "Display" from the Calc menu.
2. Select "titles" from the Display menu.
3. Select "none" for the type of titles.

You can now scroll the selected area with the rest of the worksheet.

Using Two Views for a Worksheet

Menu Path "Calc/Display/windows"

The "windows" command lets you split your worksheet either vertically or horizontally, creating two views of your worksheet.

By creating two views, you can scroll the worksheet in one view, make changes, and see the effect of those changes in the other view. For example, if you were changing values in column B that changed totals in column K, two vertical views would allow you to see the effect of the changes as you made them.

Figure 7-5 shows an example of vertical views. Figure 7-6 shows an example of horizontal views.

Creating Two Views

To create two views

1. Select "Display" from the Calc menu.
2. Select "windows" from the Display menu.
3. Select "open" for the window function.
4. Select the direction in which you want the views created:
   - ☐ "horizontally" for two horizontal views.
   - ☐ "vertically" for two vertical views.
5. Select the row or column where the second view is to be created.

   The second view is then created, and the same portion of the worksheet displays in each view.

There are restrictions on how small a view you can create. The smallest a vertical view can be is one character wide by five rows high. The smallest a horizontal view can be is one row high by ten characters wide.

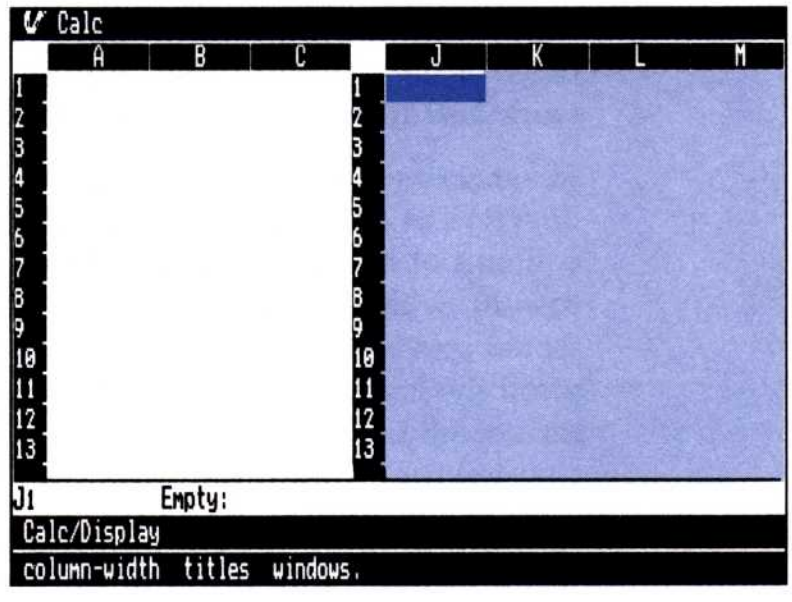


Figure 7-5. *You can split the worksheet to show two vertical views.*

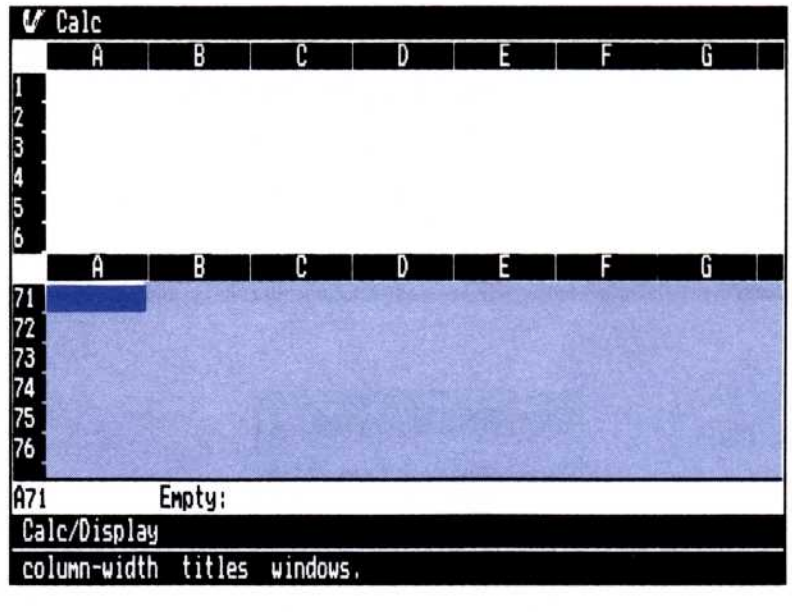


Figure 7-6. *You can also split the worksheet to show two horizontal views.*

Scrolling a Worksheet with Two Views

Menu Path "Calc/Display/OPTIONS"

When you create two views of a worksheet, you scroll each view independently. This allows you to make changes in one view and see the effect of those changes in the other view.

You may want the views of the worksheet to scroll together (synchronized), so you can see parts of the worksheet together that would normally be far apart.

In synchronized scrolling, the views scroll together in the direction of the views. For example, if you had monthly columns of budgetary figures that went from row 10 to row 40, with totals in row 40, only the upper rows would be visible. You could create horizontal views, scroll the lower view until the totals came into view, and then scroll both views horizontally to see how the totals changed for each month.

You change the Display options sheet (Figure 7-7) to establish synchronized scrolling.

To select synchronized scrolling

1. Select "Display" from the Calc menu.
2. Select "OPTIONS" from the Visi On™ menu.
3. Select "yes" for the *Synchronized Scrolling* option.

   Both views will now scroll together in the direction in which you created the view.

   The Display options sheet remains displayed. To close the options sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

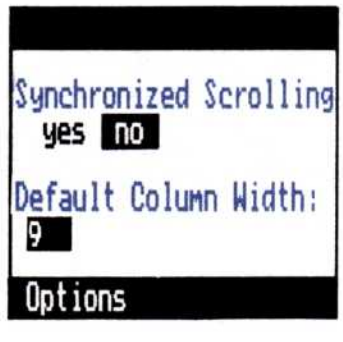


Figure 7-7. *This portion of the Display options sheet lets you choose whether or not to do synchronized scrolling.*

Closing a View

Menu Path "Calc/Display/windows"

Generally, you won't use the "close" command if you have only one view open. If you select "close" and only one view is open, you are returned to the Display menu.

To close a view

1. Select "Display" from the Calc menu.
2. Select "windows" from the Display menu.
3. Select "close" for the window function.

   You are prompted to select the view you want to close.
4. Select the view you want to close.

The view you select is closed and you are returned to the Display menu.

Moving the Cursor in Two Views

To move the cursor between views, simply select a cell in the view you want. The cursor then moves to that cell.

When you close a view, it is possible that the cursor will not be displayed in the remaining view. To bring the cursor into view, you can either scroll the worksheet until the cursor is displayed or select a cell in the part of the worksheet that is displayed.

Displaying Cell Contents and a Worksheet Grid

There are two display features you will find particularly helpful as you create and modify your worksheets.

The "grid" feature allows you to display a vertical grid of dots that separate the columns on your worksheet. This helps you when you enter or change the contents of individual cells.

The second feature allows you to display the formulas for the cells in the worksheet. This is particularly useful

when you want to examine a large number of formulas or print them out for comparison with formulas on other worksheets.

The sections that follow explain each of these features.

Displaying Formulas in Cells

Menu Path "Calc/Display/OPTIONS"

Normally, your worksheet displays only values in cells that contain formulas. This is logical, since you want to see the values that are the results of calculations rather than the formulas behind the calculations.

However, you'll often find it useful to display worksheet formulas. For example, you may want to compare several formulas or confirm that they are correct. You may also want to print a copy of the worksheet formulas to use as a reference.

When you are using two views of a worksheet, you can display the calculated values in one view and the formulas behind them in the other view.

To display formulas, you change the display option on the Display options sheet (Figure 7-8).

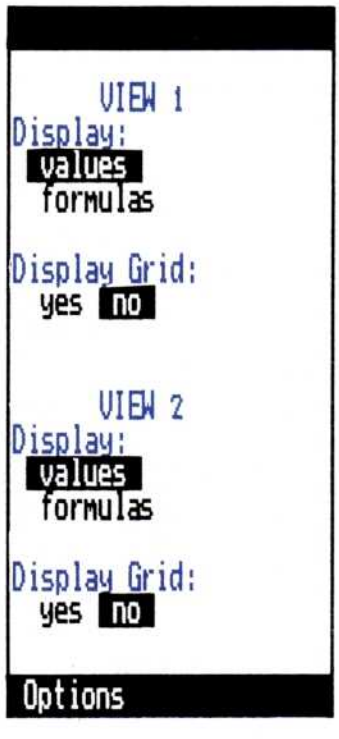


Figure 7-8. *This portion of the Display options sheet allows you to set different display options in each view; the options you can set are (1) whether to display formulas or their resultant values, and (2) whether or not to superimpose a grid on the worksheet display.*

To display worksheet formulas

1. Select "Display" from the Calc menu.
2. Select "OPTIONS" from the Visi On™ menu.
3. Select "formulas" for the type of display in either view of the worksheet.

   Formulas then display in the view selected.

   If there are two views, View 1 is the left or top view. If there is only one view, that view is always View 1.

   The Display options sheet remains displayed. To close it:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Displaying a Grid on Your Worksheet

Menu Path "Calc/Display/OPTIONS"

Your worksheet normally displays with the row and column coordinates highlighted. You will probably find that you can easily select cells with just these two indicators, but the "grid" feature can make this an even easier task.

To display a grid on your worksheet, you change the "display grid" option on the Display options sheet (Figure 7-8).

To display a grid on your worksheet

1. Select "Display" from the Calc menu.
2. Select "OPTIONS" from the Visi On™ menu.
3. Select "yes" for "display grid" for either view of the worksheet.

   A vertical grid of dots is then displayed in the view selected.

   If there are two views, View 1 is the left or top view. If there is only one view, that view is always View 1.

   The Display options sheet remains displayed. To close it:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Clearing the Worksheet

Menu Path "Calc/Cut&Paste/erase"

You may often create worksheets that you don't want to save. Or you might use a worksheet temporarily to see what effect certain changes have on worksheet data.

In either case, you can use the "erase" command to remove all data from the worksheet.

To erase the worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "erase" from the Cut and Paste menu.
3. When prompted, select either "yes" or "no" to confirm whether you want the worksheet erased.

When you erase your worksheet, all data will be cleared from it. If you have changed any display attributes or the column width, those changes are erased as well.

Changing Column Widths

The program initially makes all worksheet columns nine characters wide. You may want to change a column width to allow for long labels or large numbers, particularly those requiring a larger number of decimal places. You can set a column width to be anywhere from 2 to 255 characters wide.

The following sections cover changing the width of one or more columns, or setting one column width for the entire worksheet.

Changing the Width of One Column

Menu Path "Calc/Display/column-width"

You will often want to change only one column, or several columns individually across your worksheet. For example, you may have a budget that requires one wider column for the various budgetary categories and one for the totals for the categories. You can individually set each of these column widths.

To change the width of one column

1. Select "Display" from the Calc menu.
2. Select "column-width" from the Display menu.
3. Select the *leftmost* column you want to change.

   The column is then highlighted.
4. Select the *rightmost* column you want to change.

   Because you want to change only one column, this is the same as the previous selection.
5. When prompted, type the new column width (from 2 to 255) and press ↵.

The width of the column changes, and you are returned to the Display menu.

Changing the Width of Several Columns

Menu Path "Calc/Display/column-width"

You will often want to change the width of several columns at a time. For example, you might have several columns next to each other that contain wide headings. You would want to set all these columns to one width.

To change the width of more than one column

1. Select "Display" from the Calc menu.
2. Select "column-width" from the Display menu.
3. Select the *leftmost* column you want to change.

   The column selected is then highlighted.
4. Select the *rightmost* column you want to change.

   All columns selected are then highlighted.
5. When prompted, type the new column width (from 2 to 255) and press ↵.

All columns selected change to the new width, and you are returned to the Display menu.

Changing the Width of All Columns

Menu Path "Calc/Display/OPTIONS"

You might want to change the width of all columns for much the same reason as you would change several columns. You may have a worksheet in which all columns need to be wider because of long headings.

You would change the width of all columns on your worksheet by changing the default column width on the Display options sheet (Figure 7-9). This change will affect all columns whose widths have not been explicitly set with the "column-width" command.

To change the width of all columns

1. Select "Display" from the Calc menu.
2. Select "OPTIONS" from the Visi On menu.
3. Type in the new "Default Column Width" (from 2 to 255) and press ↵.

   When you enter the new column width, all columns change to that width. You are then returned to the Display menu.

   The Display options sheet remains displayed. To close it:

   ☐ Select "done" from the options sheet menu.

   The options sheet no longer is displayed.

Changing Worksheet Display Characteristics

Menu Path "Calc/Attrib" or
"Calc/Enter/OPTIONS"

Initially, the Visi On Calc program controls the way the contents of a worksheet are displayed by establishing a set of display characteristics (attributes).

You change all attributes by using the Attributes options sheet which displays when you select the "Attrib" command.

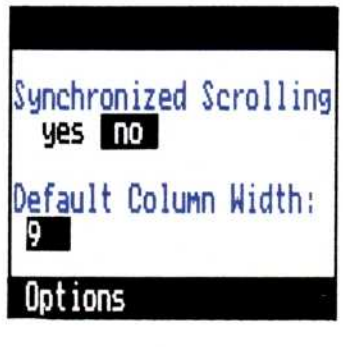


Figure 7-9. *This portion of the Display options sheet lets you change the width of all columns not already explicitly set.*

At the top of the Attributes options sheet are the "Attribute Settings" options. The "use default for all" option means that you want the initial Visi On Calc program settings (defaults) to be used for all options on the options sheet. The "use settings below" option means that you want to use whatever settings are currently in the options sheet.

Each set of attribute options has both an *as is* and a *default* setting.

The *default* setting is the setting originally established for that attribute by the Visi On Calc program. If you do not change this setting, the worksheet cells will always use it.

The *as is* setting is the value you most recently used for an attribute. Initially, all *as is* settings are also the default settings. When the Enter or Attributes options sheet is first displayed for a worksheet, all options are set to "as-is." "As-is" means that the attributes already set in these options sheets are maintained at their current settings until you change them.

When you have set certain attributes for a cell, one or more special characters will display on the echo line to the right of the displayed cell coordinates. Up to five characters may be displayed, with each one being one of the following:

- First character: F—Fixed precision format
  S—Scientific format
  T—Thousands format
  M—Millions format
- Second character: (only if Fixed precision):
  Ø,1,2,3,4,5,6,7,8,9—digits
  V—Variable digits
- Third character: >—right adjustment
  ^—centered
  <—left adjustment
- Fourth character: %—trailing percent (also, multiplied by 1ØØ)
  $—monetary (any) display
- Fifth character: F—only formulas accepted
  L—only labels accepted
  V—only values accepted

The following sections describe each of the attributes on the Attributes options sheet and the Enter options sheet.

Figure 7-10. *This portion of the options sheet lets you choose the way values are shown on your worksheet.*

Display Format—You use this option to select the display format for numbers. Decimal format is the default. Figure 7-10 shows this portion of the options sheet.

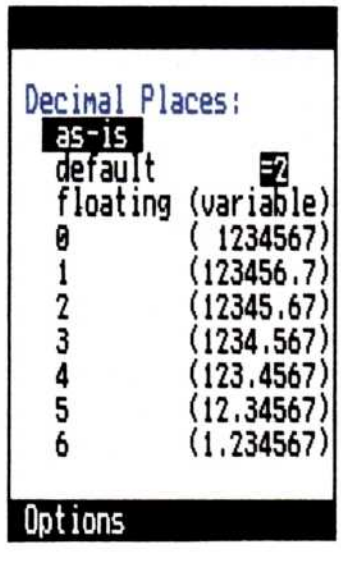


Figure 7-11. *This portion of the options sheet is where you specify to how many decimal places the values on your worksheet are to be displayed.*

Decimal Places—You use this option to specify the number of digits that display to the right of the decimal point. The default for this option is two digits. Figure 7-11 shows this option.

Alignment—You use the alignment options to align labels or values within cells. The defaults are left-aligned for labels and right-aligned for numbers. Figure 7-12 shows these options.

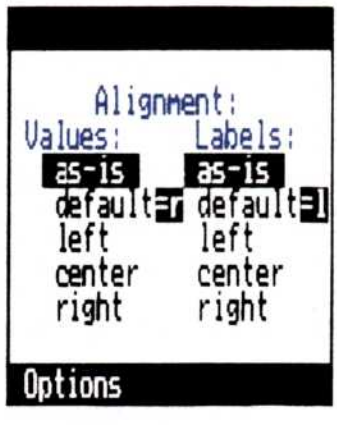


Figure 7-12. *Here you can control how values and formulas are aligned in cells on your worksheet.*

Special Formats—You use the special format options to put dollar signs in a cell in different ways or to add a percent sign to cell values. The special format default is "nothing." The special format options are shown in Figure 7-13.

Tabstops—You use the tabstop options if you want to make certain cells tab cells. The tabstops default is "set-to-on." You use "set-to-off" if you do not want to create tab cells. Figure 7-14 shows the tab option.

Figure 7-13. *The special format options let you display a dollar sign or percentage sign in a cell.*

Data Type Allowed—You use the data type options to specify what type of data you want in specific cells. For example, if your worksheet had an area for entering employee numbers, you might specify that those cells will only accept numbers. The data type default is "all." Figure 7-15 shows the Data Type Allowed option.

Figure 7-14. *The tabstops option lets you set tabs in cells so you can move quickly from cell to cell.*

Cell Contents—You use the Cell Contents options to keep the contents of cells from displaying. This can be particularly useful if you have a budget worksheet to be seen or used by several people, but do not want salaries to display. The default is that all contents are visible. Figure 7-16 shows the Cell Contents option.

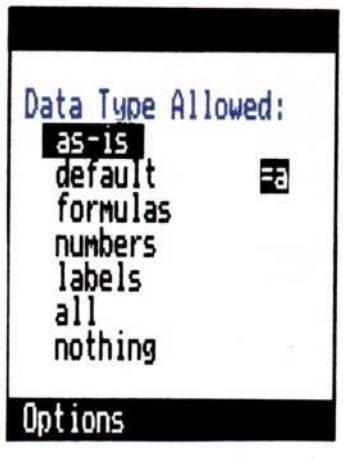


Figure 7-15. *The Data Types Allowed option lets you control what types of data can and cannot be entered in a cell.*

Cell Protection—You use cell protection to keep the contents of cells from being changed during data entry. When a worksheet is used by several people, you might want to protect titles or headings so that they would not be accidentally changed. The default is that no cells are protected. Figure 7-17 shows the Cell Protection option.

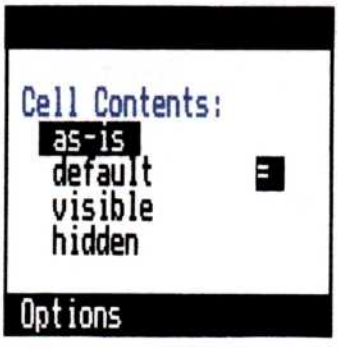


Figure 7-16. *The Cell Contents option lets you hide the contents of a cell.*

When you are replacing data from one worksheet with data from another worksheet using the transfer or overlay function, cell protection does not apply to those cells whose contents are replaced. Cell protection only applies to entering data.

Figure 7-17. *The Cell Protection option protects a cell from data being entered into it.*

Figure 7-18. *The Upper Bound option lets you specify the maximum value that can be entered in a cell.*

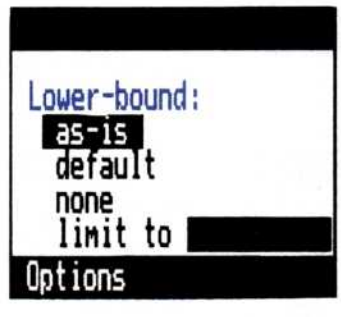


Figure 7-19. *The Lower Bound option lets you specify the minimum value that may be entered in a cell.*

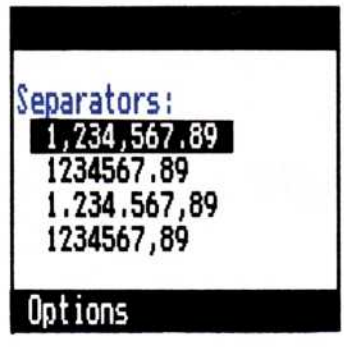


Figure 7-20. *The separators option lets you display commas or periods (1) between thousands, hundred thousands, millions, etc., for large values, and (2) at the beginning of the decimal portion of a value.*

Upper-bound—You use the upper-bound option to specify the largest actual value that may be entered in a cell. For example, in cells containing social security numbers, you could set the upper-bound to 999999999. All cells remain unbounded unless you change this option by typing in a number for upper-bound. The Upper Bound option is shown in Figure 7-18.

Lower-bound—You use the lower-bound option to specify the smallest actual value that may be entered in a cell. For example, you may want only items greater than one dollar to be entered in an expense report. Using two decimal places, you would set the lower-bound for these cells to 1.00. All cells remain unbounded unless you change this option by typing in a number for lower-bound. Figure 7-19 shows the Lower Bound option.

Global Display Options—There are three sets of attributes that you can apply only to the entire worksheet (globally). These are contained in the Display options sheet and are discussed in the following sections.

Menu Path "Calc/Display/OPTIONS"

Separators—You use separators to separate the thousands digits with either commas or periods. The default is that commas separate the thousands digits. Figure 7-20 shows the Separators option.

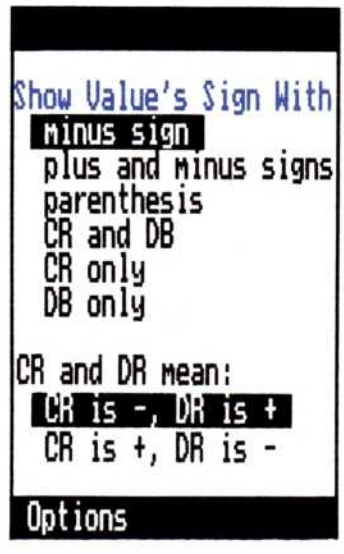


Figure 7-21. *The Show Value's Sign option lets you display the arithmetic sign or accounting symbol of a value.*

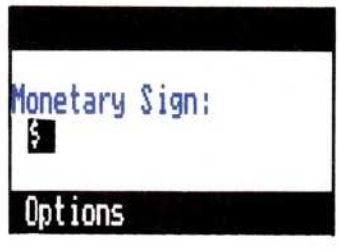


Figure 7-22. *The Monetary Sign option lets you display a monetary sign with a value.*

Show Value's Sign With—You use these options to specify how signs are to be displayed for values. The default is that negative values are displayed with a minus sign.

If you are displaying credits and debits, two options allow you to specify how you want credits and debits to be interpreted. You use this in conjunction with one of the credit and debit options in the upper part of the options sheet. The default for displaying credits and debits is a minus for credits and plus for debits. Figure 7-21 illustrates the Show Value's Sign option.

Monetary Sign—You use this option to change the monetary symbol for a numeric cell entry. The monetary sign default is the dollar sign. Figure 7-22 shows the Monetary Sign option.

Making Attribute Changes on Options Sheets

When you select "Attrib" from the Calc menu, the Attributes menu and the Attributes options sheet are displayed. You use the Attributes menu to:

- Change attributes for a selected area of your worksheet.
- Change the attribute default settings.
- Maintain the current, or "as is," settings.

Figure 7-23 shows the Attributes menu.

```
by-cell  rows  columns  area  global  default  set-as-is.
```

Figure 7-23. *The Attributes menu lets you indicate where your attribute settings are to take effect.*

Changing Attributes for Individual Cells

To change attributes for individual cells

1. Select the attribute(s) you want to change.
2. Select one option for each attribute you want to change.
3. Select "by-cell" for type of area.
4. Select the cells whose attributes you want to change.
5. Select "done" from the menu line when you have finished selecting the cells.

   The attributes are then changed. You can continue to change attribute options for additional areas or select "Calc" to return to the Calc menu.

   The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

   To close the options sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Changing Attributes for a Row

To change attributes for a row

1. Select the attribute(s) whose value you want to change.
2. Select one option for each attribute you want to change.
3. Select "rows" for the type of area to change.
4. Select the rows you want to change attributes for by selecting a cell in each row.
5. Select "done" from the menu line when you have finished selecting the rows.

   The attributes of those rows are then changed. You can continue to change attribute options for additional areas or select "Calc" to return to the Calc menu.

The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

To close the options sheet:

- ☐ Select "done" from the options sheet menu.

The options sheet is no longer displayed.

Changing Attributes for a Column

To change the attributes for a column

1. Select the attribute(s) you want to change.
2. Select one option for each attribute to be changed.
3. Select "columns" for the type of area to change.
4. Select the columns you want to change attributes for by selecting a cell in that column.
5. Select "done" from the menu line when you have finished selecting the columns.

   The attributes are then changed. You can continue to change attribute options for additional areas or select "Calc" to return to the Calc menu.

   The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

   To close the options sheet:

   - ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Changing Attributes for a Rectangular Area

To change the attributes for a rectangular area

1. Select the attribute(s) you want to change.
2. Select one option for each attribute to be changed.
3. Select "area" for the type of area.
4. Select the *first target cell* of the rectangular area whose attributes are to be changed.

   The first target cell is the upper left cell of the area.
5. Select the *target endpoint* of the area whose attributes you want to change.

   The target endpoint is the lower right cell of the area.

   The attributes are then changed. You can continue to

change attribute options for additional areas or select "Calc" to return to the Calc menu.

The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

To close the options sheet:

☐ Select "done" from the options sheet menu.

The options sheet is no longer displayed.

Changing Attributes for the Entire Worksheet

The "global" command allows you to change the attributes for all cells which contain labels, names, imports, or values. This change will not affect cells you subsequently enter data into.

To change the attributes for all defined cells

1. Select the attribute(s) you want to change.
2. Select one option for each attribute to be changed.
3. Select "global" for the type of area.
4. When you are prompted, select "yes" to confirm that you want attributes changed for all defined cells.

   The attributes are then changed. You can continue to change attribute options for additional areas or select "Calc" to return to the Calc menu.

   The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

   To close the options sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Changing Attribute Default Settings

You use the "default" command on the Attributes menu to use the default settings for all cells for which explicit attributes have not been set. Unless you change individual attributes and apply those attributes to selected cells, defaults will apply to all cells.

To use the default settings for cells

1. Select the attribute(s) whose default setting you want to change.
2. Select the options you want to be the defaults.

3. Select "default" from the Attribute menu.

4. When you are prompted, select the type of cells to which you want the defaults to apply.

   - ☐ "formulas" for cells that contain numbers or formulas.
   - ☐ "labels" for cells that contain only labels.
   - ☐ "both" for cells that contain labels, numbers, and formulas.

   The default settings then will apply to all cells for which attributes have not explicitly been set.

   The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

   To close the options sheet:

   - ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Resetting the Options Sheet

When you select the "set-as-is" command, all current settings on the options sheet will be maintained "as-is."

1. Select "set-as-is" from the Attributes menu.

   All current settings for options are maintained "as-is" until changed.

   The Attributes options sheet remains displayed while you use the "Attrib" command. It changes to the Calc options sheet if you return to the Calc menu.

   To close the options sheet:

   - ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

Changing Attributes Using the Display and Enter Options Sheets

Both the Display and Enter options sheets contain attributes that you can change. You would change these options sheets in much the same way as you change the sheets using the "Attrib" command.

When you change attributes in these two options sheets, you first pick the new options. However, you do not select a type of area you want to change the options for.

In the Display options sheet, all attributes you change affect the entire worksheet, with the exception of the column widths, which will not be changed if a column width has been explicitly set using the "column-width" command.

At the top of the Enter options sheet are the "Attributes Below Apply" options. You can elect to have the options you select on the Enter options sheet to apply "to new & edit cells," (which includes settings with the "cell-attrib" command) or only to cells you select using the "cell-attrib" command ("to cell-attrib only"). The default for this option is "to new & edit cells."

In the Enter options sheet, if the "to cell-attrib only" option is selected, all changes affect only the cells you select individually by using the "cell-attrib" command from the Enter menu. You change attributes using this command in the same way you use the "Attrib" command from the Calc menu.

To use the "cell-attrib" command

1. Select "Enter" from the Calc menu.
2. Select "OPTIONS" from the Visi On menu.

   The Enter options sheet is displayed. If necessary, scroll the Enter menu line until the "cell-attrib" command comes into view.
3. Change the desired options on the Enter options sheet.
4. Select "cell-attrib" from the Enter menu.

   You are prompted to individually select the cells to which you want the attributes to apply.
5. Select the desired cells.
6. When you are finished selecting cells, select "done" from the menu line.

   All cells selected now use these attribute settings.

   The Enter options sheet remains displayed while you use the "cell-attrib" command.

   To close the options sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

8 Moving Information around the Worksheet

Chapter 8 Moving Information around the Worksheet

You may often want to change your worksheet by moving or copying information from one location to another, deleting certain information, adding blank space for new information, or rearranging the order by sorting the information.

The following sections cover the commands you use to do these various tasks.

Moving Rows or Columns around the Worksheet

You use the "move" command to move areas composed of either rows or columns. When you move an area, you also move the attributes and contents for all cells within it.

After you move an area, it is deleted from its original location. The Visi On Calc program adjusts the formulas throughout the worksheet so that the same references are maintained.

Moving Rows

Menu Path "Calc/Cut&Paste/move"

To move one or more rows to a different location on the worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "move" from the Cut and Paste menu.

   You are prompted to select the type of area to be moved, either "rows" or "columns."
3. Select "rows" for the type of area to be moved.
4. Select the starting row of the area to be moved.

   The starting row is highlighted.
5. Select the ending row of the area to be moved.

   All rows to be moved are highlighted.
6. Select the place where you want the rows moved, as shown in Figure 8-1.

After the rows are moved, you are returned to the Cut and Paste menu.

Figure 8-1 illustrates moving a row.

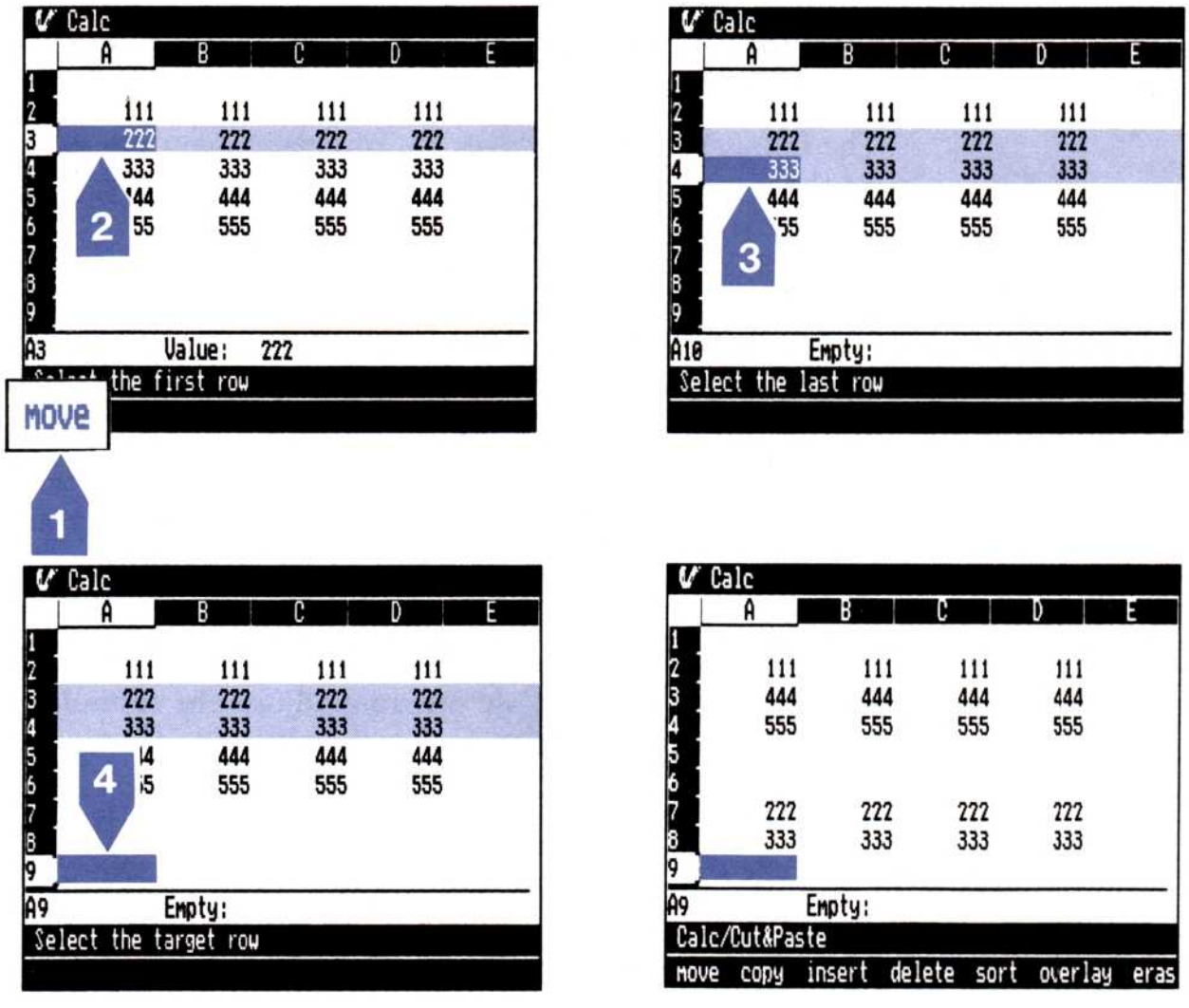


Figure 8-1a. *You move rows 3 and 4 to rows 7 and 8 respectively by (1) selecting "move" from the Cut and Paste menu, (2) selecting row 3 as the first row to be moved, (3) selecting row 4 as the last row to be moved, and (4) selecting row 9 as the destination row.*

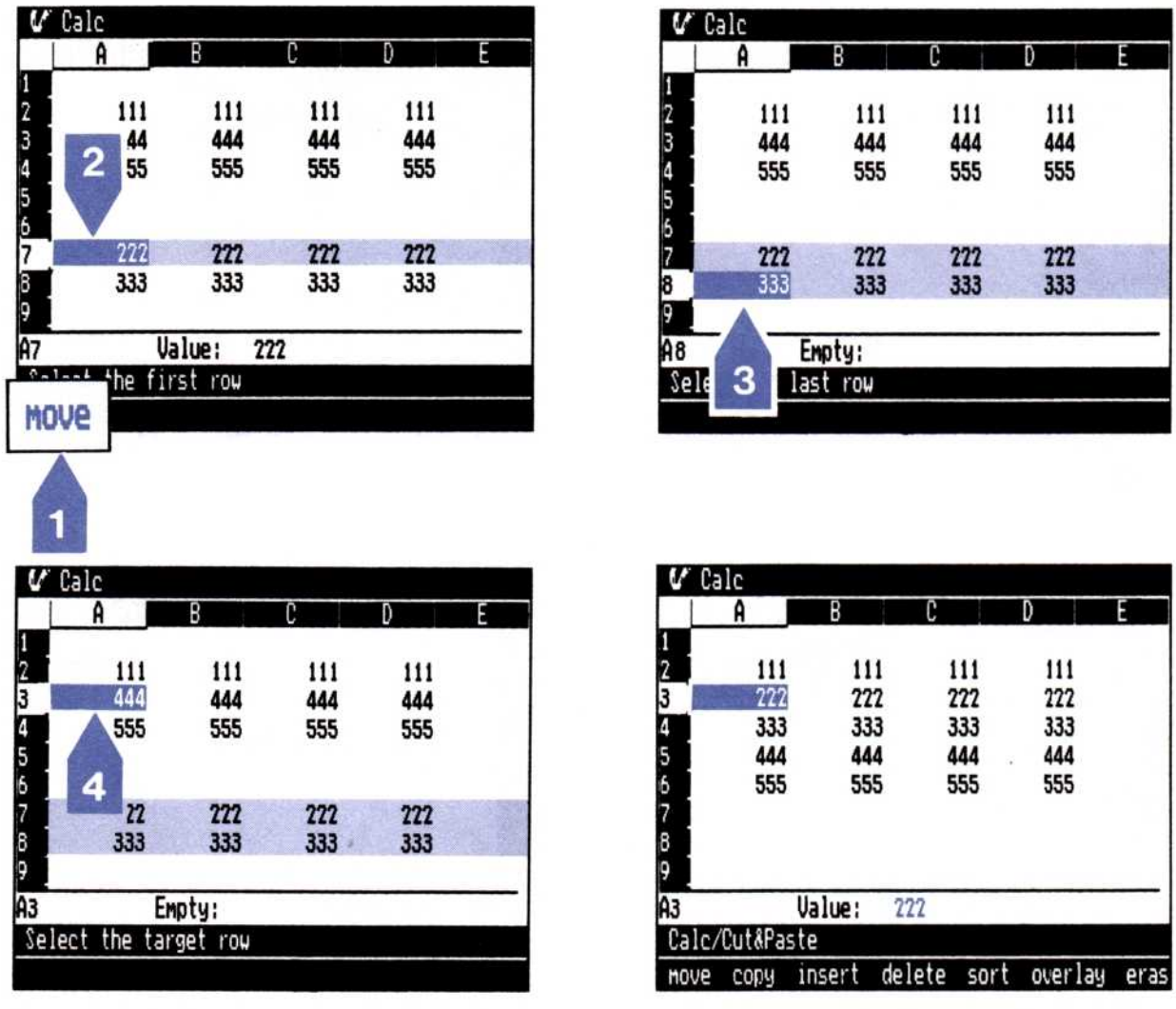


Figure 8-1b. *You move rows 7 and 8 to rows 3 and 4 respectively by (1) selecting "move" from the Cut and Paste menu, (2) selecting row 7 as the first row to be moved, (3) selecting row 8 as the last row to be moved, and (4) selecting row 3 as the destination row.*

Moving Columns

Menu Path "Calc/Cut&Paste/move"

To move one or more columns

1. Select "Cut&Paste" from the Calc menu.
2. Select "move" from the Cut and Paste menu.

   You are prompted to select the type of area to be moved, either "rows" or "columns."
3. Select "columns" for the type of area to be moved.
4. Select the starting column of the area to be moved.

   The starting column is highlighted.

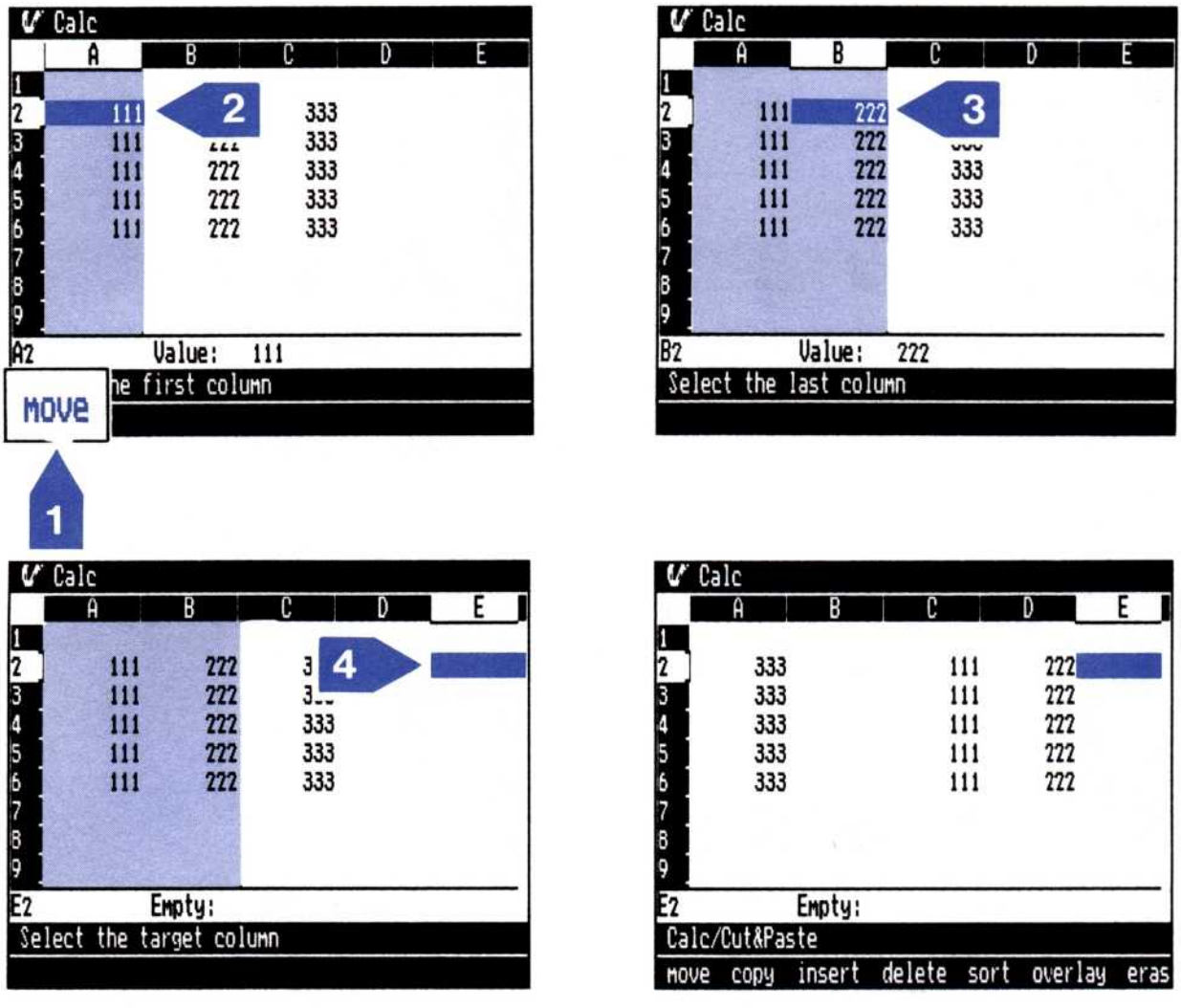


Figure 8-2a. *You move columns A and B to columns C and D respectively by (1) selecting "move" from the Cut and Paste menu, (2) selecting column A as the first column to be moved, (3) selecting the column B as the last column to be moved, and (4) selecting column E as the destination column.*

5. Select the ending column of the area to be moved.
   All columns to be moved are highlighted.
6. Select the place where you want the columns moved, as shown in Figure 8-2.

After the columns are moved, you are returned to the Cut and Paste menu.

Figure 8-2 illustrates moving a column.

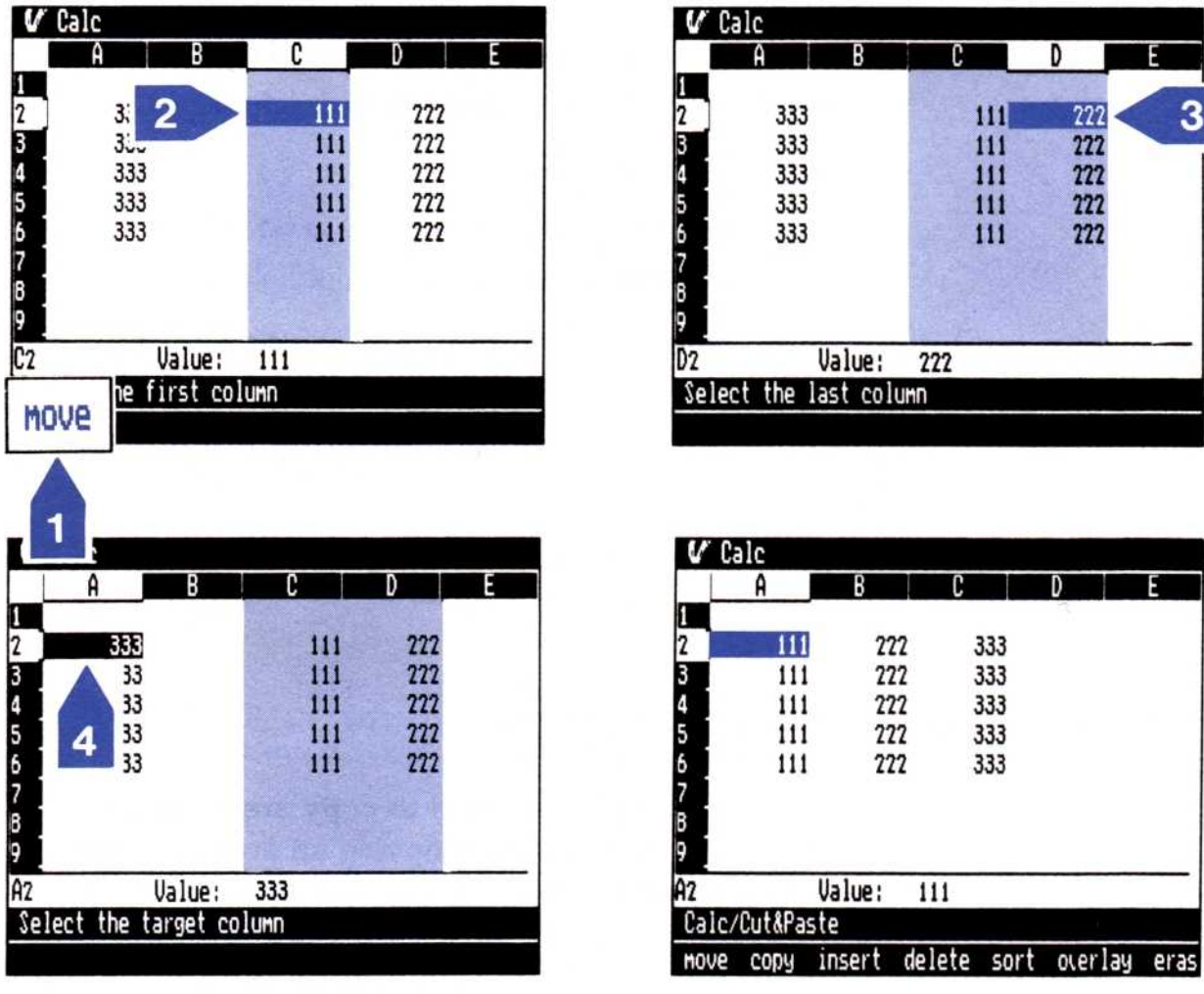


Figure 8-2b. *You move columns C and D to columns A and B respectively by (1) selecting "move" from the Cut and Paste menu, (2) selecting column C as the first column to be moved, (3) selecting the column G as the last column to be moved, and (4) selecting column A as the destination column.*

Using Two Views with the "Move" Command

Menu Path "Calc/Cut&Paste/move"

When you are working with two views of the same worksheet, you can select the start and end of an area from either view. This is a fast way to define an area to be moved if it is larger than what would normally fit into a full-size view.

To use two views in moving an area

1. Select "Cut&Paste" from the Calc menu.
2. Select "move" from the Cut and Paste menu.

   You are prompted to select the type of area to be moved, either "rows" or "columns."

3. Select either "rows" or "columns" for the type of area to be moved.
4. Select the starting row or column to be moved.
   The starting row or column is highlighted.
5. Select the other view.
6. Select the ending row or column to be moved.
   The entire area to be moved is highlighted.
7. Select the place where you want your rows or columns to be moved, as you would using one view.

After the area is moved, you are returned to the Cut and Paste menu.

Figure 8-3 illustrates a move using two views.

Copying Rows and Columns

You use the "copy" command to copy areas composed of either rows or columns. Copying an area also copies the attributes and contents for all the cells within the area. The program then adjusts the formulas throughout the worksheet so that the same references will be maintained.

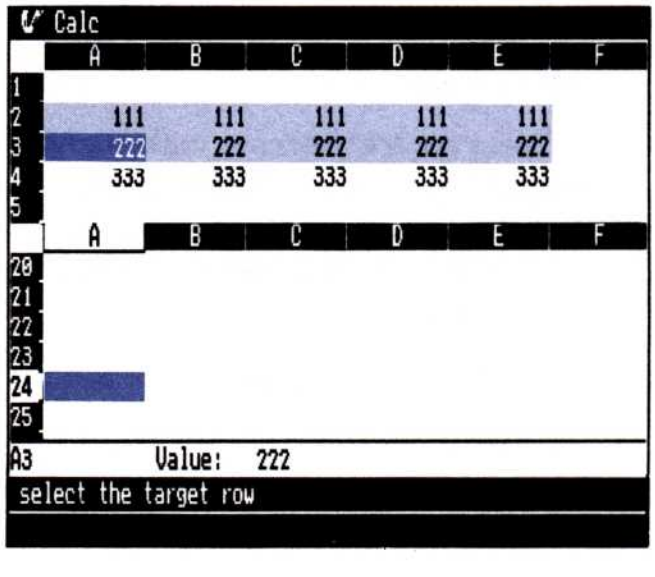


Figure 8-3. *To use two views to move rows 2 and 3 to rows 22 and 23, (1) select "move" from the Cut and Paste menu, (2) select A2 as the first cell of the area to be moved, (3) select A3 as the last cell in the area to be moved, (4) select cell A24 in the bottom view.*

Copying Rows

Menu Path "Calc/Cut&Paste/copy"

To copy rows into a different location on the worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "copy" from the Cut and Paste menu.
   You are prompted to select the type of area to be copied, either "rows" or "columns."
3. Select "rows" for the type of area to be copied.
4. Select the starting row of the area to be copied.
   The starting row is highlighted.
5. Select the ending row of the area to be copied.
   All rows to be copied are highlighted.
6. Select the row where you want to put the copied rows.

After the rows are copied, you are returned to the Cut and Paste menu.

Figure 8-4 illustrates copying a row.

Copying Columns

Menu Path "Calc/Cut&Paste/copy"

To copy columns into a different location on the worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "copy" from the Cut and Paste menu.
   You are prompted to select the type of area to be copied, either "rows" or "columns."
3. Select "columns" for the type of area to be copied.
4. Select the starting column of the area to be copied.
   The starting column is highlighted.
5. Select the ending column of the area to be copied.
   All columns to be copied are highlighted.
6. Select the column where you want to put the copied columns.

After the columns are copied, you are returned to the Cut and Paste menu.

Figure 8-5 illustrates copying columns.

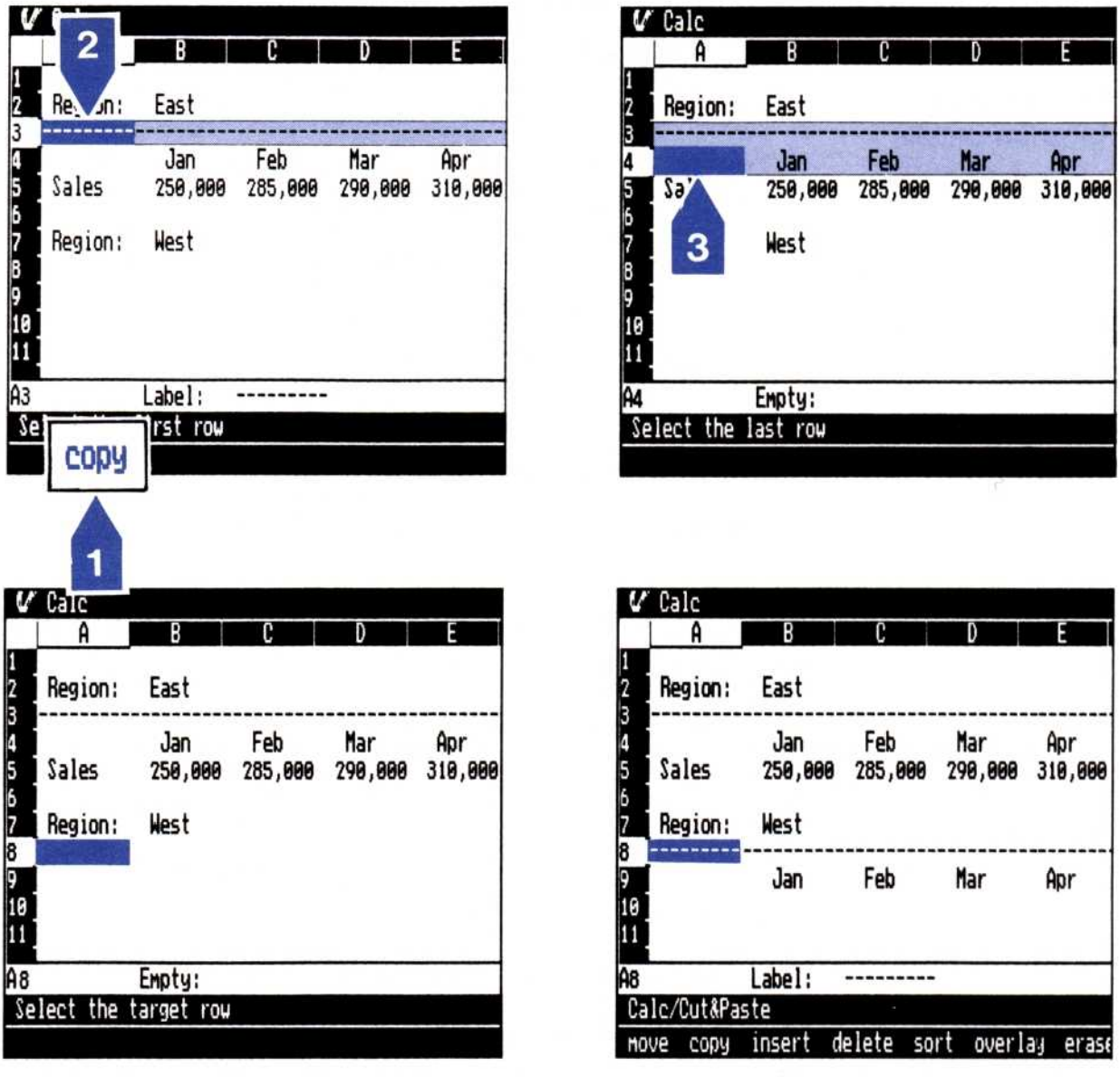


Figure 8-4. *To make a copy of rows 3 and 4 in rows 8 and 9, (1) select "copy" from the Cut and Paste menu, (2) select row 3 as the first row to be copied, (3) select row 4 as the last row to be copied, and (4) select row 8. Rows 3 and 4 are copied into rows 8 and 9.*

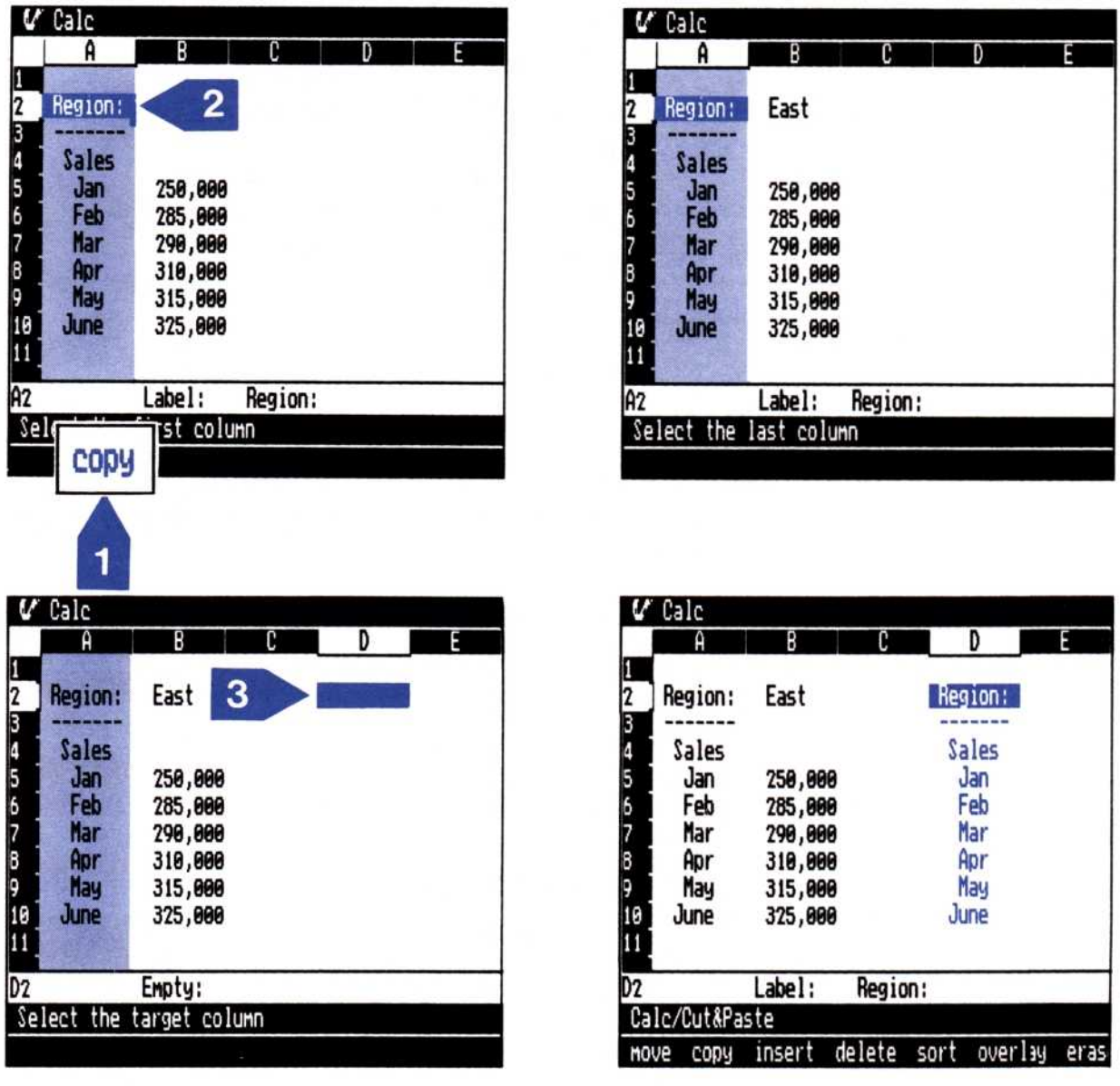


Figure 8-5. *To copy column A into column D, (1) select "copy" from the Calc menu, (2) select column A as the first and last column to be copied, and (3) select column D. A copy of column A appears in column D.*

Using Two Views with the "Copy" Command

Menu Path "Calc/Cut&Paste/copy"

When you are working with two views of the same worksheet, you can select the start and end of an area from either view. This is a fast way to define an area to be copied if it is larger than what would normally fit into a full-size view.

To use two views in copying an area

1. Select "Cut&Paste" from the Calc menu.
2. Select "copy" from the Cut and Paste menu.

   You are prompted to select the type of area to be copied, either "rows" or "columns."
3. Select either "rows" or "columns" for the type of area to be copied.
4. Select the starting row or column to be copied.

   The starting row or column is highlighted.
5. Select the other view.
6. Select the ending row or column to be copied.

   The entire area to be copied is highlighted.
7. Select the row *below* or the column *after* the row or column where you want your rows or columns to be copied.

After the area is copied, you are returned to the Cut and Paste menu.

Inserting Rows or Columns

The "insert" command allows you to insert one or more rows or columns into your worksheet. The width of inserted columns is the width established on the Display options sheet.

Refer to Chapter 7 for more information on changing column widths.

Inserting Rows

Menu Path "Calc/Cut&Paste/insert"

To insert rows into your worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "insert" from the Cut and Paste menu.

   You are prompted to select the type of area to be inserted, either "rows" or "columns."
3. Select the starting row where you want new rows inserted.
4. Select the ending row where you want new rows inserted.

After the rows are inserted, you are returned to the Cut and Paste menu.

Figure 8-6 illustrates the insertion of rows in a worksheet.

Inserting Columns

Menu Path "Calc/Cut&Paste/insert"

To insert columns into your worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "insert" from the Cut and Paste menu.

   You are prompted to select the type of area to be inserted, either "rows" or "columns."
3. Select the starting column where you want new columns inserted.
4. Select the ending column where you want new columns inserted.

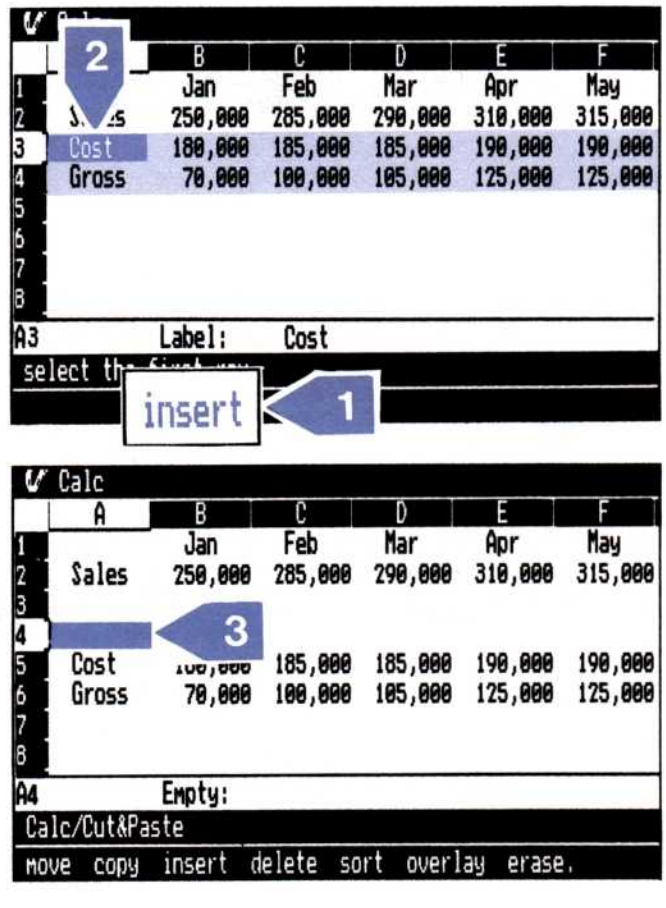


Figure 8-6. *To insert 2 blank rows beginning at row 3, (1) select "insert" from the Cut and Paste menu, (2) select row 3 as the first row where you want an inserted row, and (3) select row 4 as the last row where you want an inserted row. The data that had been in rows 3 and 4 is moved to rows 5 and 6.*

After the columns are inserted, you are returned to the Cut and Paste menu.

Figure 8-7 illustrates the insertion of columns in a worksheet.

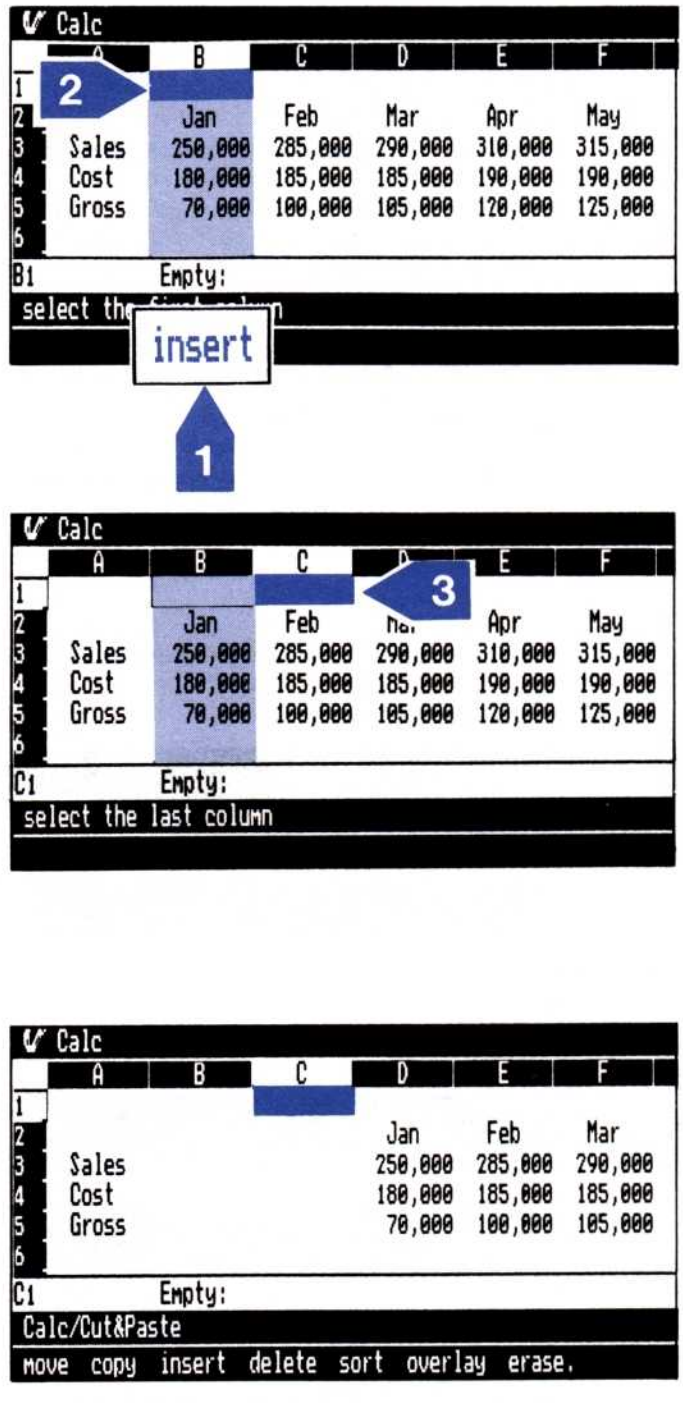


Figure 8-7. *To insert two blank columns beginning at column B, (1) select "insert" from the Cut and Paste menu, (2) select column B as the first column where you want an inserted column, and (3) select column C as the last column where you want an inserted column. The data that had been in columns B and C is moved to columns D and E.*

Deleting Rows and Columns

The "delete" command allows you to delete entire rows or columns from your worksheet. When they are deleted, the program changes the references for the remaining formulas so that they will still be correct.

Deleting Rows

Menu Path "Calc/Cut&Paste/delete"

To delete rows

1. Select "Cut&Paste" from the Calc menu.
2. Select "delete" from the Cut and Paste menu.

   You are prompted to select the type of area to be deleted, either "rows" or "columns."
3. Select the first row to be deleted.

   The first row is highlighted.
4. Select the last row to be deleted.

   The entire area to be deleted is highlighted.
5. When prompted, select either "yes" or "no" to confirm whether you want the rows to be deleted.

After the rows are deleted, you are returned to the Cut and Paste menu.

Deleting Columns

Menu Path "Calc/Cut&Paste/delete"

To delete columns

1. Select "Cut&Paste" from the Calc menu.
2. Select "delete" from the Cut and Paste menu.

   You are prompted to select the type of area to be deleted, either "rows" or "columns."
3. Select the first column to be deleted.

   The first row is highlighted.
4. Select the last column to be deleted.

   The entire area to be deleted is highlighted.
5. When prompted, select either "yes" or "no" to confirm whether you want the columns to be deleted.

After the columns are deleted, you are returned to the Cut and Paste menu.

Changing the Delete Confirmation

Menu Path "Calc/Cut&Paste/OPTIONS"

You may want to have to confirm that you want an area deleted. You can choose to have the program prompt you to confirm a deletion by changing this option on the Cut and Paste options sheet, as shown in Figure 8-8. This option applies to the delete confirmation when you are using either the "delete" or "blank" command.

To change the confirmation of deletion

1. Select "Cut&Paste" from the Calc menu.
2. Select "OPTIONS" from the Visi On™ menu.
3. Select "yes" for the "Confirm on delete" option.

   The Visi On Calc program will prompt you to confirm whether you want to delete an area.

   The Cut and Paste options sheet remains displayed. To close the options sheet:

   ☐ Select "done" from the options sheet menu.

   The options sheet is no longer displayed.

You should carefully consider whether you want to change the "Confirm on delete" option. What you delete is permanently removed from your worksheet. If more than one person might be using a worksheet, you should probably leave the confirmation prompt in effect so that no one will delete data erroneously.

Figure 8-8. *The Cut and Paste options sheet lets you (1) choose the sort order for sorting data, and (2) elect to confirm whether or not to delete rows and columns you have selected for deletion.*

Blanking Out Cells, Rows, Columns, or Rectangular Areas

Menu Path "Calc/Enter/blank"

The "blank" command lets you erase the contents of cells in any area of the your worksheet. It does not affect display attributes used to format the contents of the cells.

To blank out a rectangular area of the worksheet

1. Select "Enter" from the Calc menu.
2. Select "blank" from the Enter menu.
3. When prompted, select the cell that is the upper left corner of the rectangular area to be erased.
4. Select the cell that is the lower right corner of the rectangular area to be erased.
5. When prompted, select either "yes" or "no" to confirm that you want that area to be erased.

   When the selected area is blanked out, you are returned to the Enter menu.

Sorting Rows or Columns

Menu Path "Calc/Cut&Paste/sort"

You use the "sort" command to sort the contents of cells within a selected row or column. Sorting worksheet data is a common way to rearrange the data so that it will print in a certain order. In sorting data, such as a list, you can specify both a primary and secondary sort key.

For example, if you have a list of department employees, you can use sort to arrange the list alphabetically. Using just a *primary* sort key on last name, the list would be sorted according to the spelling of that name. Adding a *secondary* sort key based on the first name or initial allows you to sort the list correctly if two employees have the same last name.

To sort the data in a row or column

1. Select "Cut&Paste" from the Calc menu.
2. Select "sort" from the Cut and Paste menu.

3. Select the starting cell of the area within the row or column to be sorted.
4. Select the ending cell of the area within the row or column to be sorted.

   The area to be sorted is highlighted.

   You are then prompted to select the type of sort.
5. Select either "rows-are-sorted" or "columns-are-sorted" to indicate whether you want the area to be sorted by rows or columns.
6. Select the row or column to be used as the *primary* sort key.
7. Select the row or column to be used as the *secondary* sort key, or select "none" on the menu line if you want no secondary sort key.

When the area of data is sorted, you are returned to the Cut and Paste menu.

Figure 8-9 shows a sort of a selected area of a column.

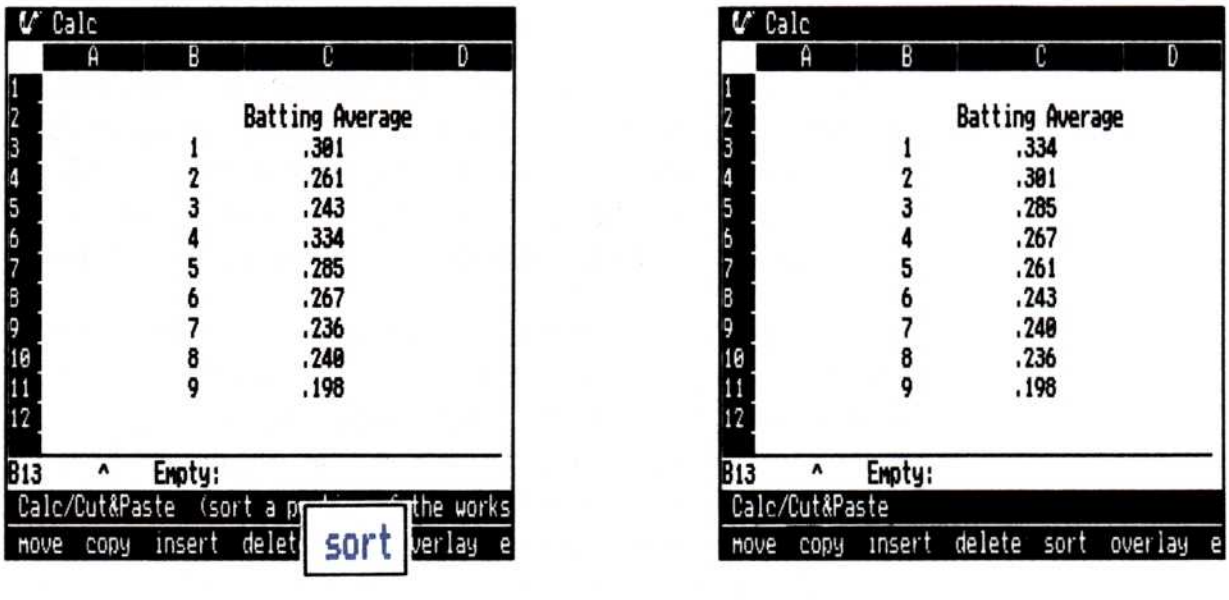


Figure 8-9. *You sort a column by (1) selecting "sort" from the Cut and Paste menu, (2) selecting the first cell to be sorted, and (3) selecting the last cell to be sorted. The values in the cells are then arranged in either ascending or descending order, depending on the current setting of the sort order option.*

Changing the Sort Sequence

Menu Path "Calc/Cut&Paste/OPTIONS"

The Visi On Calc program sorts all selected data in ascending sequence unless you change that sequence by using the Cut and Paste options sheet, as shown in Figure 8-10.

To change the sort sequence

1. Select "Cut&Paste" from the Calc menu.
2. Select "OPTIONS" from the Visi On menu.
3. Select "descending" for the "Sort Order" option.

You are returned to the Cut and Paste menu. The Visi On Calc program will now sort all data selected in descending sequence.

The Cut and Paste options sheet remains displayed. To close it:

☐ Select "done" from the options sheet menu.

The options sheet is no longer displayed.

Figure 8-10. *The Cut and Paste options sheet lets you (1) choose the sort order for sorting data, and (2) elect to confirm whether or not to delete rows and columns you have selected for deletion.*

9 Consolidating Worksheet Data

Chapter 9 Consolidating Worksheet Data

There may be times when you want to use data from one or more worksheets in another worksheet. For example, you might need to create a consolidated sales report from a series of regional sales reports, or a monthly summary of weekly sales.

The process of bringing together data from different worksheets into one worksheet is called *consolidation*. In the Visi On Calc™ program, consolidation requires you to:

- Use the "name" command to name a cell or range of cells.
- Use the "import" command to designate which cell(s) will use the data in the named area.
- Bring the data in the named cell(s) into the designated import cell(s) with the fetch command.

Figure 9-1 illustrates the consolidation process.

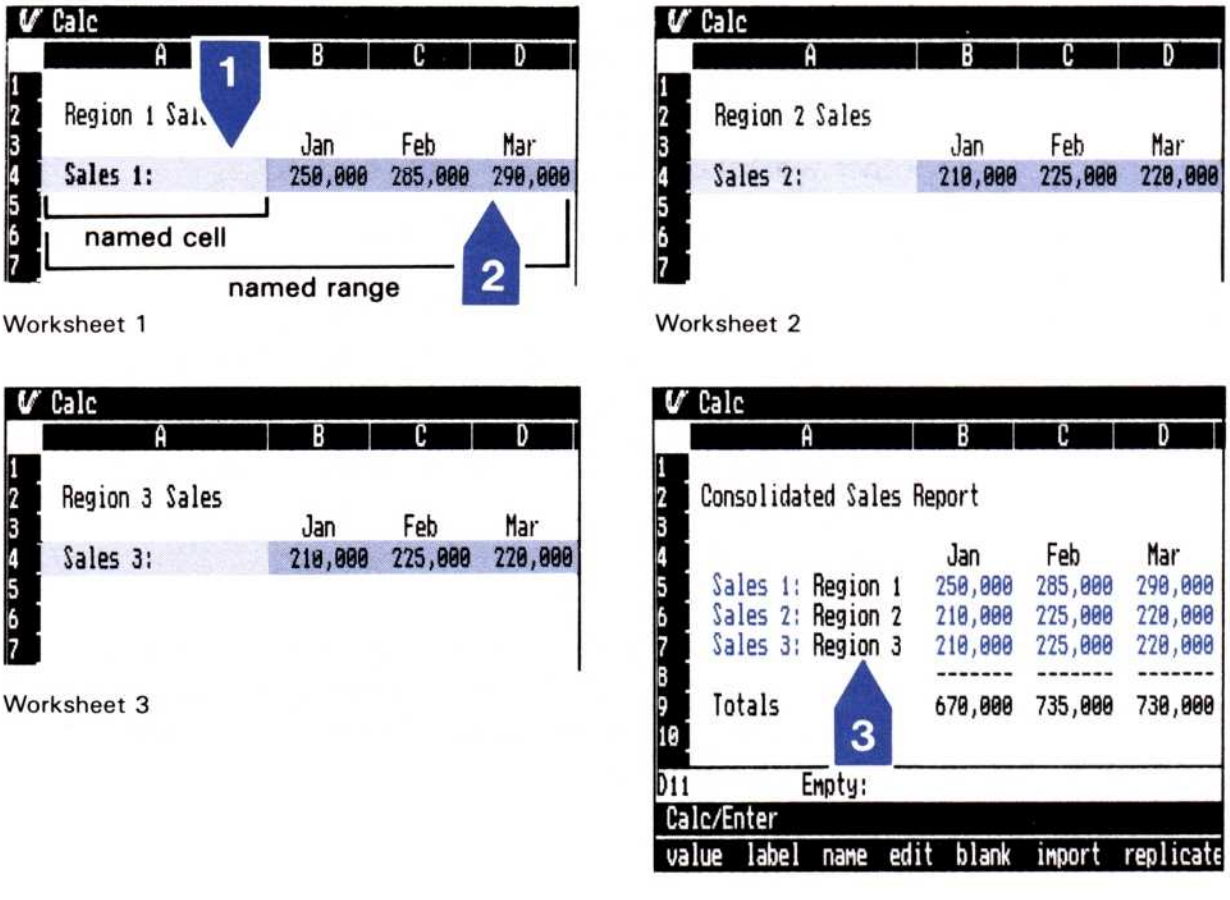


Figure 9-1. *You consolidate worksheets by (1) naming a cell or range of cells on one or more worksheets, (2) designating import cells or ranges, and (3) bringing the data from the named cells into the import cells with the "fetch" command.*

Using Named Cells

Menu Path "Calc/Enter"

All data brought into a worksheet must originate from a named cell or range of cells. Named cells have many uses other than consolidation. Refer to the section "Naming a Cell or Range of Cells" in Chapter 3 for a full discussion of named cells.

A worksheet containing named cells that you want to use in creating a consolidated worksheet must be permanently stored before you can fetch data from it. If a worksheet has been permanently stored, it appears in the middle part of the Files display. A worksheet that has not been permanently stored will still be in your working folder; you must save it first to use it as part of a consolidated worksheet.

Using Import Data Cells

Menu Path "Calc/Enter/import"

You must define cells as *import* cells to bring data from other worksheets into those cells.

To define import cells for data consolidation

1. Select "Enter" from the Calc menu.
2. Select "import" from the Enter menu.
3. When you are prompted, select the cell you want to be the import cell.
4. Enter the name of the cell or range of cells on the other worksheet whose data you want in the import cell.

   The name you enter must be identical to one you have previously established on the other worksheet. (However, upper and lower case differences are ignored.) You can use only one name for any one import cell or range of cells.

   Make certain that the name you enter contains no spaces, operators, commas, parentheses, brackets, or characters such as *, %, or a colon (:).

5. When you are prompted, type in the name of the worksheet which contains the named cell or range. A colon will automatically be displayed by the system to separate the import name from the worksheet name.

6. Select the *last* cell in the range for the import cell.

   Specifying a range allows you to bring in only the portion of data you desire. For example, if the named area contains a range of 15 cells, by specifying a range of five cells, you bring in only the first five cells of data.

   You may indicate an import range in a row even though the named range you refer to is in a column. You may also indicate a column import range even though the named range is in a row.

After you name the worksheet, the import cell is defined and you are returned to the Enter menu. Data is not actually imported until you use the "fetch" command (see the next section).

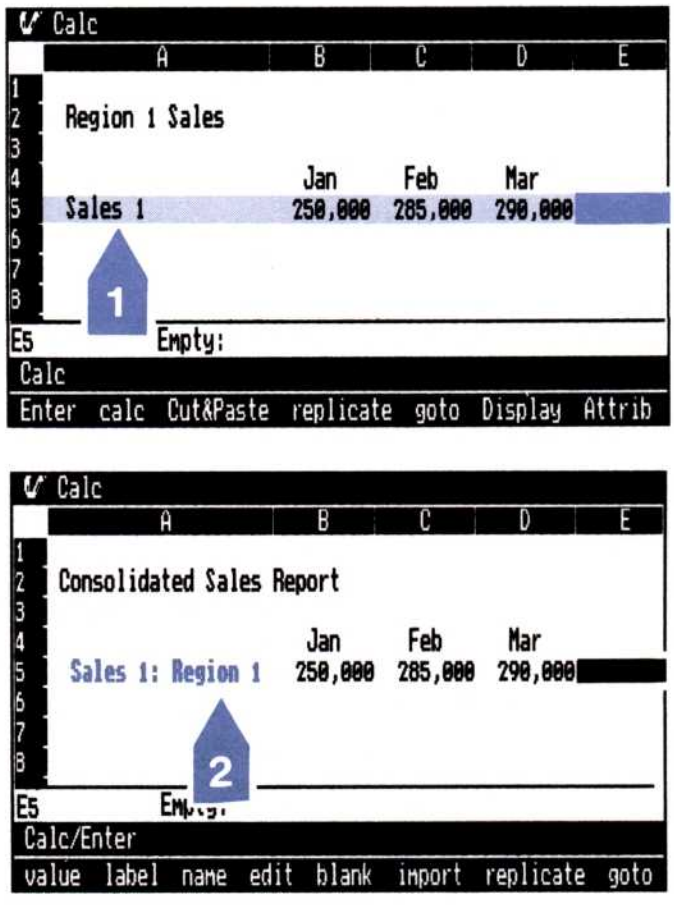


Figure 9-2. *To import data from a range named Sales1, you type (1) the name of the range, Sales1, and (2) the file name of the worksheet that holds the named range, Region1, in the first cell of the import range.*

Consolidating Data into the Defined Import Cells

Menu Path "Calc/Enter/fetch"

After you have defined which cells will be import cells, you use the "fetch" command to bring that data into your worksheet. The worksheet you are bringing data into must be active when you use the "fetch" command.

To bring in (fetch) data from another worksheet

1. Select "Enter" from the Calc menu.
2. Select "fetch" from the Enter menu.

When you select the "fetch" command, the current values in the named range are brought into the import cells and you are returned to the Enter menu. Only values are imported, not attributes or formulas. Worksheets which contain the values to be brought into the import cells must be in the current folder.

You can use the import name just like a named range in calculations; for example, SUM(SALES:EAST—COAST).

If your import cell contains the word "UNAVAIL" after you attempt a fetch, the program was unable to find either the worksheet or named area you specified in the import cell. Check the import cell for the following:

- It should contain the name of an existing worksheet.
- It should refer to a worksheet in the same folder as the importing worksheet if the importing cell contains the name of a worksheet only (in the form "name:worksheet").

Combining Worksheets

Menu Path "Calc/Cut&Paste/overlay"

There may be instances where you want to put the data from one worksheet into another worksheet. This is very much like consolidating worksheets. In combining (overlaying) one worksheet with another, you simply replace or offset worksheet data (or part of it) with data from another worksheet.

All cell contents, including attributes, from the overlaying worksheet are brought in when you combine worksheets.

You can overlay data in two ways:

- Overlaying existing data—In this type of overlay, data from one worksheet overlays the data in the same position on another worksheet. The overlaid cells then contain the data from the overlaying worksheet.
- Overlaying by offsetting data—By selecting an area of the worksheet which contains empty cells, you can bring in data from the overlaying worksheet and not overlay (and thus destroy) existing data. The empty area you select will most frequently be offset from the existing worksheet data.

Figures 9-3 and 9-4 illustrate these two types of overlays.

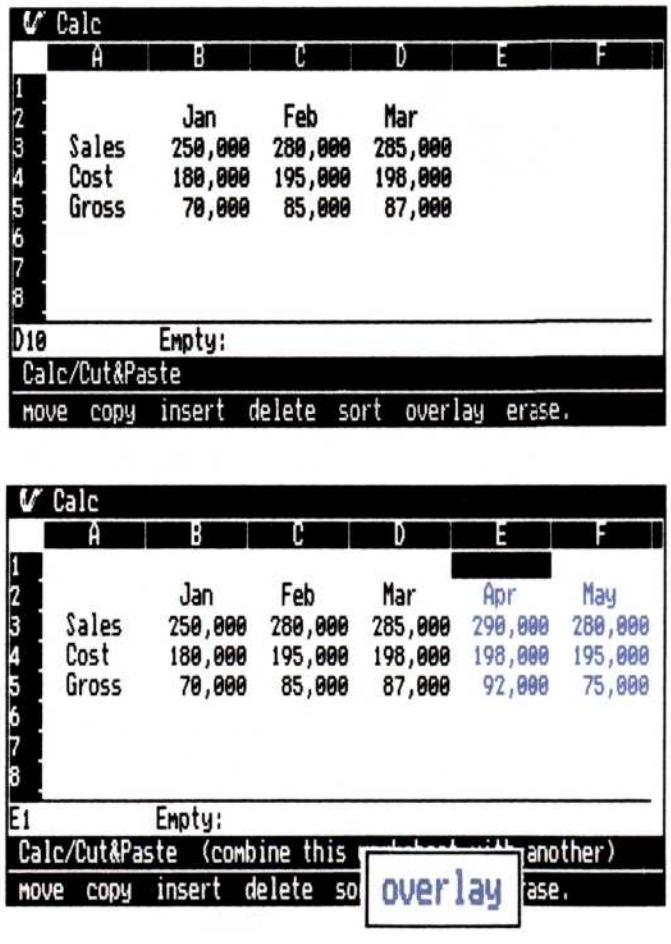


Figure 9-3. *In one type of overlay, you overlay worksheet 1 with data from worksheet 2 without destroying any entries in worksheet 1.*

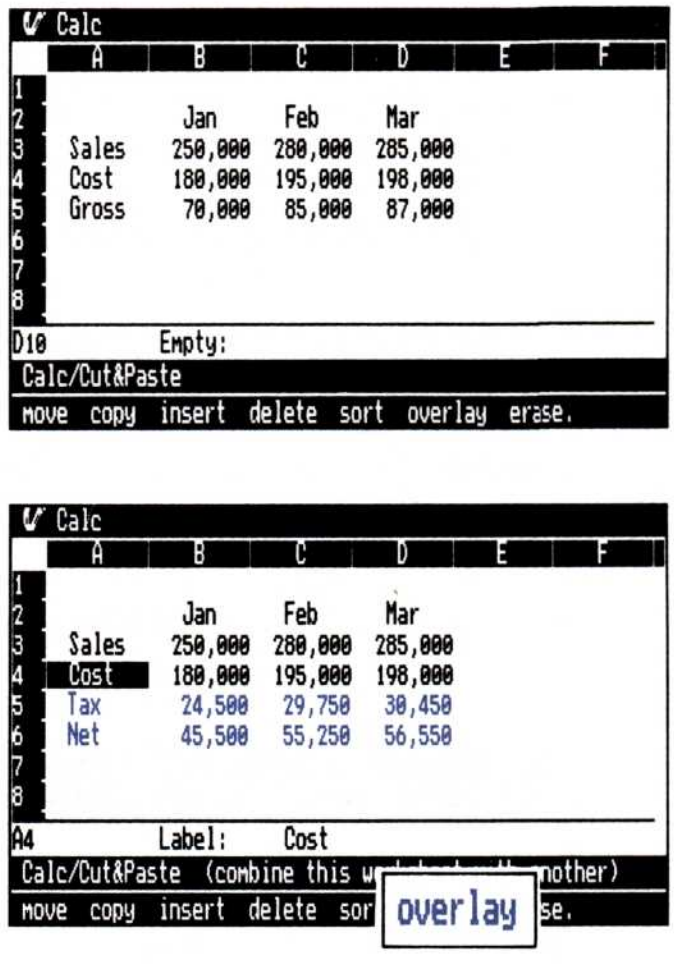


Figure 9-4. *In the other type of overlay, you take data from worksheet 2 and overlay it onto existing rows or columns of data in worksheet 1, thereby destroying the data in the overlaid area of worksheet 1.*

Before you begin to combine data from one worksheet with another, the worksheet on which you are going to overlay data must be displayed on the screen.

To overlay one worksheet with another

1. Select "Cut&Paste" from the Calc menu.
2. Select "overlay" from the Cut and Paste menu.

   The Files display is then displayed.
3. Select the worksheet for overlaying from the current folder. If you're not familiar with the Files display, see Chapter 2, "Saving, Getting, and Organizing Worksheets," for details.
4. When prompted, select the cell in the worksheet displayed which will be the *upper-left* corner of the overlaying worksheet.

   When you select the cell, the worksheet you selected from the Files display will overlay the displayed worksheet.

It is possible that, with extremely large worksheets, you may use up all the available space in memory when you attempt an overlay.

If this error occurs, you are prompted to try another overlay. Because of the nature of this error, you should not attempt another overlay until you have determined what caused the error and resolve it.

One possible alternative available you if this error should occur is to use import cells to bring the necessary data into the worksheet.

10 Printing Worksheets

Chapter 10 Printing Worksheets

As you create or revise worksheets, you will often want a printed copy. You can use printed copies of your worksheets for many different purposes:

- Reporting—Your worksheets contain valuable, timely information that other people will find useful.
- Planning—Printed copies of your worksheets will help you and others make faster, better decisions.
- Comparing—When you have similar worksheets, such as budgets, you can compare those from different departments or divisions to assist you with your own budgeting.
- Tracking—In many cases, you need different types of information to keep track of a job. Copies of worksheets covering different parts of a job will give you an overall picture of that job.

Printing a Worksheet

You can print an entire worksheet or just a part of it. For example, if you needed to use a copy of the expense portion of an income statement, you could print just that part of the worksheet.

You can print the worksheet on a printer connected to your computer or send the worksheet to a disk file to be printed on another printer. For example, you might want to have your worksheets printed on another printer if that printer is faster or uses a different size paper.

You can control the size and format of your printed worksheet by setting options on the Print options sheet, as described in "Selecting Print Options" in this chapter.

The following sections describe how you use the "Print" command to:

- Define where you want to print your worksheet.
- Define how much of your worksheet you want to print.
- Change the print options to change how your worksheet prints.

Selecting the Print Destination

Menu Path "Calc/Print"

Before you print a worksheet, you must first indicate where it is to be printed, whether directly on a printer or on a disk for temporary storage before printing.

To select where you want your worksheet to print

1. Select "Print" from the Calc menu.

   The Print menu appears, along with the Print options sheet. See the section "Selecting Print Options" in this chapter for more information on the Print options sheet.

2. Select either "local-print" or "remote-print" for the print destination.

   - If you select "local-print," your worksheet is printed on a printer that is directly connected to your computer.
   - If you select "remote-print," your worksheet is sent to a file in a special folder called the transmittal folder. You can then copy this file onto a floppy disk and print the worksheet on a printer connected to another computer. See the section "Printing into Disk Files for Remote Printing" later in this chapter.

   The "make-pages" command lets you change the size of the printed copy when you print the worksheet. This command is described in the section "Breaking a Worksheet Into Smaller Pages" later in this chapter.

   When you have specified the print destination, you are asked to define the area to be printed.

Defining the Area to Be Printed

You are prompted to select whether to print all or part of your worksheet.

To define the area to be printed

1. Select either "entire-sheet" or "selected-area."

   - If you select "entire-sheet," you are asked to confirm that that the print options are correct.
   - If you select "yes," then the whole sheet is be printed with the current print options.

- If you select "no," you are returned to the Print menu.

2. If you select "selected-area" you are prompted to select the upper left and lower right corners of the area to be printed.

   When you have defined the area to be printed, the area you have defined is highlighted and you are prompted to confirm that the print options are correct.

   - If you select "yes," then the selected area sheet is be printed with the current print options.
   - If you select "no," you are returned to the Print menu.

Selecting Print Options

Menu Path "Calc/Print/OPTIONS"

You can change the way your worksheet is printed by making selections on the Print options sheet (Figure 10-1).

You may have to change some print options for the type of printer you are using with your Visi On system. Instructions for using printers compatible with the Visi On system are described in the *Visi On Setup Guide*.

Each print option allows you to control a different aspect of printing:

- "PRINT LOCALLY ON"—This option lists the names of printers or plotters connected to your printer.
- "Print from page"—If you do not change this option, the first page of the worksheet will be numbered page 1.
- "to page"—This option specifies the last page to be printed. The default setting of 999 should allow most worksheets to print in their entirety.
- "Print Page numbers"—If you do not change this option, a page number will be printed at the bottom of each page.

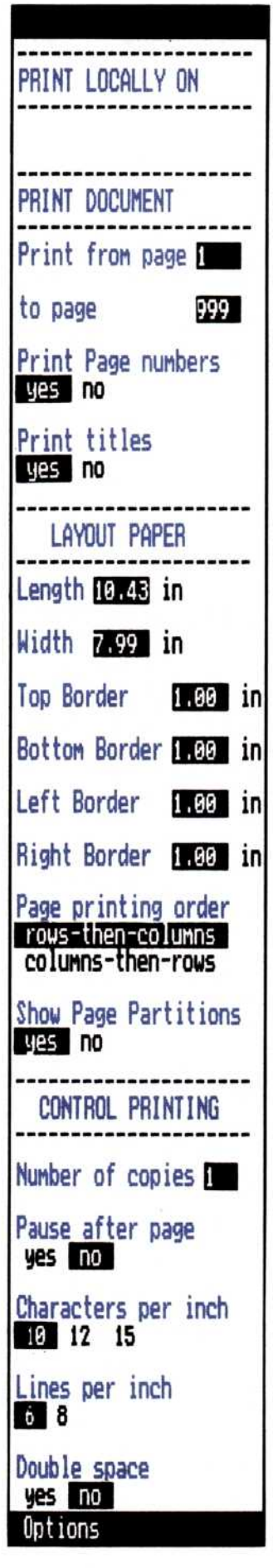


Figure 10-1. *The Print options sheet lists all the options you can set to control how your worksheets are printed.*

- "Print titles"—The titles you have fixed in place on your worksheet will be printed unless you change this option to "no."

  "Establishing Fixed Rows and Columns (Titles)" in Chapter 7 describes how to fix worksheet areas in place as titles.
- "Length" and "Width"—The program sets these options for the maximum size of paper (in inches) your printer can use. Type in different numbers to change them.
- "Borders"—All borders (margins) are set at one inch unless you change these options.
- "Page printing order"—Worksheet rows are printed first, as in Figure 10-2, unless you change this option.
- "Show Page Partitions"—Page breaks are displayed on your screen unless you change this option to "no."
- "Number of copies"—One copy of your worksheet is printed unless you change this option.
- "Pause after pages"—If you change this option, there will be a pause between the printing of each page when you print on a printer connected to your computer. You will be prompted to indicate whether you want to continue printing.

- "Characters per inch"—Specifies the number of printed characters per inch, that is, the amount of space between characters. If you do not change this option, there will be 10 characters per inch. This is the same as a type size of 10 (pica).
- "Lines per inch"—The number of lines printed per inch; that is, the amount of space between lines. If you do not change this option and the options for the top and bottom margin sizes, each page will print 54 lines long.
- "Double space—Indicates whether your worksheets are printed double- or single-spaced.

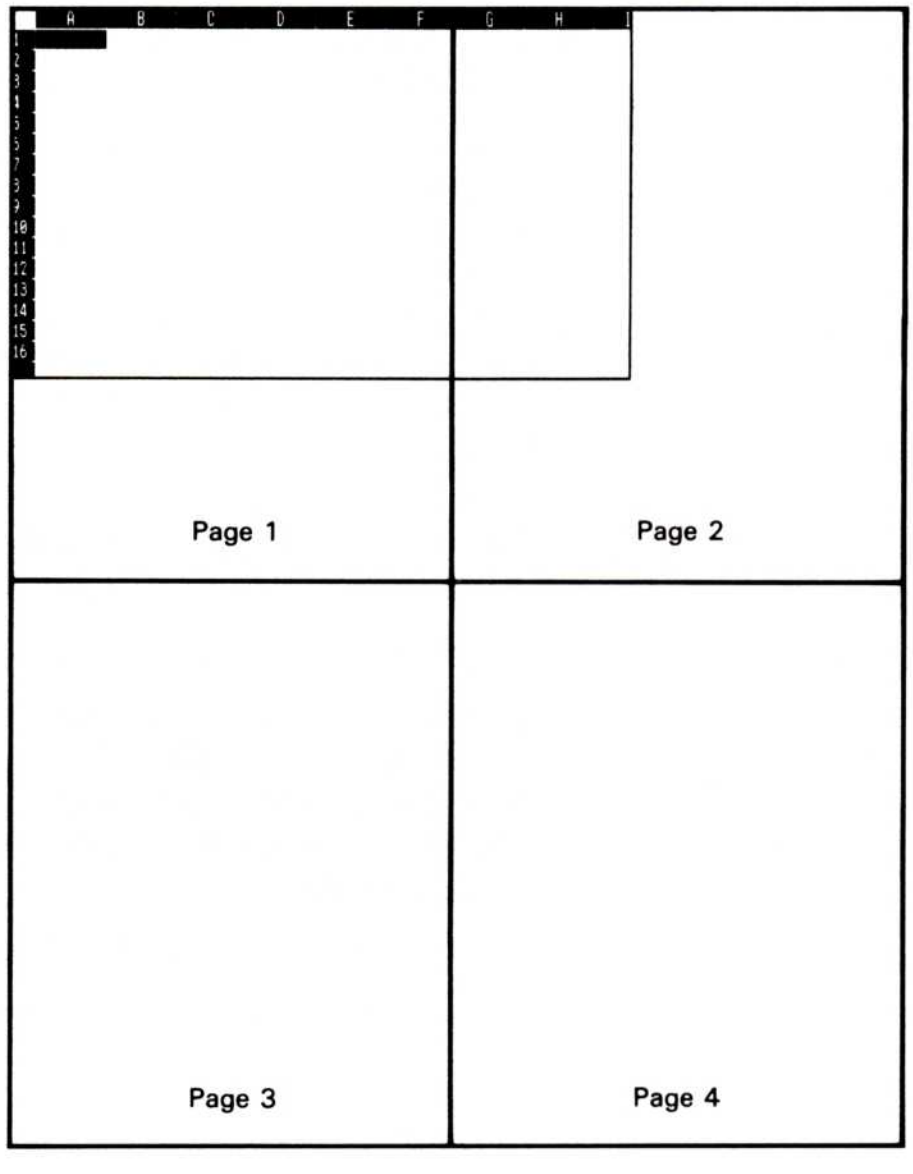


Figure 10-2. *When the Page printing order option is set to "columns first," all columns across your worksheets that do not fit on page 1 of your printed report are printed on pages 2, 3, etc.; after the columns have been printed, all rows that do not fit on page 1 are printed.*

To change a print option

1. Select "Print" from the Calc menu.
2. Change the desired print options.

   The options now apply to this worksheet until you change them.

   The Print options sheet remains displayed. To close it:

   - Select "done" from the menu at the bottom of the options sheet.

   The options sheet is no longer displayed.

Breaking a Worksheet into Smaller Pages

Menu Path "Calc/Print"

The print options control the size of the printed page. They set the size you will normally use when you print worksheets. However, the "make-pages" command on the Print menu gives you the flexibility to break your worksheet into smaller pages when you print it.

The "make-pages" command is an effective way to organize a report or highlight key data that may otherwise be lost in a worksheet printout several pages long. For example, you might use this command to print a particular region's sales figures on one page of a consolidated sales report. The rest of the report would then print on the size pages specified by the print options.

Figure 10-3 shows examples of worksheets broken into smaller pages for printing.

To break a worksheet into smaller pages for printing

1. Select "Print" from the Calc menu.

   The Print options sheet is displayed and lines are drawn on your worksheet. These lines approximate the size of printed pages under the default options settings (you may not see these lines without scrolling the worksheet).
2. Select "make-pages" from the Print menu.
3. You are prompted to choose whether you wish to break the page at a row, a column, or both (i.e., a cell, the intersection of a row and a column), or remove page breaks, "none." Select your choice.

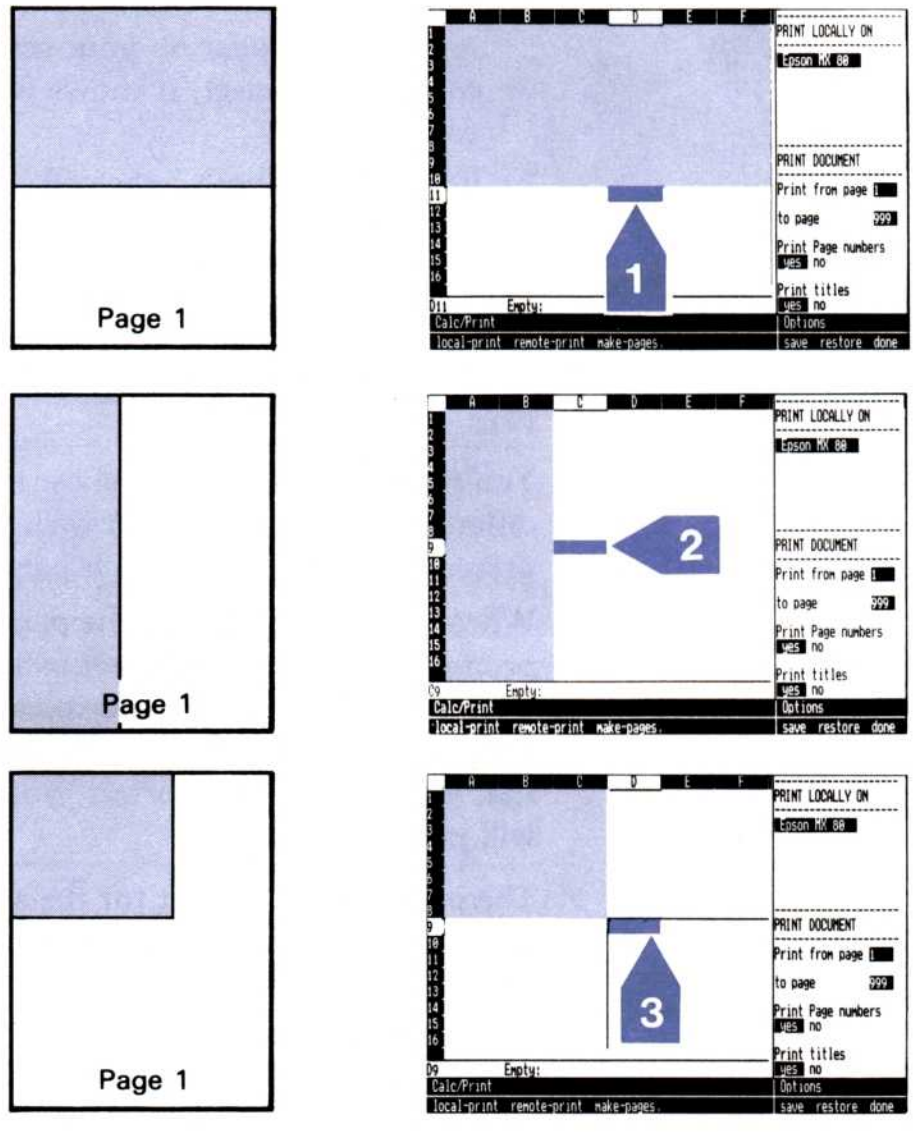


Figure 10-3. *You can break worksheets into the size pages you want three ways: (1) By selecting to break your worksheet at a row and selecting a cell, you indicate that all rows above the one you selected are to print on a page; (2) By selecting "columns" and a cell, you indicate that all columns to the left of the one you selected are to print on the page; (3) By selecting "both" and a cell, you indicate that all columns to the left and all rows above the cell you selected will print on a page.*

4. You are prompted to select the row, column, or cell where you want the worksheet broken. If you select "rows," all rows above the one you select are printed on one page of the printed report. If you select "columns," all columns to the left of the one you select are printed on one page of the worksheet. If

you select "both," all rows above and columns to the left of the cell you select are printed on one page of the report.

- A line will appear on your screen in the row or column you select; it shows where the printed page will end.
- If you select "both," the cell, it will define the lower right corner of the rectangle to be printed. Two lines will appear on your screen, showing the right and bottom edges of the page.

5. Select "done" when you are finished defining page breaks.

6. You may break your worksheet into as many different sized pages as you wish; just repeat the preceding procedure for each page break.

   When you finish defining the page(s), you are prompted to select where you want to print the worksheet (Print menu) and to confirm whether the options are correct. When you select "yes" to confirm that your options are correct, your worksheet will print.

7. The page breaks you set for the sheet remain in effect until you erase them by selecting "none" for the "make-pages" command.

   Once the page breaks you set are erased, the page breaks will again be those set in the options sheet.

Printing into Disk Files for Remote Printing

Menu Path "Calc/Print/remote-print"

When you want to print a worksheet on a printer that is not connected to your computer, follow these steps:

To use remote printing

1. Select "Print" from the Calc menu.

   The Print options sheet and the Print menu are displayed.

2. Select "remote-print" from the Print menu.

   You will see a list of all the printer models you have installed in the Visi On™ program. You must select the model of the printer you will use later to print the worksheet.

3. Select the printer model you want from the displayed list, and then select "done" from the menu line. If the printer you want is not on the list, you have not installed it. Refer to your *Visi On Setup Guide* for information on installing a printer.

4. You are prompted to enter a print transmittal file name. This is the file name you want to give the copy of your worksheet that is to be printed on disk. Your file will automatically be placed in the transmittal folder in the Archives. Type a file name and press ↵. The name can contain a maximum of twelve characters.

5. The program checks the name you entered. If there is already a file with the same name in the transmittal folder, you are given two choices. Do one of the following:

   - Select "overwrite" to print your worksheet file onto the disk with the file name you selected. You will write over the current file with the same name; it will be replaced with the new file.
   - Select "enter-name-again" to give the worksheet a different file name. The current file will be retained.

6. When you have finished entering the file name, you are asked to select how you want the sheet to be printed and to confirm that the print options are correct.

   You do not need to select a printer name from the options sheet. These printer names are used only when you are printing a worksheet on a printer that is connected to your computer (that is, when you have selected "print-local" from the Print menu).

7. If you want to cancel printing at this point and return to the Print menu, select "no" or the Visi On "STOP" command. Select "yes" to confirm that your print options are correct. The worksheet then is printed according to the current print options.

8. See your *Visi On User's Guide* for instructions on getting the document from the transmittal folder and printing it on a remote printer.

   Note that if you have set the "Pause between pages" option of the Print options to "yes," it will be ignored when your worksheet is printed from the transmittal folder.

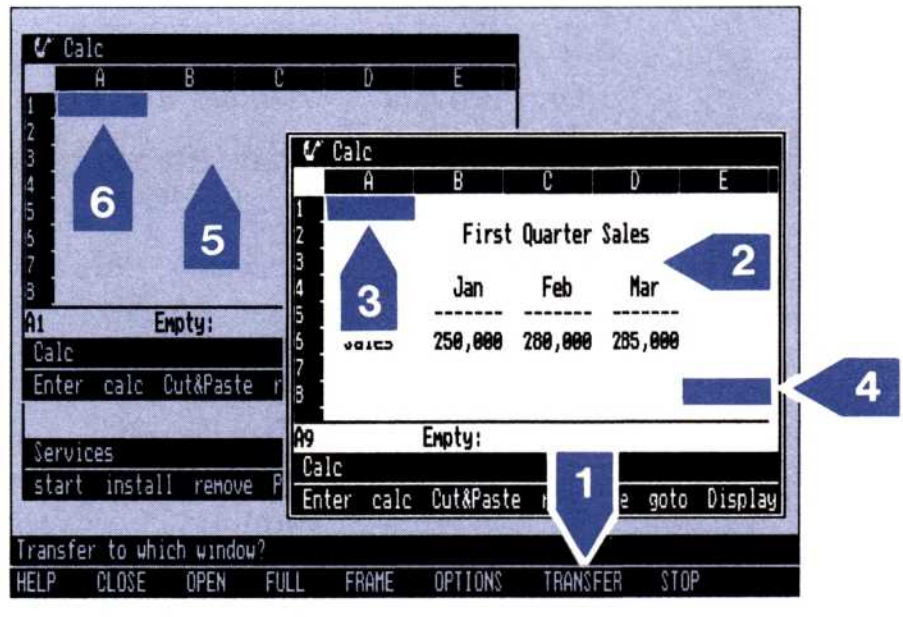
11 Transferring Data with the Visi On Calc™ Program

Chapter 11 Transfering Data with the Visi On Calc™ Program

The Visi On Calc™ program allows you to transfer data from one worksheet to another, from the Visi On Calc program to another program, or from another program to the Visi On Calc program.

You can combine data in an almost infinite number of ways with the "TRANSFER" command. For example, you could combine regional sales data from separate worksheets to create a consolidated sales report. Then you could transfer data from the consolidated sales worksheet to a graphics package to get a picture of sales trends.

Figure 11-1 shows an example of a transfer combining data for a report.



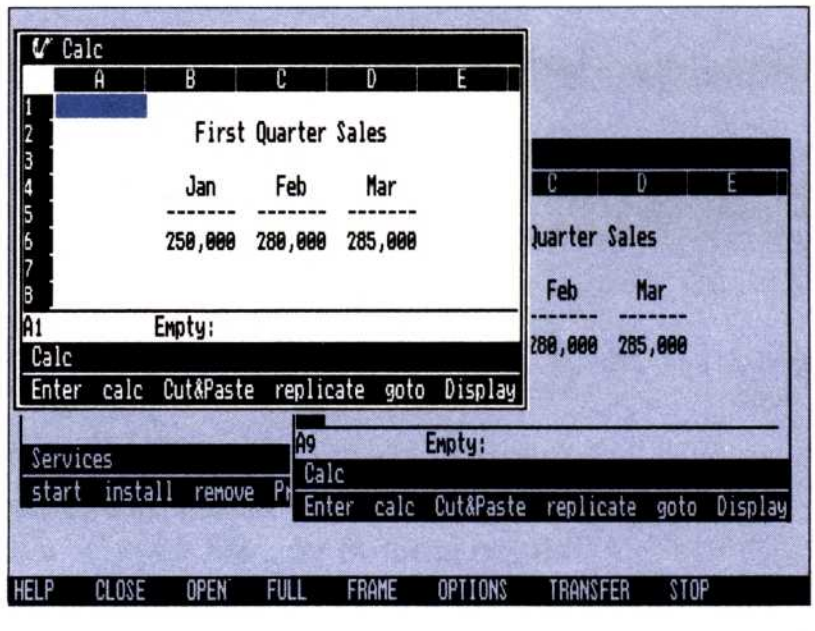


Figure 11-1. *To transfer data, you must (1) select the "TRANSFER" command, (2) select the source window, (3) select the starting point of the data to be transferred, (4) select the ending point of the data to be transferred, (5) select the window where you want the data transferred, and (6) select the destination point within that window where you want the transferred data to begin.*

It is important to note the different types of data that may be transferred. This chapter describes the types of data that may be transferred both into and out of the Visi On Calc program and gives you step-by-step instructions for using the "Transfer" command. Refer to the *Visi On User's Guide* for a more complete description of the transfer process.

Types of Data That Can Be Transferred from Your Program

The following table lists the types of data that you may transfer *from* your Visi On Calc worksheet.

Type of Data	How the Visi On Calc Program Handles It
Numbers	Transferred out of rows or columns, as you specify.
Formulas	Normally, only a formula's current value, not the formula itself, will transfer out of the Visi On Calc program. However, if you first set the "View Display" option on the Display options sheet to "formulas," the formulas in cells where that option is in effect will transfer. The upper and lower bounds of "bound" cells are also transferred.
Text (Labels)	Transferred out of rows or columns, as you specify.

Cell display characteristics (attributes) are also transferred.

Types of Data that Can Be Received in a Transfer

You can receive the same types of data into the Visi On Calc program as you can transfer out. However, display attributes are handled in various ways.

The following table shows the different types of data that can be transferred into the Visi On Calc program.

Type of Data	How the Visi On Calc Program Handles It
Text	Must be transferred one column at a time from word processing programs that allow text to be transferred in columns. If text is transferred from a program that does not permit column transfers, all text that appears on one line will appear in one column on your worksheet.
Series	Each separate series transferred from a graphing program appears in its own row on your worksheet.
Graphic	When the program being transferred from permits, graphic data may be transferred directly; it appears exactly as if you had transferred a series, not a graph itself.
Worksheets	Normally, only data is transferred, along with any attributes that have been set in the cells being transferred. However, if the worksheet being transferred from can display formulas in cells, formulas can be transferred. You must transfer while the cells are displaying formulas.

Display attributes in cells transferred from worksheets are handled as follows:

- If the attributes of the data being transferred are displayed (that is, "explicit"), those attributes are used for transferred data. Examples of explicit attributes are dollar signs or minus signs that are displayed.
- If the cells whose data is being replaced are displaying attributes, those attributes are removed. The "as-is" or default attributes of the source cells are used.

  For a full discussion of attributes, refer to the section "Changing Worksheet Display Characteristics" in Chapter 7.

If an error occurs while data is being transferred into the Visi On Calc program, the cells that are affected by the transfer remain unchanged.

Using the "TRANSFER" Command

Menu Path "VISI ON/TRANSFER"

When you transfer data from the Visi On Calc program, both the worksheet from which you are transferring data and the file from the product into which you are transferring data must be in windows on the screen.

To transfer data from the Visi On Calc program

1. Select "TRANSFER" from the Visi On menu.

2. Select the window that contains the data to be transferred.

   The window selected will display as the top, or active, window.

3. Define the data to be transferred in one of the following ways:

   - ☐ To transfer a rectangular area, select the cells in its upper left and lower right corner. You can choose these cells in either order. You can also select the upper right and lower left corners.
   - ☐ To transfer a range of rows, select the beginning and ending row numbers in the left margin of the worksheet.
   - ☐ To transfer a range of columns, select the beginning and ending column letters in the top margin of the worksheet.
   - ☐ To transfer an entire worksheet, select the point where the row numbers and column letters intersect in the upper left corner of the worksheet twice.

   The area of data to be transferred is then highlighted.

4. Select the window where you want the data transferred.

   The window selected is displayed as the top, or active, window.

5. In the window that is to receive the data, select the destination point for the area of data to be transferred.

The data is then transferred to the new location. You are returned to the menu you were using before you transferred the data, but the destination window remains the active window.


VISI ON™

12 Examples

Chapter 12 Examples

The example applications in this chapter show you how commands can be used together to create a useful worksheet. These samples are simplified versions of worksheets used by business professionals. The purpose of these sample applications is to teach you by showing you examples. To tailor the worksheets to your specific needs, you can make changes later.

These applications can give you ideas for your own worksheets, and they can teach you shortcuts so you can create your own worksheets more efficiently. For example, the Replicate command is used wherever possible to avoid retyping. Attributes are usually entered into the cells before the data is entered to save keystrokes. Global attributes are used wherever possible. And special functions can make your worksheets efficient.

Each application is divided into three parts:

- Introductory information that explains what the application can be used for and lists the commands that are used in the sample.
- "Entering the Sample Worksheet" that includes step-by-step instructions for typing the example. Each numbered step is keyed to the illustration of the worksheet.
- "Using the Sample Worksheet" that suggests ways to use the sample and how it might be modified for your personal use.

Do whichever application interests you. You can do them in any order. If you come across a command that you do not understand, find the explanation for that command in the chapters in the User's Guide.

Forecasting Sales

There are many ways to forecast sales; all of them are forms of guessing. One common sales forecasting method is to make educated guesses of the highest and lowest sales expected, along with a middle or most probable sales guess. For this sample worksheet, you enter three sets of guesses (high, low, and middle) for each of the products listed.

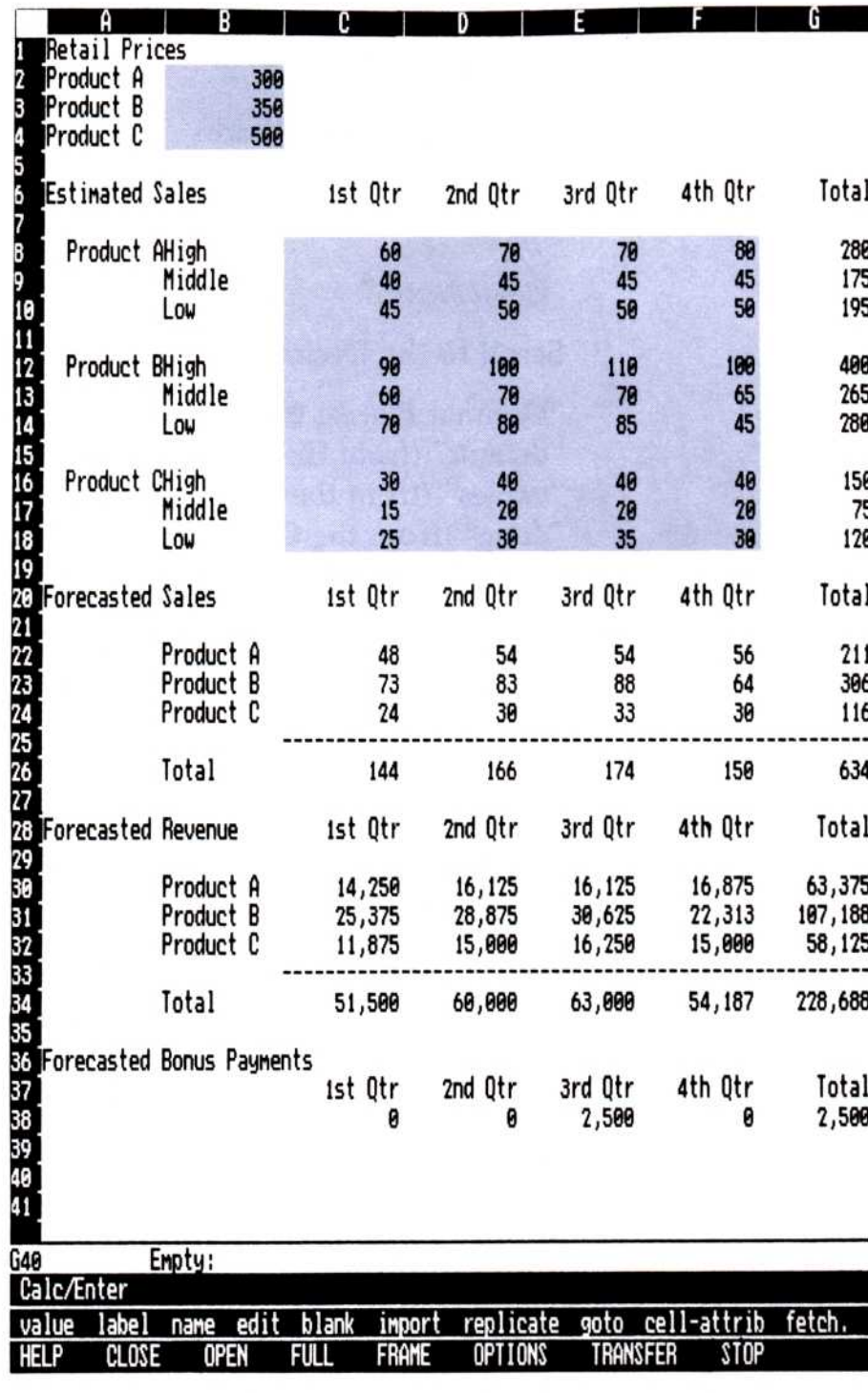
The Forecasted Sales block puts the high, low, and middle estimates into a formula to provide a more accurate prediction of unit sales. Then, the Forecasted Revenue block calculates the amount of revenue you'll derive from those sales based on the Retail Price you entered at the top of the sheet. Finally, the Estimated Bonus Payments block calculates the bonus payments earned by the sales force based on quarterly revenue figures.

This sample looks large, but the formulas used in it are simple, and the techniques used to enter the worksheet are easy to learn. The sample gives you practice using the following commands and techniques:

- The attribute option that sets column widths.
- The attribute option that displays all values in the worksheet as integers.
- The LABEL function that copies the contents of another label to a cell.
- The Insert command that inserts rows.
- The Replicate command that copies blocks of labels to save you the effort of retyping.
- The options of the Replicate command that copy all cell references in formulas Absolute or Relative.
- The SUM function that totals the contents of the cell values in a range.
- The Blank command that erases the entry in a cell.
- The Insert command that inserts blank rows or columns in your worksheet.
- The IF function that tests for a mathematical relationship and returns one answer if the relationship is true, another answer if the relationship is false.
- The AND function that works with the IF function to test two or more mathematical relationships.

Entering the Sample Worksheet

Enter the worksheet by following the steps below. The areas of the worksheet that are shaded in Figure 12-1 are where you enter data to calculate revenues.



	A	B	C	D	E	F	G
1	Retail Prices						
2	Product A	300					
3	Product B	350					
4	Product C	500					
5							
6	Estimated Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
7							
8	Product AHigh		60	70	70	80	280
9	Middle		40	45	45	45	175
10	Low		45	50	50	50	195
11							
12	Product BHigh		90	100	110	100	400
13	Middle		60	70	70	65	265
14	Low		70	80	85	45	280
15							
16	Product CHigh		30	40	40	40	150
17	Middle		15	20	20	20	75
18	Low		25	30	35	30	120
19							
20	Forecasted Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
21							
22	Product A		48	54	54	56	211
23	Product B		73	83	88	64	306
24	Product C		24	30	33	30	116
25							
26	Total		144	166	174	150	634
27							
28	Forecasted Revenue		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
29							
30	Product A		14,250	16,125	16,125	16,875	63,375
31	Product B		25,375	28,875	30,625	22,313	107,188
32	Product C		11,875	15,000	16,250	15,000	58,125
33							
34	Total		51,500	60,000	63,000	54,187	228,688
35							
36	Forecasted Bonus Payments						
37			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
38			0	0	2,500	0	2,500
39							
40							
41							

Figure 12-1. *The sample worksheet is shown here in its final form. You enter data in the shaded areas to calculate your sales revenues.*

Step 1. You will set the default column width to 11 and use the Decimal Places option on the Display options sheet to display all values as integers.

Select	Then type
"Calc/Display/OPTIONS"	
Select the Calc window.	
"Default Column Width: box"	**<END> 11** ↵
"done"	
"Calc/Attrib"	
Scroll to the Decimal Places option.	
"Decimal Places: 0" "default" (from the Attrib menu) "values" (from the Attrib menu) "done" (from the Options sheet menu)	

Step 2. Enter the labels and values for the Retail Prices section of the worksheet.

Select	Then type
"Calc/Enter/label"	
A1	**Retail Prices** ↵ **Product A** ↵ **Product B** ↵ **Product C** ↵
"done" (from the menu)	
"value" B2	**300** ↵ **350** ↵ **500** ↵
"done" (from the menu)	

Step 3. Now you will type the headings for the Estimated Sales portion of the worksheet, using the Enter command to speed up data entry. For the quarterly column headings, you use the Align labels right option from the Attribute options sheet to keep the column headings clearly visible.

Select	Then type
A6	
"label" "OPTIONS" The Calc window	
"ENTER key moves cursor: right 1 column" "done" (from the Options sheet menu)	
	Estimated Sales ↵ ↵ **1st Qtr** ↵ **2nd Qtr** ↵ **3rd Qtr** ↵ **4th Qtr** ↵ **Total** ↵
"done" (from the menu)	
"cell-attrib" (the Options sheet displays) Scroll to the Alignment options.	
"Alignment: Labels: right" "done" (from the Options sheet menu) C6, D6, E6, F6, G6 "done" (from the Enter menu)	

Step 4. You can use the "Label" function to make the left heading correspond to the product name in the Retail Price section. This saves retyping the product names in each block of the worksheet. Use the Relative option of the Replicate command to specify that each reference in the "Label" formula be replicated relative; you want each "Label" function to refer to a different label in the Retail Price section.

Select	Then type
"value" (from the Enter menu)	
A8 (Scroll as needed) "done" (from the menu)	**Label(A2)** ↵
"replicate" A8 A8 A9 A1Ø "relative"	

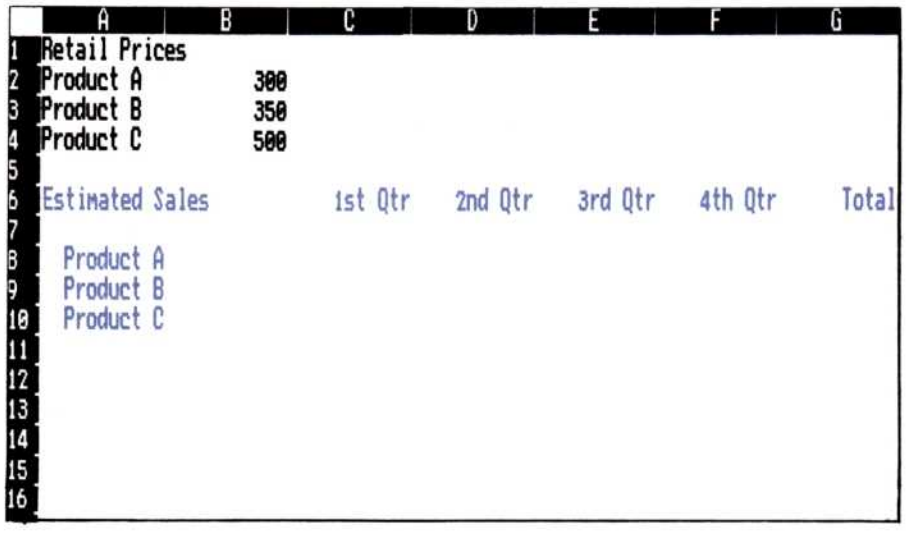


Figure 12-2. *The sales forecast worksheet with the main headings entered.*

See Figure 12-2 to see what the worksheet looks like at this point.

Step 5. Insert rows between the labels to allow room to type the High, Low, and Middle estimates. Replicate the High, Low, and Middle labels into the blocks for all three products.

Select	Then type
"Calc/Cut&Paste" "insert" "rows"	
Row 9 (the first inserted row) Row 11 (the last inserted row)	
"insert" "rows" Row 13 Row 15	
B8	**High** ↵ ↓ **Middle** ↵ ↓ **Low** ↵
"Calc/replicate" B8 B11 B12 B19 (Scroll as needed)	

Step 6. Type the High, Low, and Middle estimated number of units for each product in each quarter.

Select	Then type
"Enter/value"	
C8 (Scroll as needed)	
"OPTIONS"	
The Calc window	
"ENTER Key Moves Cursor: Down 1 row"	
"done" (from Options sheet menu)	
	60 ↵ **40** ↵ **45** ↵↓ **90** ↵ **60** ↵ **70** ↵↓ **30** ↵ **15** ↵ **25** ↵
D8	**70** ↵ **45** ↵ **50** ↵↓ **100** ↵ **70** ↵ **80** ↵↓ **40** ↵ **20** ↵ **30** ↵
E8	**70** ↵ **45** ↵ **50** ↵↓ **110** ↵ **70** ↵ **85** ↵↓ **40** ↵ **20** ↵ **35** ↵
F8	**80** ↵ **45** ↵ **50** ↵↓ **100** ↵ **65** ↵ **45** ↵↓ **40** ↵ **20** ↵ **30** ↵
"done"	

Step 7. In this step, you will use the SUM function in the formula that calculates the yearly total of the High estimates for Product A, replicate the formula (Relative) down the column, then use the Blank command to erase the unneeded formulas at the blank lines.

Select	Then type
"value"	
G8	**SUM(C8.F8)** ↵
"done"	
"replicate"	
G8	
G8	
G9	
G18 (Scroll if needed)	
"relative"	

Select	Then type
"blank"	
G11	
G11	
"yes"	
"blank"	
G15	
G15	
"yes'	

Step 8. Now you will replicate the quarterly headings, and type a label for Forecasted Sales.

Select	Then type
"replicate"	
C6	
G6	
C20 (Scroll as needed)	
G20	
A20	**Forecasted Sales**

Step 9. Type the left headings for the Forecasted Sales block. Again, the LABEL function ensures that the headings here match the labels in the Retail Price section.

Select	Then type
"value"	
B22	**Label(A2)** ↵
"done"	
"replicate"	
B22	
B22	
B23	
B24	
"relative"	
B26	**Total**

Your worksheet should now look like Figure 12-3.

	A	B	C	D	E	F	G
1	Retail Prices						
2	Product A	300					
3	Product B	350					
4	Product C	500					
5							
6	Estimated Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
7							
8	Product A	High	60	70	70	80	280
9		Middle	40	45	45	45	175
10		Low	45	50	50	50	195
11							
12	Product B	High	90	100	110	100	400
13		Middle	60	70	70	65	265
14		Low	70	80	85	45	280
15							
16	Product C	High	30	40	40	40	150
17		Middle	15	20	20	20	75
18		Low	25	30	35	30	120
19							
20	Forecasted Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
21							
22		Product A					
23		Product B					
24		Product C					
25							
26		Total					

Figure 12-3. *The sales forecast worksheet after the product labels have been entered for the Forecasted Sales section.*

Step 10. Type the formulas that calculate the forecasted sales. Each formula adds the High, Low and twice the Middle estimates for that product and divides the result by four. This gives twice as much weight to the Middle estimate. A line of dashes separates the forecasted sales figures from the totals, which are calculated with the SUM function. These formulas can then be replicated across the worksheet.

Select	Then type
"value"	
C22	(C8+C9+(2*C10))/4 ↵ (C12+C13+(2*C14))/4 ↵ (C16+C17+(2*C18))/4 ↵ ↓ SUM(C22.C24) ↵

Select	Then type
"done"	
"label" "C25"	----------↵ (11 dashes)
"done"	
"replicate" C22 C26 D22 G26 "relative"	

Step 11. Create the Forecasted Revenue block, by copying the Forecasted Sales block.

Select	Then type
"Calc/Cut&Paste" "copy" Select the left header for row 20 Select the left header for row 26 Select the left header for row 28	

(Selecting row headers is easier than selecting beginning and ending cells and is a handy feature of the program)

Step 12. Now you can modify the Forecasted Sales block you copied. Type the formula that calculates the Forecasted Revenue for Product A in the first quarter. The formula multiplies the forecasted number of units sold by the retail price. Replicate the formula (Relative) down the 1st Qtr column.

Select	Then type
B28	**Revenue**
C30 (Scroll as needed)	**+C22*B2** ↵
"Calc/replicate" C30 C30 C31 C32 "relative"	

Select	Then type
"replicate"	
C30	
C32	
D30	
G32	
"prompted'	

You want to keep the references to the Retail Price cells constant, but change the references to the Forecasted Sales and Total cells, so you choose to be prompted whether to replicate each formula relative or absolute.

"relative"
"absolute"

"relative"
"absolute"

"relative"
"absolute"

Step 13: A bonus of $2,500 is paid to the sales force if sales exceed $55,000 in two consecutive quarters. To create the Forecasted Bonus Payments block, you will use the IF and AND functions to calculate whether a bonus is to be paid for each quarter.

Select	Then type
A36 (Scroll as needed)	**Forecasted Bonus Payments**
"replicate"	
C28	
G28	
C37	
C37 (in this case, you can select the same cell)	
C38	**0** ↵ →
	+IF((D34>55000)and (C34>55000),2500,0) ↵
"replicate"	
D38	
D38	

E38
F38
"relative"

G38 +SUM(C38.F38) ↵

You finished entering the sample worksheet. The shaded areas in Figure 12-4 show the parts of the worksheet that you can change to figure your sales revenue in different situations.

Figure 12-4. *The completed sales forecast worksheet showing the areas that you can enter numbers into to forecast the total sales units and revenues.*

	A	B	C	D	E	F	G
1	Retail Prices						
2	Product A	300					
3	Product B	350					
4	Product C	500					
5							
6	Estimated Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
7							
8	Product AHigh		60	70	70	80	280
9	Middle		40	45	45	45	175
10	Low		45	50	50	50	195
11							
12	Product BHigh		90	100	110	100	400
13	Middle		60	70	70	65	265
14	Low		70	80	85	45	280
15							
16	Product CHigh		30	40	40	40	150
17	Middle		15	20	20	20	75
18	Low		25	30	35	30	120
19							
20	Forecasted Sales		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
21							
22	Product A		48	54	54	56	211
23	Product B		73	83	88	64	306
24	Product C		24	30	33	30	116
25							
26	Total		144	166	174	150	634
27							
28	Forecasted Revenue		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
29							
30	Product A		14,250	16,125	16,125	16,875	63,375
31	Product B		25,375	28,875	30,625	22,313	107,188
32	Product C		11,875	15,000	16,250	15,000	58,125
33							
34	Total		51,500	60,000	63,000	54,187	228,688
35							
36	Forecasted Bonus Payments						
37			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
38			0	0	2,500	0	2,500
39							
40							
41							

G40 Empty:
Calc/Enter
value label name edit blank import replicate goto cell-attrib fetch.
HELP CLOSE OPEN FULL FRAME OPTIONS TRANSFER STOP

Using the Sample Worksheet

To see the power of this worksheet, experiment with changing the entries in the shaded cells. To most effectively see the results of your changes on the bottom line, you can create two views of the worksheet (select "Display" from the Calc menu, select "windows" from the menu, select "open," select "horizontally," then select a row three or four rows from the bottom of the screen and scroll the bottom window to the totals row for Forecasted Revenue). Then play "What if...?" with the following assumptions. For instance:

- Change the Retail Price for one of the products and watch all the numbers change in the revenue section.
- Change the High, Low, or Middle estimates and watch the numbers in the rest of the worksheet change in response.
- Change the product names and watch all the left headings change because of the LABEL function.

Now that the worksheet is set up, you can see that it takes very few keystrokes to recalculate the results of different sales situations.

Budgeting Salaries

When you have completed this simple First Quarter salaries budget, all you have to do to use it for budgeting your department's salaries is enter amounts for yearly salaries, enter a number for the month that you want to give a raise, and enter the raise amount. Each month's salary for each employee is calculated for you, and all totals are calculated.

The salaries budget can easily be expanded to:

- Add months for a six-month budget, or a yearly budget.
- Add any number of employees to your department.
- Add a profit-sharing table that calculates profit sharing bonuses for each employee.
- Use this salaries budget as the start of a complete department budget that also includes expenses.

Introducing the Sample Worksheet

This example is not difficult to enter; yet it demonstrates the power of a well designed worksheet that truly takes the tedium out of budgeting and lets you play with the assumptions that are important to you. The example shows you how to use the following Visi On Calc commands and techniques:

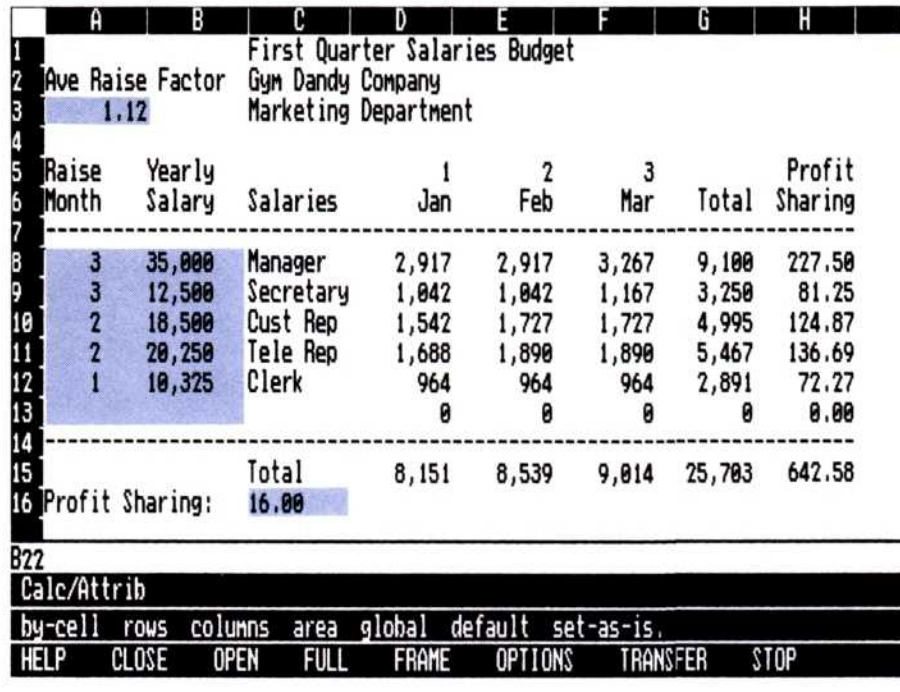
- Attribute options that:
  - Protect cell entry.
  - Set global, cell, and area formats.
  - Set formats left and right.
  - Hide areas of the worksheet.
  - Change direction of label and value entry.
- A lookup table that calculates a quarterly profit-sharing bonus.
- An IF statement that makes all monthly salary entries automatic.
- The "replicate" command that copies formulas.

Entering the Sample Worksheet

Enter the worksheet by following the steps below. The area of the worksheet that you are entering with each step corresponds to the numbered labels in the figures. Figure 12-5 shows what the salaries budget worksheet will look like when you have finished this example.

Step 1. Begin by typing in the labels of the worksheet. The monthly column headings will be entered by changing the way you enter labels to "right 1 column."

Select	Then type
"Enter/label"	
C1	**First Quarter Salaries Budget** ↵ **Gym Dandy Company** ↵ **Marketing Department** ↵
C6	**Salaries** ↵ ↓



	A	B	C	D	E	F	G	H	I
1			First Quarter Salaries Budget						
2	Ave Raise Factor		Gym Dandy Company						
3	1.12		Marketing Department						
4									
5	Raise	Yearly		1	2	3		Profit	
6	Month	Salary	Salaries	Jan	Feb	Mar	Total	Sharing	
7	---	---	---	---	---	---	---	---	
8	3	35,000	Manager	2,917	2,917	3,267	9,100	227.50	
9	3	12,500	Secretary	1,042	1,042	1,167	3,250	81.25	
10	2	18,500	Cust Rep	1,542	1,727	1,727	4,995	124.87	
11	2	20,250	Tele Rep	1,688	1,890	1,890	5,467	136.69	
12	1	10,325	Clerk	964	964	964	2,891	72.27	
13				0	0	0	0	0.00	
14	---	---	---	---	---	---	---	---	
15			Total	8,151	8,539	9,014	25,703	642.58	
16	Profit Sharing:		16.00						

B22
Calc/Attrib
by-cell rows columns area global default set-as-is.
HELP CLOSE OPEN FULL FRAME OPTIONS TRANSFER STOP

Figure 12-5. *The finished salaries budget worksheet. You enter values into the shaded cells and the worksheet calculates all of the monthly totals and the profit sharing.*

Select	Then type
	Manager ↵ **Secretary** ↵ **Cust Rep** ↵ **Tele Rep** ↵ **Clerk** ↵
C15	**Total** ↵
A2	**Ave Raise Factor** ↵
A5	**Raise** ↵ **Month** ↵ --------- ↵ (9 dashes)
B5	**Yearly** ↵ **Salary** ↵

"OPTIONS"
The Calc window.
"ENTER key moves cursor: right 1 column"

Scroll to Alignment: "Labels: right"

Select	Then type
D6	**Jan** ↵ **Feb** ↵ **Mar** ↵ **Total** ↵
"done" (from the Enter menu) "value"	
D5	**1** ↵ **2** ↵ **3** ↵
Scroll the Options sheet to ENTER key moves cursor: "down 1 row" "done" (from the options sheet) "done" (from the menu line)	

All of your labels for the basic worksheet are entered. The last three numbers that you entered above the months are not labels, but they are a handy design feature of your worksheet that you will use in the formula you create for the monthly salary entries.

Now you can draw two dashed lines by replicating the dashed line in cell A7.

Step 2. In this step, you draw two dashed lines across your worksheet.

Select	Then type
"replicate" A7 (first cell) A7 (last cell) B7 (first target cell) H7	
"replicate" A7 H7 A14 B14 (the last target cell is B14 because you are replicating the dashed line only once)	

See Figure 12-6.

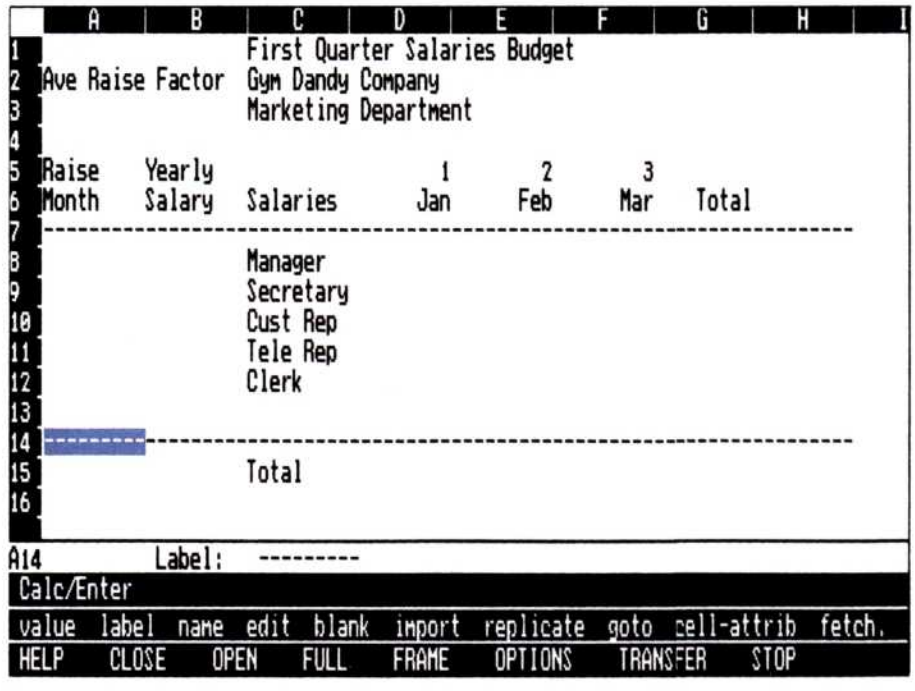


Figure 12-6. *The salaries budget worksheet with the labels entered and the lines replicated.*

Step 3. Now you will enter the three basic formulas of the worksheet and replicate them into the appropriate cells for calculating monthly salaries, monthly totals, and first-quarter totals. When you enter cell references into formulas in this step, you might want to try selecting the references directly from the worksheet. Often this method saves time.

Select	Then type
"value"	
D8	**IF(D5<A8,B8/12,B8/12*A3)** ↵

This formula means:

If the number for Jan (D5) is less than the number you enter under Raise Month, simply enter the monthly salary (B8/B12); or, if not, then multiply the monthly salary (B8/12) by the raise factor (A3). Using numbers above the month columns (1.00, 2.00, and 3.00) is a handy trick in designing effective worksheets!

D15 **SUM(D8.D14)** ↵

(Including D14 in the sum does not affect the total and allows you to add people to the budget without changing the total formula.)

G8 **SUM(D8.F8)** ↵

"done"
"replicate"
D8
D8
E8
F8
"prompted"
"relative"
"absolute"
"absolute"
"absolute"
"absolute"

"replicate"
D8
F8
D9
F13
"prompted"
"absolute"
"relative"
"relative"
"relative"
"absolute"

"absolute"
"relative"
"relative"
"relative"
"absolute"

"absolute"
"relative"
"relative"
"relative"
"absolute"

"replicate"
D15
D15
E15
G15
"relative" (all relative)

Select	Then type
"replicate"	
G8	
G8	
G9	
G13	
"relative" (all relative)	

You have entered all of the formulas (see Figure 12-7).

Your basic worksheet is complete and you can use it now to calculate your salary budget, to see what effect raises have in different months, and what effect changing the average raise factor has on your budget.

Step 4. Now you will enter the values that are your assumptions for Average Raise Factor, Raise Month, and Yearly Salary and see the effects of your assumptions. Notice the way the amounts are displayed as they are calculated.

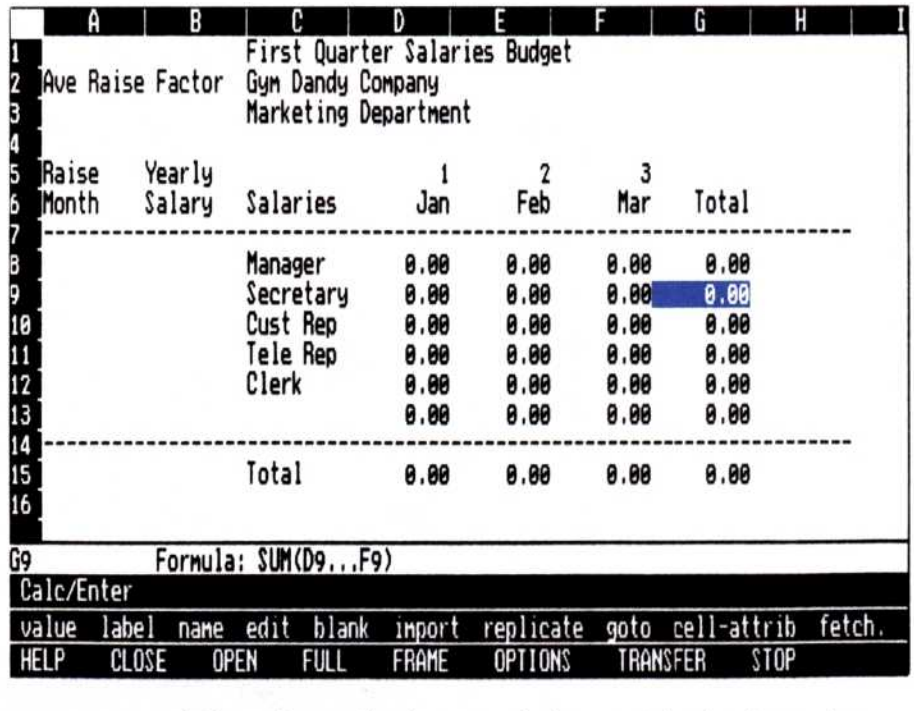
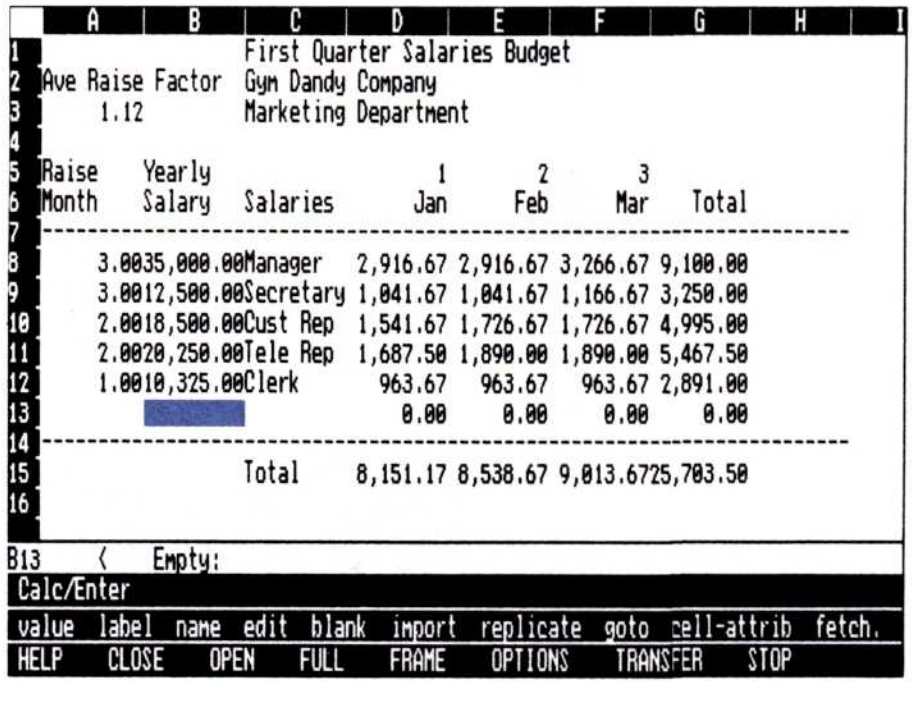


Figure 12-7. *The salaries budget worksheet with the formulas entered and replicated.*

Select	Then type
"value"	
A3	**1.12** ↵ (this factor will give everyone who gets a raise a 12% increase; 1.10 will give a 10% increase, and so forth)
A8	**3** ↵ (raise in month 3) **3** ↵ (raise in month 3) **2** ↵ (raise in month 2) **2** ↵ (raise in month 2) **1** ↵ (raise in month 1)
B8	**35000** ↵ **12500** ↵ **18500** ↵ **20250** ↵ **10325** ↵
"done"	

Your worksheet should look like Figure 12-8.

Figure 12-8. *The salaries budget worksheet after you have entered the values for your assumptions in the two left columns.*



All values for your worksheet should now be calculated and displayed. The decimal places in the values are not needed, except for the Average Raise Factor. The next step is to display the worksheet exactly the way you want it.

Step 5. Now that you see how the worksheet is displayed, you can make the final adjustments to it to improve its appearance.

Select

"Calc/Attrib"

Scroll to the Attribute settings as needed.

"Decimal Places: 0"
"global"
"yes" (all values are displayed with no decimals)

"set-as-is" (from the menu)
"Decimal Places: 2"
"by-cell"
A3
"done" (from the Attrib menu)

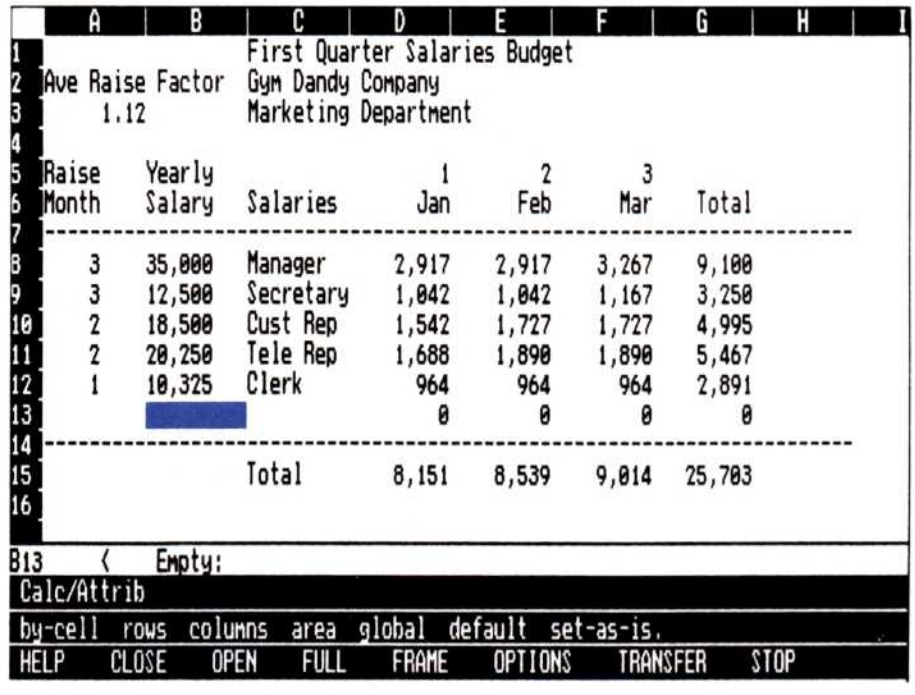
The Ave Raise Factor displays two decimals.

"set-as-is" (from the menu)
"Alignment: Values: center"
"area" (from the menu)
A8
A13
"done" (from the Attrib menu)

"set-as-is" (from the menu)
"Alignment: Values: left"
"area" (from the menu)
B8
B13
"done" (from the Attrib menu)
"done" (from the Options sheet)

Your worksheet should look like Figure 12-9.

You can use the worksheet as it is, but there are additional ways you can expand on this basic worksheet to meet your special needs. For example, you might have



	A	B	C	D	E	F	G	H	I
1			First Quarter Salaries Budget						
2	Ave Raise Factor		Gym Dandy Company						
3	1.12		Marketing Department						
4									
5	Raise	Yearly		1	2	3			
6	Month	Salary	Salaries	Jan	Feb	Mar	Total		
7	----------	----------	----------	----------	----------	----------	----------		
8	3	35,000	Manager	2,917	2,917	3,267	9,100		
9	3	12,500	Secretary	1,042	1,042	1,167	3,250		
10	2	18,500	Cust Rep	1,542	1,727	1,727	4,995		
11	2	20,250	Tele Rep	1,688	1,890	1,890	5,467		
12	1	10,325	Clerk	964	964	964	2,891		
13				0	0	0	0		
14	----------	----------	----------	----------	----------	----------	----------		
15			Total	8,151	8,539	9,014	25,703		
16									

B13 ⟨ Empty:
Calc/Attrib
by-cell rows columns area global default set-as-is.
HELP CLOSE OPEN FULL FRAME OPTIONS TRANSFER STOP

Figure 12-9. *The salaries budget worksheet after you have set various formatting options.*

a quarterly profit-sharing budget that you want to calculate at the end of each quarter.

Step 6. Let's add a lookup table to reflect an increasing sharing of profits as the profits of the company increase, then add the calculated results of profit sharing to each person's line on the budget.

Select	Then type
"Calc"	
A16	**Profit Sharing:** ↵
C16	**16** ↵
"Enter/value"	
A17 (Scroll as needed)	**15** ↵
	16 ↵
	17 ↵
	18 ↵
	19 ↵
	20 ↵

Select	Then type
B17	**.020** ↵ **.025** ↵ **.030** ↵ **.035** ↵ **.040** ↵ **.045** ↵
"done"	

The numbers do not display with three decimals, but this will be adjusted later.

You have entered the lookup table that will look up an increasing percent (B17...B22) as the profits increase (A17...A22).

Step 7. Now you can enter the lookup formula itself, which in this case will be inside of an IF statement. Profit sharing will be paid only if the company profits are equal to or greater than 15% (cell C16).

Select	Then type
"goto"	**H5** ↵ **Profit** ↵ ↓ **Sharing** ↵
"Enter/value"	
H8	**IF(C16<15,0,LOOKUP (C16,A17.A22)*G8)** ↵ This formula means: If the company's profits (C16) are less than 15%, then no (0) profit sharing will occur; if the profits are equal to or greater than 15%, then look up the profit percent (C16) in the lookup table, return its corresponding percent, and multiply it times the quarterly salary (G8).
"done"	

Select	Then type
"replicate"	
H8	
H8	
H9	
H13	
"prompted"	
"absolute"	
"absolute"	
"absolute"	
"absolute"	
"relative"	
"replicate"	
G15 (Scroll as needed)	
G15	
H15	
H15	
"relative" (all relative)	

Now profit sharing can be calculated by simply entering the number at A17 that reflects expected profitability.

Step 8. One final set of adjustments should now be made to the new areas you have just entered. You will set Attributes for the profit-sharing percent, the lookup table, and heading for the profit-sharing column.

Select	Then type
"Calc/Attrib"	
Scroll the Options sheet as needed.	
"Alignment: Values: center"	
"area" (Scroll as needed to view A17)	
A17	
B22	
"done" (from the Attrib menu)	
"Alignment: Values: left"	
"by-cell"	
C16	
"done" (from the Attrib menu)	

Select	Then type
"set-as-is"	
"Decimal Places: 3"	
"area"	
B17	
B22	
"done" (from the Attrib menu)	
"set-as-is"	
"Alignment: Labels: right"	
"area"	
H5	
H6	
"done" (from the Attrib menu)	
"set-as-is"	
"Cell Protection: protected"	
"area"	
D8	
H15	
"done" (from the Attrib menu)	
"set-as-is"	
"Cell Protection: protected"	
"Cell contents: hidden"	
"area"	
A16	
B22	
"done" (from the Attrib menu)	
"done" (from the Options sheet)	

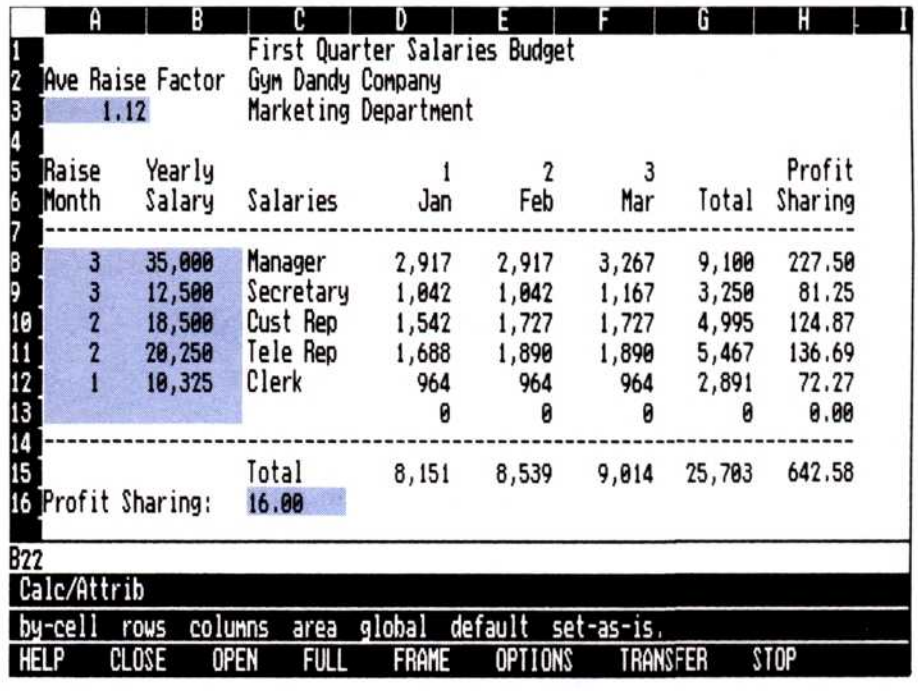
The worksheet is now complete with formatting changes and all formulas (see Figure 12-10). The lookup table is hidden and protected but will still calculate the profit-sharing percent for each employee.

Using the Sample Worksheet

Try changing the values in the shaded areas to test out the worksheet. See how easy it is to calculate a quarterly sales budget by simply changing a few numbers:

- Change the Average Raise Factor to see what effect different average increases have on the budget.

Figure 12-10. *Shaded areas of the worksheet show where you enter data to calculate the budget.*



	A	B	C	D	E	F	G	H	I
1			First Quarter Salaries Budget						
2	Ave Raise Factor		Gym Dandy Company						
3	1.12		Marketing Department						
4									
5	Raise	Yearly		1	2	3		Profit	
6	Month	Salary	Salaries	Jan	Feb	Mar	Total	Sharing	
7	----------								
8	3	35,000	Manager	2,917	2,917	3,267	9,100	227.50	
9	3	12,500	Secretary	1,042	1,042	1,167	3,250	81.25	
10	2	18,500	Cust Rep	1,542	1,727	1,727	4,995	124.87	
11	2	20,250	Tele Rep	1,688	1,890	1,890	5,467	136.69	
12	1	10,325	Clerk	964	964	964	2,891	72.27	
13				0	0	0	0	0.00	
14	----------								
15			Total	8,151	8,539	9,014	25,703	642.58	
16	Profit Sharing:		16.00						

B22
Calc/Attrib
by-cell rows columns area global default set-as-is.
HELP CLOSE OPEN FULL FRAME OPTIONS TRANSFER STOP

- Change the Raise Month for each employee to see what effect it has.
- Change the Yearly Salary amounts.
- And finally see what kind of profit-sharing checks you will be able to inspire your employees with if your company's profits increase to 20 percent!

One particularly interesting change that you can make on your own is to make the worksheet calculate raises individually as opposed to the average method used here. You do this by inserting a new column A, putting a heading such as Raise Percent in cells A5 and A6, changing the formula in the new January column to reference A8 instead of A3, then replicating the formula once again, being careful to get relative and absolute referencing correct. A8 must change to A9, A10, and so forth down the rows. Then you can simply enter a raise factor for each person in your department and it will be calculated for that person.

You can also expand the worksheet into a yearly budget or add people to your department. You can change the worksheet to adjust to your needs quickly because all of the formulas you need are already entered. You only have to replicate them into any new areas that you create, again being careful to get relative and absolute

referencing correct. Then you can set attributes to format the worksheet the way you want it to look.

Finally, notice that the way the worksheet is designed lets you print it out with the upper right corner starting at C1. You do not have to print out the two left columns if you do not want to communicate this information in a report.


VISI ON™

13 VisiOn Calc™ Messages

Messages

The following is a list of the messages displayed by the Visi On Calc™ program if an error occurs. Each message lists the cause of the error condition and what you can do to correct the error.

(116) **The source and destination areas overlap**
In a replicate, move, or copy command you selected a destination area that overlaps the source area. Reenter the command and select a destination area that does not include the source area.

(117) **Cannot replicate over a protected cell**
The destination area of your replicate command contains a protected cell that cannot be changed. Either remove the protection from the cell or replicate into a different area.

(118) **The coordinate format is wrong—should be <column><row>**
You entered a worksheet coordinate in a wrong format. The correct format is column-letter row-number. There is no space or punctuation between the column and row. Examples of correct coordinates are: A1, J15, AA113.

(119) **The column identifier is too large**
You specified a column identifier larger than DX. Select the command again and specify a column in the range:
A, B, ..., Z, AA, AB, ..., DX

(120) **The row identifier is too large**
You specified a row number greater than 511, the maximum number of rows. Select the command again and specify a row number in the range 1 through 511.

(121) **That name is not defined—check the spelling**
You tried to specify a named cell but the name you used does not exist in this worksheet. If you misspelled the name, repeat the command with the correct spelling. If the name does not exist in this worksheet, create it with the name command.

(122) **Cannot blank a protected cell**
You tried to blank an area that contains a protected cell. You must remove the protection before you can blank the cell.

(123) **Cannot open a third window—only two allowed**

You already have two views of the worksheet open. You cannot open a third.

(124) **Cannot close a single window**

You tried to close a view of the worksheet when there was only one view. Close works only when a second view is open.

(148) **A cell coordinate or a cell name is required**

At or near the cursor location, the program expects a cell coordinate or a cell name. Make the appropriate changes to the formula.

(149) **A right parenthesis is required**

At or near the cursor location, the program expects a right parenthesis. Make the appropriate changes to the formula.

(150) **A left parenthesis is required**

At or near the cursor location, the program expects a left parenthesis. Make the appropriate changes to the formula.

(151) **There are too many right parentheses in the formula**

There are more right parentheses than left in the formula. Parentheses must be balanced. The error might be near the cursor location.

(152) **A comma is required**

At or near the cursor location, the program expects a comma. Make the appropriate changes to the formula.

(153) **An operand (constant, coordinate, name or expression) is required**

At or near the cursor location, the program expects a constant, a cell coordinate, a cell name, or an expression that can be evaluated in its own right. Make the appropriate changes to the formula.

(154) **An operator (+, −, *, /) is required**

At or near the cursor location, the program expects an operator such as an addition symbol (+), a subtraction symbol (−), a multiplication symbol (*), or a division symbol (/). Make the appropriate changes to the formula.

(155) **There is a misplaced right bracket (])**

At or near the cursor location there is a misplaced right bracket (]). Make the appropriate changes to the formula.

(156) **There is a misplaced left bracket ([)**

At or near the cursor location there is a misplaced left bracket ([). Make the appropriate changes to the formula.

(157) **There is a misplaced ellipsis (...)**

At or near the cursor location there is a misplaced ellipsis (...). Make the appropriate changes to the formula.

(158) **There is a misplaced comma (,)**

At or near the cursor location there is a misplaced comma (,). Make the appropriate changes to the formula.

(159) **A cell coordinate is required**

At or near the cursor location, the program expects a cell coordinate. Make the appropriate changes to the formula.

(160) **A cell name or a constant is required**

At or near the cursor location, the program expects a cell name or a constant. Make the appropriate changes to the formula.

(161) **A left bracket ([) is required**

At or near the cursor location, the program expects a left bracket ([). Make the appropriate changes to the formula.

(162) **Invalid coordinate range—must be same row or column**

At or near the cursor location there is a cell coordinate range that includes two or more rows or columns. A coordinate range must be restricted to a single row or column. Make the appropriate changes to the formula.

(240) **Error reading or writing to a disk**

There was an error reading or writing to a disk. Check the drive and the disk and then retry the operation. Make sure the disk is formatted. If the error persists, you may have a defective disk or malfunctioning hardware.

(241) The volume is off-line

The volume that you tried to read or write is not available to the computer at this time. Make sure the correct disk is in the drive. You might have forgotten to mount the volume when you put it in the drive.

(242) The source or destination is not available

A file you need may not be mounted or may be in use by another program.

(243) The file or folder is in use

You may have another process that is using the file you need. Check other programs and utilities.

(244) There is a nonexistent folder or file in the pathname

You probably attempted to get a file by name. Most probably you misspelled the name of a folder or worksheet in the pathname. Select the command again and reenter the pathname. It is also possible that you deleted that folder or worksheet from the archives since you loaded the Visi On Calc program.

(245) There is an invalid / in that name

The name you entered has an invalid slash (/) in it. Names can contain any characters except the slash, which is used to separate the folder and filenames in a pathname.

(246) The folder name is too long—12 characters max

You entered a folder name that exceeds the maximum length of 12 characters. Reenter a name of 12 characters or less.

(247) The pathname is too long—80 characters max

You entered a name that causes a pathname to exceed the maximum of 80 characters. The combined names that make up a pathname cannot exceed 80 characters. Reenter a shorter name.

(248) The working folder is full

You attempted to put a worksheet into the working folder which is full. You must remove worksheets from the working folder before you can put another into it. Be sure to save the worksheet if it has been changed since you put into the working folder.

(249) **A different type file by that name already exists**

The name you entered already exists in the folder. It may be the name of a different type of file. Use the Archive utility to see a list of all the files in the folder. Enter a different name.

(250) **Syntax error in the formula**

There is a syntax error in the formula you entered. Check the formula and make the necessary corrections. If you cannot see the error, see the *User's Guide* for detailed descriptions of the operators and functions you are using.

(251) **Invalid column width—range is 2 to 255**

You entered a column width that is not range of 2 through 255. Reenter a number in that range.

(252) **The sort key must be within the sort area**

You selected a row or column as the sort key that is not in the area you selected to be sorted. The row or column by which the area is to be rearranged must be within the area to be sorted. Either select a sort key row or column within the sort area or "STOP" the "sort" command, start over, and include the sort key row or column in the sort area.

(253) **Not enough memory for this worksheet**

There is not enough memory to handle the size of this worksheet. You must make the worksheet smaller. Check the "import" and "fetch" commands; they may help you accomplish your needs in a smaller worksheet.

(254) **This cell can only accept labels**

You tried to enter a value or a formula in a cell that only allows the label data type. This restriction was set by using the attribute options sheet. Either enter your value or formula in a different cell or select "Attrib" and change the data type restriction on this cell.

(255) **This cell can only accept formulas and values**

You tried to enter a label in a cell that only allows the formula or number data type. This restriction was set by using the attribute options sheet. Either enter your label in a different cell or select "Attrib" and change the data type restriction on this cell.

(256) **This cell is protected—cannot be changed**
You tried to change the contents of a cell that is protected. The protection was set with the attributes options sheet. Either leave the cell as is or select "Attrib" and change the cell protection on this cell.

(257) **Cannot change option—'use default for all' is set**
You attempted to change the setting of an attribute option while the Attribute Settings option is set to "use default for all." You must change the Attribute Settings option to "use settings below" before you can change any other option.

(258) **That number is invalid—contains non-digit characters**
You entered a number that contains characters other than Ø-9, comma (,), and decimal point (.). You may have entered a multiple decimal points or misplaced separator commas. Reenter the number correctly.

(259) **That number must be positive**
You entered a negative number where only positive numbers are valid. Enter a positive number.

(260) **Paper length is too large**
You entered a paper length that is too long for the selected device. Check the maximum for that device and then reenter a valid number.

(261) **Paper width is too large**
You entered a paper width that is too long for the selected device. Check the maximum for that device and then reenter a valid number.

(262) **The margin is larger than the paper size**
You entered a value for a margin that is larger than the current paper size. Either correct the paper size (length or width) or reenter a smaller value for the margin.

(263) **Invalid point—source and destination overlap**
You selected a destination point that will cause the transferred data to overlap the source data. You cannot overlap source and destination data with the "TRANSFER" command. Either select another destination point or "STOP" the command.

(264) That file is the wrong type for this program

You entered the name of a file that is not a worksheet. That file cannot be loaded. You may have referenced the wrong folder or misspelled a name. Enter the correct name of a worksheet.

(273) That name is used for a named or import cell

The name you entered is already in use as the name of a named cell or an import cell. Enter a different name that is unique in this worksheet.

(274) This cell can only accept values

You tried to enter a label or formula in a cell that only allows the number data type. This restriction was set by using the attribute options sheet. Either enter your label in a different cell or select "Attrib" and change the data type restriction on this cell.

Appendix A

Converting VisiCalc® Worksheets for Use with the Visi On Calc™ Program

Appendix A

Because the Visi On Calc™ program differs in many respects from the VisiCalc® program, worksheets created with the VisiCalc program must be converted for use with the Visi On Calc program.

This Appendix explains how to use the Visi On Convert to Calc™ program to convert your existing VisiCalc worksheets to worksheets usable with the Visi On Calc program.

Overview of the Visi On Convert to Calc™ Program

When you select "Visi On Convert to Calc™" from the Services window, a display showing the copyright notice, etc., appears. You must select "continue" from the bottom of the display to get the Visi On Convert to Calc program.

After you select "continue," the Convert-Calc menu will be displayed. The menu lists three commands:

Command	What It Does
"convert"	Converts VisiCalc worksheets to Visi On Calc worksheets.
"new-folder"	Creates a new folder.
"quit"	Closes the Convert window.

Creating a Folder

If you want the worksheet you are converting to be placed in its own folder in your Archives (filing system), follow these steps:

1. Select "new-folder" from the Convert-Calc menu.
2. A display closely resembling the Files display appears. The top part of this display lists all the existing folders in your Archives central folder. The middle part lists all worksheets in your Archives central folder.

At the bottom, you are prompted to enter the new folder name. Type the name of the folder you want. The folder name must be new; it cannot be the same as one of the folders listed in the top part of the display or of any file in the central Archives folder.

Creating a new folder automatically opens that folder. Consequently, if you convert a worksheet after creating a folder, it will be placed in the newly created folder. You need only type the worksheet name when prompted for the file name of the converted worksheet; you do not have to type the folder name as well.

Converting Worksheets

To convert a VisiCalc worksheet

1. Select the folder where you want the converted worksheet to be stored. If you do not want to put the worksheet into a folder, skip this step.
2. Select "convert" from the Convert-Calc menu.
3. You are prompted to type the name of the VisiCalc file to be converted.
4. Type the drive and file name, followed by ↵. For example, you might type in a file name from drive A **a:Sales**, if Sales were the name of the worksheet.

   Remember to also include the extension; for example, the extension ".VC," the standard VisiCalc file extension.
5. You are prompted to type a new worksheet name or select from the middle part of the display.

   - To give the worksheet a new name, type the name—up to 12 characters—followed by ↵.

     If you want to place the converted worksheet into a folder that is not open, type a slash (/), then the folder name, followed by another slash, and then the worksheet name.

   - To replace an existing worksheet with the converted worksheet, select the existing worksheet from the middle part of the display.

The converted worksheet will be placed in the folder that is currently open.

The converted worksheet will be placed in the folder that is currently open.

The converted worksheet will be the same as the original VisiCalc worksheet, with five qualifications:

- Formats set in the original worksheet are converted to attributes. However, certain format indicators—such as a ">" on the echo line, indicating that the cell format "align right" has been set—will appear on the converted worksheet.
- The star (*) or graph format in the VisiCalc program has no counterpart among Visi On Calc attributes, so it cannot appear on a Visi On Calc worksheet. Cells with this format set are converted as if the format had not been set.
- Formulas involving AND, OR, or NOT are not converted directly because of the differences between the way these are used in VisiCalc and Visi On Calc.
- Repeating labels are simply expanded to a field nine characters wide.
- Visi On Calc formulas are calculated according to the algebraic precedence of the operators. Expressions within parentheses are calculated before the remainder of the formula. When operators have equal precedence within a formula, the expressions are calculated left to right. Refer to Chapter 3 for a full description of Visi On Calc operator precedence.

  The Visi On Convert to Calc program adds parentheses to VisiCalc expressions so that VisiCalc formulas will be calculated accurately in the Visi On Calc program. However, because of the design or complexity of some VisiCalc formulas, it is possible that they will not be correctly converted.

  If you do not get the same calculated results after your worksheets are converted, check the formulas to make certain that the precedence of expressions within the formulas is now correct.

Appendix B

Visi On Calc™ Formulas

Appendix B

This Appendix lists the formulas used for calculating the financial functions and the formulas used for standard deviation. Because of differences in computational methods used by various financial calculators, there may be minor inconsistencies between the results returned by these formulas and those of a specific calculator.

Formulas: Financial

FMRR—Financial Management Rate of Return
FV—Future Value
IRR—Internal Rate of Return
NPV—Net Present Value
NPER—Number of Periods
PMT—Payment
PV—Present Value
RATE—Interest Rate
STANDEV—Standard Deviation

FMRR—Financial Management Rate of Return

For full information on the basis for the FMRR calculation, refer to Chapter 4 in the book *Marketing Investment Real Estate/Finance Taxation Techniques,"* by Stephen D. Messner, Irving Schreiber, and Victor L. Lyon and published by the Realtors National Marketing Institute® of the National Association of Realtors®, 1976, Chicago, Illinois.

FV—Future Value

Beginning of period payment method:

$$FV = -PV*(1+i)^n - \frac{(1+i) * PMT * ((1+i)^n - 1)}{i}$$

End of period payment method:

$$FV = -PV*(1+i)^n - \frac{PMT * ((1+i)^n - 1)}{i}$$

IRR—Internal Rate of Return

Use an iterative method to solve the following formula for i.

$$\emptyset = \sum_{j=0}^{n} \frac{CFj}{(1+i)^j}$$

NPV—Net Present Value

The Net Present Value formula starts from cash flow one, not zero.

$$NPV = \sum_{j=1}^{N} \frac{CFj}{(1+i)^j}$$

NPER—Number of Periods

Beginning of period payment method:

$$N = \frac{LOG\left(\frac{PMT * (1+i) - i * FV}{PMT * (1+i) + i * PV}\right)}{LOG\,(1+i)}$$

End of period payment method:

$$N = \frac{LOG\left(\frac{PMT - i * FV}{PMT + i * PV}\right)}{LOG\,(1+i)}$$

PMT—Payment

Beginning of period payment method:

$$PMT = \frac{-i * (PV * (1+i)^n + FV)}{((1+i)^n - 1) * (1+i)}$$

End of payment period method:

$$PMT = \frac{-i * (PV * (1+i)^n + FV)}{((1+i)^n - 1)}$$

PV—Present Value

Beginning of payment period method:

$$PV = \frac{\frac{-(1+i) * PMT * ((1+i)^n - 1)}{i} - FV}{(1+i)^n}$$

End of payment period method:

$$PV = \frac{\frac{-PMT * ((1+i)^n - 1)}{i} - FV}{(1+i)^n}$$

RATE—Interest or discount rate

The following formulas for rate are solved using Newton's method.

Beginning of period payment method:

$$0 = PV * (1+i)^n + PMT * (1+i) * ((1+i)^n - 1)/i + FV$$

End of period payment method:

$$0 = PV * (1+i)^n + PMT * ((1+i)^n - 1)/i + FV$$

Standard Deviation

The following formulas are for the calculation of the standard deviation.

Entire Population

$$\sqrt{\frac{\sum_{j=1}^{N} X_j^2 - \frac{\left(\sum_{j=1}^{N} X_j\right)^2}{N}}{N}}$$

Estimate for a Larger Population from a Sample

$$\sqrt{\frac{\sum_{j=1}^{n} X_j^2 - \frac{\left(\sum_{j=1}^{n} X_j\right)^2}{n}}{n-1}}$$


VISI ON™

Glossary

Glossary

A

Absolute date The number of days before or since January 1, 1979.

Absolute Value function The Visi On Calc mathematical function that returns the absolute value of the specified number.

Absolute referencing The type of referencing in which all formulas in the source area are duplicated in the target area with no change. Also see Referencing.

AND operator A Visi On Calc logic operator that compares two logical expressions to see if both are true.

"area" The Visi On Calc command in the Attributes menu that lets you apply attributes to an area. Also, generally, a rectangular block of cells.

Argument A value used by a function to calculate its own value. Arguments are given in parentheses: for example, in SQRT (324) the argument is 324.

"Attrib" The Visi On Calc command that displays the Attributes menu, where you can control how data is displayed.

Attributes In the Visi On Calc program, the display characteristics of cells (such as the number of decimal places shown).

Average function The Visi On Calc mathematical function that returns the arithmetic mean of the values in a list.

B

"blank" The Visi On Calc command in the Enter menu that lets you erase the contents of cells.

"by-cell" The Visi On Calc command in the Attributes menu that lets you apply attributes to one cell at a time.

C

"calc" The Visi On Calc command that lets you recalculate your worksheet.

"Calc" The Visi On Calc command that displays the main Calc menu.

Calc options sheet The Visi On Calc options sheet that lets you make changes that subsequently affect the entire worksheet.

Calendar functions A set of Visi On Calc functions that calculate dates based on the arguments supplied.

Cell An entry position on a Visi On Calc or worksheet. A cell has an address that consists of column and row coordinates. For example, C3 identifies the cell at column C and row 3. Also see Coordinates.

"Cell-attrib" The Visi On Calc command in the Enter menu that lets you apply attributes to one cell at a time.

Cell contents A Visi On Calc display option that allows you to keep the contents of certain cells from being displayed.

Cell name A name that can be assigned to a cell containing a Visi On Calc label. A cell name can be used in place of a coordinate reference. Named cells may be referenced even when they are contained in worksheets not currently being displayed (see Consolidation). Also see Label.

Cell protection A Visi On Calc display option that allows you to keep the contents of certain cells from being changed.

Choose function A Visi On Calc logic function that selects a value from a list based on its position in that list.

Circular reference A condition that may cause inaccurate results, occurring when a formula in a cell refers to the cell itself.

Column The vertical dimension of a Visi On Calc or Visi On Data worksheet. Columns are identified by letters.

"columns" The Visi On Calc command in the Attributes menu that lets you apply attributes to one column at a time.

"column-width" The Visi On Calc command in the Display menu that lets you select a column width.

Column width In the Visi On Calc program, columns may be from 2 to 255 characters wide. The default setting is 9.

Consolidation The process of bringing data together from different Visi On Calc worksheets into one worksheet.

Coordinates The column (alphabetic) and row (numeric) designation of any cell on your worksheet.

"copy" The Visi On Calc command in the Cut and Paste menu that lets you copy rows and columns into other sections of your worksheet.

Count function The Visi On Calc mathematical function that counts the number of non-blank entries in a list.

"Cut&Paste" The Visi On Calc command that displays the Cut and Paste menu, where you can move, copy, or sort data; insert blank rows and columns; and delete unwanted areas.

Cut and Paste options sheet The Visi On Calc options sheet that lets you establish the order in which your data is sorted. This options sheet is displayed when you select "OPTIONS" while you are in the Cut and Paste menu.

D

Day function The Visi On Calc calendar function that displays the date when the number of days before or since January 1, 1979, (that is, the absolute date) is given.

"default" The Visi On Calc command in the Attributes menu that lets you change the default settings for all cells containing certain types of data.

"delete" The Visi On Calc command in the Cut and Paste menu that lets you delete entire rows and columns from your worksheet.

Display The Visi On Calc command that displays the Display menu, where you can change column widths, create views, or fix an area so that it will not scroll.

Display options In the Visi On Calc program, the options that let you display cell values or formulas, insert a grid, change column width, or select synchronized scrolling.

Display options sheet The Visi On Calc option sheet that lets you change display options. This options sheet is displayed when you select "OPTIONS" while you are in the Display menu. Also see Display options.

E

Echo line The line above the Visi On Calc prompt line. It displays the contents and coordinates the cell you have selected. If the cell contains a formula, the echo line shows the formula. You can edit the formula by selecting it on the echo line.

"edit" The Visi On Calc command in the Enter menu that lets you change the contents of cells.

editing keys In the Visi On Calc program, the editing keys are the arrow keys, the delete key, the backspace key, and the end key.

"Enter" The Visi On Calc command that displays the Enter menu.

Enter options sheet The Visi On Calc options sheet that lets you change the way your data is displayed and create protected cells. These options can also be changed with the Attributes options sheet. This options sheet is displayed when you select "OPTIONS," and automatically is displayed when you select the "Attrib," or "cell-attrib," commands.

"erase" The Visi On Calc command that removes all data from the worksheet.

Error function The Visi On Calc logic function that is displayed when an error condition exists in a cell.

Explicit Displayed. For example, explicit attributes are those that are displayed with data, such as dollar signs or minus signs.

Exponential Value function The Visi On Calc mathematical function that gives the exponential value of an argument.

F

False function The Visi On Calc logic function that displays FALSE if used as part of a logical expression.

"fetch" The Visi On Calc command in the Enter menu that lets you bring data into defined import cells from named cells in another worksheet.

"file" The Visi On Calc command in the main Calc menu that lets you load or save your work.

financial function A type of Visi On Calc function that performs a standard financial calculation (such as the internal rate of return).

Financial Management Rate of Return function The Visi On Calc financial function that calculates the effective rate of return on investment and lets you specify the return on a "safe" investment as well as the reinvestment rate.

formula A formula can be a number (such as 43) or a string of values, operators, and coordinates that generates a number (such as 2/B11-3).

forward reference A condition that may cause inaccurate results, occurring when a cell being calculated refers to another cell that has not been calculated. This condition is possible only when using recalculation by row or by column.

function In the Visi On Calc program, a function is a type of preset formula that allows you to rapidly make certain calculations. The Visi On Calc program contains mathematical functions as well as logic, financial, calendar, label and value, and trigonometric functions.

Future Value function The Visi On Calc financial function that calculates the future value (fv) of an investment or a series of payments.

G

"goto" The Visi On Calc command that lets you enter cell coordinates to move the cursor.

grid The Visi On Calc option that lets you display a vertical pattern of dots separating the columns on your worksheet.

I

IF function The Visi On Calc logic function that logically evaluates three arrangements in an if-then-else format.

"import" The Visi On Calc command in the Enter menu that lets you set up a range of cells into which you want to bring data from a named range in another worksheet. See "fetch."

Import cell A cell into which you bring data from another worksheet.

Index function The Visi On Calc logic function that compares a search value to each value in a list to find a specific value.

"insert" The Visi On Calc command in the Cut and Paste menu that lets you insert rows and columns into your worksheet.

integer A negative or positive, including zero.

Integer Part function The Visi On Calc mathematical function that returns the integer part of an arrangement without rounding.

internal rate of return The interest rate that discounts a series of unequal payments to a present value equal to the negative of the initial investment.

Internal Rate of Return (IRR) function The Visi On Calc financial function that calculates the effective rate of return on an investment.

Is Error function The Visi On Calc logic function that searches for a particular error condition.

Is Not Available function The Visi On Calc logic function that displays either NA or UNAVAIL if specific values referenced are not available to be used or do not exist.

L

"label" The Visi On Calc command in the Enter menu that lets you enter labels into cells.

label Text information in the Visi On Calc program. A label may be up to 255 characters long and contain numbers and symbols. Labels are displayed and printed exactly as entered and cannot be used in functions.

Label At function A Visi On Calc label function that selects the label for a cell whose coordinates you specify.

Label function A Visi On Calc function that selects a specified cell label.

Label Integer function A Visi On Calc label function that selects from a list of cells whose position is specified by an integer.

Label Type Thru An options on the Enter options sheet which allows you to type characters into adjacent empty cells.

"local-print" The Visi On Calc command in the Print menu that lets you print your worksheet on a local (directly connected) printer.

Logarithm Base 10 function The Visi On Calc mathematical function that returns the logarithm of an argument to base ten.

logic function A Visi On Calc function that performs calculations based on logical arguments.

Lookup function The Visi On Calc logic function that compares a search value to a list to find a specific value.

lower bound The Visi On Calc option that lets you specify the smallest number that may be entered into a cell.

M

"make-pages" The Visi On Calc command in the Print menu that lets you break your worksheet into smaller pages when it is printed.

Mathematical function A Visi On Calc function that performs a common mathematical calculation (such as finding the square root).

Maximum function The Visi On Calc mathematical function that returns the largest numeric value in a list.

menu path The sequence on the top highlighted menu line showing the menus you selected to reach where you are in the program.

method of recalculation The by which formulas in your worksheet are recalculated (natural-order, by row, or by column).

Minimum function The Visi On Calc mathematical function that returns the smallest value in a list.

Modulo Arithmetic function The Visi On Calc mathematical function that returns the remainder after the first expression is divided by the second expression in the argument.

Month function The Visi On Calc calendar function that displays the number of the month when the number of days before or since January 1, 1979 (that is,the absolute date) is given.

Month-day-year function The Visi On Calc calendar function that attempts to interpret invalid dates in addition to functioning as a month-day-year function.

"move" The Visi On Calc command in the Cut and Paste menu that lets you move rows, columns, or areas.

N

NA The letters that are displayed in a cell if a referenced value is not available to be used.

"name" The Visi On Calc command in the Enter menu that lets you apply a name to a cell or a range of cells.

natural order The recalculation method used by the Visi On Calc program unless you change the method desired. In natural order recalculation, the program evaluates a cell and all its referenced cells, then evaluates the next cell which contains a formula and has not been evaluated.

Natural Logarithm function The Visi On Calc mathematical function that gives the natural logarithm of a number.

Net Present Value function The Visi On Calc financial function that calculates the net present value of future cash flows.

Not Available function The Visi On Calc logic function that displays NA in a cell if a referenced value is not available to be used.

NOT operator The Visi On Calc operator used in a logical expression to determine the opposite logical value.

Number of Periods function The Visi On Calc financial function that calculates the number of periods required.

O

OR operator The Visi On Calc logic function that is used in a logical expression to determine if either argument results in a true or false.

"overlay" The Visi On Calc command in the Cut and Paste menu that lets you replace data on your worksheet with data from another worksheet.

overlay To merge data on one worksheet with data from another worksheet with the "overlay" command.

order of recalculation The order in which parts of formulas are calculated based on the precedence of the operators.

P

Payment function The Visi On Calc financial function that calculates the payment that must be made each period.

Pi function The Visi On Calc mathematical function that is used as part of an expression that requires the constant (3.1415926536), which is the ratio of the circumference of a circle to its diameter.

present value An amount of money at the present time that is the economic equivalent of a series of payments.

Present Value function The Visi On Calc financial function that calculates the present value (pv) of a series of payments.

primary sort key The selection on which a list is first sorted.

"Print" The Visi On Calc command that displays the Print menu.

Print options The settings in the Visi On Calc Print options sheet that let you print page numbers; print titles; pause between pages; choose a transmittal file, printer, or plotter; choose characters and lines per inch; select paper size; and select margins.

Print options sheet The Visi On Calc options sheet that lets you choose to print page numbers and titles, or select the number of lines per page. This options sheet is displayed automatically when you select the "Print" command. Print menu.

protected cell A cell whose contents cannot be changed. Also see Cell protection.

Q

"quit" The Visi On Calc command in the Calc menu that lets you leave the Visi On Calc program.

R

Random function A Visi On Calc mathematical function that selects a random number based on the standard deviation entered.

Randu function A Visi On Calc mathematical function that selects a random fractional value between 0 and 1, based on an even distribution.

Rate function The Visi On Calc financial function that calculates the interest or discount rate.

referencing When using replication, specifying the relationships between formulas in the source area and formulas in the target area. Also see Absolute referencing; Relative referencing.

Relative referencing The type of referencing in which the formula in each cell in the target area is relative to the new position of that cell in the source area.

"remote-print" The Visi On Calc command in the Print menu that sends your worksheet to disk storage to be printed on a printer not connected to your computer.

"replicate" The Visi On Calc command in the Calc and Enter menus that lets you duplicate areas of the worksheet.

Rounding function The Visi On Calc mathematical function that takes the first expression in an argument and rounds it to the precision specified by a second expression.

row The horizontal dimension of a Visi On Calc worksheet. Rows are identified by numbers.

"rows" The Visi On Calc command in the attributes menu that lets you apply attributes to one or more rows at a time.

S

secondary sort key The selection on which a list is subsequently sorted after the first sort.

"set-as-is" The Visi On Calc command in the Attributes menu that lets you maintain current attribute settings.

"sort" The Visi On Calc command in the Cut and Paste menu that lets you sort the contents of cells in a rows or columns.

source area When using replication, the part of your worksheet that you want to duplicate.

Square Root function The Visi On Calc mathematical function that returns the square root of an expression

standard deviation function A Visi On Calc mathematical function that calculates the standard deviation of a sample.

Sum function The Visi On Calc mathematical function that adds all values specified in a list.

T

Table function The Visi On Calc logic function that searches a list to find a value corresponding to the value in a position in another list.

Today function The Visi On Calc function that returns the current date as the number of days since January 1, 1979.

Target area When using replication, the part of your worksheet where you want to duplicate the source area.

Track mouse pointer The option on the Calc options sheet which allows you to have the column and row coordinates highlighted.

transfer The process of transferring information from one worksheet to another or from the Visi On Calc program to another program.

Transmittal file The file name you give to a worksheet stored in the transmittal folder after selecting "remote-print" from the Print menu.

Transmittal folder A folder created by the Visi On Calc program to store worksheets for printing on printers that are not connected to your computer.

trigonometric function A Visi On Calc function that calculates the trigonometric value of an expression (arc cosine, arc sine, arc tangent, cosine, sine, and tangent).

True function The Visi On Calc logic function that displays TRUE if used as part of a logical expression.

Text In the Visi On Calc program, text consists of lines of characters.

"titles" The Visi On Calc command that makes rows and columns stationary so that they will not scroll.

U

UNAVAIL The letters that are displayed in a cell if the referenced value is on another worksheet and unavailable to be used.

upper bound The Visi On Calc option that lets you specify the largest number that may be entered into a cell.

V

Valid-Month-day-year function The Visi On Calc calendar function that displays the number of days before or since January 1, 1979, when a date is given.

"value" The Visi On Calc command in the Enter menu that lets you enter formulas into cells.

value A number or formula that is used in calculations in the Visi On Calc program.

"value" The Visi On Calc command on the Enter menu which is used to enter numbers or formulas into a worksheet.

Value At function The Visi On Calc value function that selects the value of a cell whose coordinates you specify.

view The type of window that appears when you split your worksheet either horizontally or vertically with the Visi On Calc "windows" command. Views may be scrolled so that you can make changes in one view and see their effects in the other.

W

"windows" The Visi On Calc command that lets you split your worksheet either horizontally or vertically, creating two views.

worksheet The work area 511 rows by 128 columns in which you enter information using the Visi On Calc program.

Y

Year function—The Visi On Calc calendar function that displays the year when the number of days before or since January 1, 1979, is given.

Function Index

Function Index

A

B

C

D

E

F

G

H

I

M

N

O

P

R

S

U

Index

Index

Special Characters

A

B

C

D

E

F

G

H

I

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Z

Reader's Critique

VisiCorp's Publications Department wants to provide documents that meet the needs of all our product users. Your feedback helps us produce better manuals.

Please tell us how you rate this manual in the following areas:

	Excellent (✓)	Good (✓)	Average (✓)	Fair (✓)	Poor (✓)
Completeness of information.					
Clarity of information.					
Organization of manual.					
Appearance of manual.					
Quantity of examples.					
Usefulness of examples.					
Quantity of photographs and illustrations.					
Appropriateness of photographs and illustrations.					
Degree to which this manual meets your expectations and needs.					
Appropriateness of the manual level to a person of your experience.					
Overall manual.					

Your computer experience: ☐ 2 yrs or less ☐ 2-5 yrs ☐ 5 yrs +

Did you use the manual to learn the program? ☐ Yes ☐ No

I read ☐ 25% ☐ 50% ☐ 75% ☐ 100% of this manual.

Please specify, by page, any errors you found in this manual.

Please tell us for what application(s) you are using this program.

What one thing could we do to improve this manual for you?

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone: (Office) _____ (Home) _____

No Postage
Necessary
If Mailed
in the
United States

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 7066 SAN JOSE, CA 95134

POSTAGE WILL BE PAID FOR BY ADDRESSEE

VISICORP
2895 Zanker Road
San Jose, CA 95134

2895 Zanker Road
San Jose, CA 95134
Phone: 408/946-9000

VISICORP™

IBM® Personal Computer
Visi On Calc™
69911-2210 10/83

Important Information

You should note the following updates to the Visi On Calc™ QuickStart™ Course and replace the specified pages in the Visi On Calc™ User's Guide.

Changes to the Visi On Calc QuickStart Course

Page	Change
6	Paragraph 4 in the section "When You're Looking at the Screen..." should read: "You can select all commands by pressing the ESC key and typing the first letter of the command. You must type the letter as it appears, either upper or lowercase."
7	"Meaning and Use" of the End key in Figure 2 should read: "End—deletes the entire line being edited."
12	Instruction 4 in the top half of the page, including the preceding two lines, should read: "You can erase the line being edited by pressing the END key. You can also erase the cell contents by pressing the SPACE BAR after pressing END." 4. Press END, the SPACE BAR, and then ↵."
16	Instruction 4 should read: "4. Type 406400 and press ↵.
32	Figure 8. Current Period Budgeted numbers for "Distribution" and "Sales" should be 406,400. Total for Current Period Budgeted should be 1,838,800. These same changes should be reflected in your printed report in Figure 9 on page 34.

Update Pages for the Visi On Calc User's Guide

Pages:	Replace with pages:
xix	xix
1-3 to 1-4	1-3 to 1-4
3-15 to 3-16	3-15 to 3-16
5-1 to 5-2	5-1 to 5-2
8-9 to 8-10	8-9 to 8-10
11-5	11-5

Key	Representation	Meaning and Use
Escape	ESC	Escape—pressed before the first letter of a command name as an alternate way to select that command.
Return	↵	Return—ends entry of data in a cell or the edit of cell information.
Backspace	BKSP	Backspace—deletes characters to the left of the cursor position.
Delete	DEL	Delete—deletes characters at the cursor position.
End	END	End—deletes the entire line being edited.
Tab	→	Tab—moves the cursor to the next tab cell on the worksheet.
Left arrow	←	Left arrow—moves the cursor to the left on the worksheet or edit line.
Right arrow	→	Right arrow—moves the cursor to the right on the worksheet or edit line.
Up arrow	↑	Up arrow—moves the cursor up on the worksheet.
Down arrow	↓	Down arrow—moves the cursor down on the worksheet.

Figure 2. *Keycap representations used in this guide.*

How Do You Use the Visi On Calc™ Program?

You use the Visi On Calc program in two basic ways:

- You *enter* data directly by typing it into the work area of the worksheet. You type in data at any intersection of a row and column (an intersection of a row and column is called a *cell* and is highlighted by the cursor as a rectangle). The cursor indicates where on the worksheet you can enter data. It can be moved by the pointing device or by the cursor moving keys on the keyboard.

- You also instruct the program to do special tasks for you by selecting *commands* from the command menu at the bottom of the program window. Each command that you select either leads you through a special sequence of choices or gives you another set of choices that you can pick from. You can choose commands quickly with the pointer.

  You can also choose commands by using the *single key activation* feature. To use the single-key activation feature, press the ESC key and then type the first letter of the command you want to use. You must type the letter as it appears, either upper or lowercase.

Typing in data (entering it) is generally straightforward. The program offers special ways to enter data in the most efficient manner. Here we will give you an overview of the Visi On Calc basic commands. Each command is discussed in detail in the appropriate chapter of this User's Guide.

When you start the Visi On Calc program by selecting it from the Services window, you are prompted whether you want to create or a worksheet. These commands allow you to select either a blank worksheet or select an existing worksheet to update. After you have completed either command, a worksheet is displayed, with the Calc main menu of ten commands displayed in the bottom part of the window.

The basic Visi On Calc commands in the main menu are:

Enter—The "Enter" command gives you a variety of ways to enter information into your worksheet. For example, you can enter all information as values or labels, edit the contents of a cell, blank out (erase) the contents of a cell, copy the contents of a cell, set special formats in a cell, and set up a cell to receive information from another worksheet.

calc—The "calc" command recalculates the worksheet whenever you select it. You use this command when the worksheet is set to manual recalculation.

Cut&Paste—The "Cut&Paste" command has functions you use to change the structure of the worksheet. These functions allow you to move, copy, insert, and delete rows and columns, sort information in numerical or alphabetical order, overlay data from one worksheet onto another worksheet, and erase the entire worksheet.

replicate—The "replicate" command lets you copy the contents of one or more cells into another area of the worksheet. It is a key command for building your worksheet with a minimum of effort.

goto—The "goto" command lets you move the cursor (highlight) to any cell on the worksheet by typing in the cell name or coordinates.

Display—The "Display" command has functions for controlling how an entire worksheet displays. Using the commands in this area, you can change the width of one or more columns, fix an area adjacent to the left edge or top of the worksheet (usually you want to fix titles in place) so that it does not scroll, and create two views of a worksheet.

Attrib—The "Attrib" command has options you use to control how information on the worksheet displays. Attributes (formatting characteristics) can be assigned to cells, rows, columns, areas, or to the entire worksheet (globally). Attribute options include aligning data left, right, and center; allowing only formulas, numbers, or labels to be entered in a cell; protecting cells from any entry; hiding cells; setting the number of decimals to be displayed; and putting limits on the highest and lowest value that can be entered into a cell.

You will normally enter a value or formula using the "Enter" and "value" commands. You must, however, enter a formula by prefixing it with a valid arithmetic operator (+, −, ., (,) when you are not using the "Enter" command.

The following steps describe entering values using the "Enter" command.

To enter a value or formula

1. Select "Enter" from the Calc menu.
2. Select "value" from the Enter menu.
3. Select the cell where you want to enter a value.

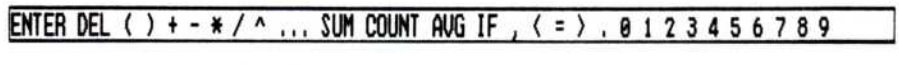
   You are prompted to enter a value or formula or pick "done."

   (The "done" command is displayed on the menu line.)
4. Type in the desired value.
5. Press ↵ to end value entry for that cell and move to the next cell.

   The direction the cursor moves when you press ↵ is set in the Enter options sheet, as explained in "Controlling Cursor Movement with ↵" in this chapter.
6. When you have finished entering all the formulas, select "done" from the menu line.

   The "done" command ends formula entry and returns you to the Enter menu.

An operator menu is displayed when you select the "value" command. You can select items from this menu when you create formulas instead of typing in required operators, for example. Note that you can end the entry of a formula or value in a cell by selecting "Enter" from this menu.



Using Operators in Formulas

Operators are symbols that define the relationship between values. Operators may be either *arithmetic* or *logical*. Examples of these operators are:

- Arithmetic ∧ means "is raised to the power." 2∧6=2^6

  * means "is multiplied by."

- Logical = means "is equal to."

The arithmetic and logic operators are:

Arithmetic Operator		Example
∧	Exponentiation	G5∧2
*	Multiplication	B7*C10*D6
/	Division	A6/A4*B2
+	Addition	H16+H18/4
−	Subtraction	N22−(L4+L6)
%	Percent	6.5%A15

Logic Operator		Example
=	Equal to	A2=C5
>	Greater than	B12>C8
<	Less than	G6<G7
>=	Greater than or equal to	C14>=C22
<=	Less than or equal to	B2+B4<=B7
<>	Not equal to	D7−D6<>E3
AND	Conjunction	A1<1AND(B3>5)
OR	Conjunction	H12OR(B2+3)
NOT	Negation	NOT(B3<G3+6)

When AND, OR, or NOT are used in logical expressions, the expressions are evaluated as follows:

- AND—If both parts of the expression are true, then the value of the expression is TRUE. If any part of the expression is false, then the value of the expression is FALSE.
- OR—The value of the expression is TRUE if any part of the expression is true, and FALSE if all parts of the expression are false.
- NOT—The value of an expression using NOT is the opposite logical value. The value of NOT(B1) is FALSE if B1 is true, and TRUE if B1 is false.

You may often want to change a label or formula in a cell. You could simply move to the cell and make a new entry. However, if you are working with a large number of characters, such as a long label (February Sales Projections) or a long formula (A20-B3+B4*C6/C5), you will find the "edit" command a faster way to change the contents of a cell.

Using Various Keys for Editing

Some keys have special functions that allow you to edit more efficiently. These special-function keys are:

(←)—**left arrow** moves the cursor to the left on the line. This key does not erase characters.

(→)—**right arrow** moves the cursor to the right on the line. This key does not erase characters.

(BKSP)—**backspace** erases characters to the left of the cursor, one character at a time.

(DEL)—**delete** deletes one character.

(END)—**End** deletes the entire line being edited.

Using the Edit Command

Menu Path "Calc/Enter/edit"

To edit a cell entry

1. Select "Enter" from the Calc menu.
2. Select "edit" from the Enter menu.
3. When you are prompted, select the cell whose contents you want to edit.

   The menu line displays the contents of the cell.
4. Select the point on the menu line where you want to begin editing.

   The character that you selected is highlighted by the blinking edit cursor, which moves one character at a time as you edit the entry.
5. Using the editing keys, make the changes to the cell contents.
6. Press (↵) to end editing of the selected cell.

   The cell is changed and you are returned to the Enter menu.

Editing by Selecting from the Echo Line

When you select a cell, the cell's value or label is displayed on the echo line at the bottom of the worksheet. When the cell information is displayed, you can select the echo line to begin editing.

As discussed in the previous section, when you select a cell to edit using the edit command, the edit cursor highlights the first character in the cell entry displayed. When you select a cell entry directly from the echo line, the edit cursor will highlight the character you select. You then edit the cell as you do when using the edit command.

There is an additional useful feature that allows you to rapidly edit formulas. You can add cell coordinates to the formula simply by selecting the point in the formula where you want that cell included and select that cell from the worksheet. You must, however, type in or select the required operators from the operator menu to make the formula complete.

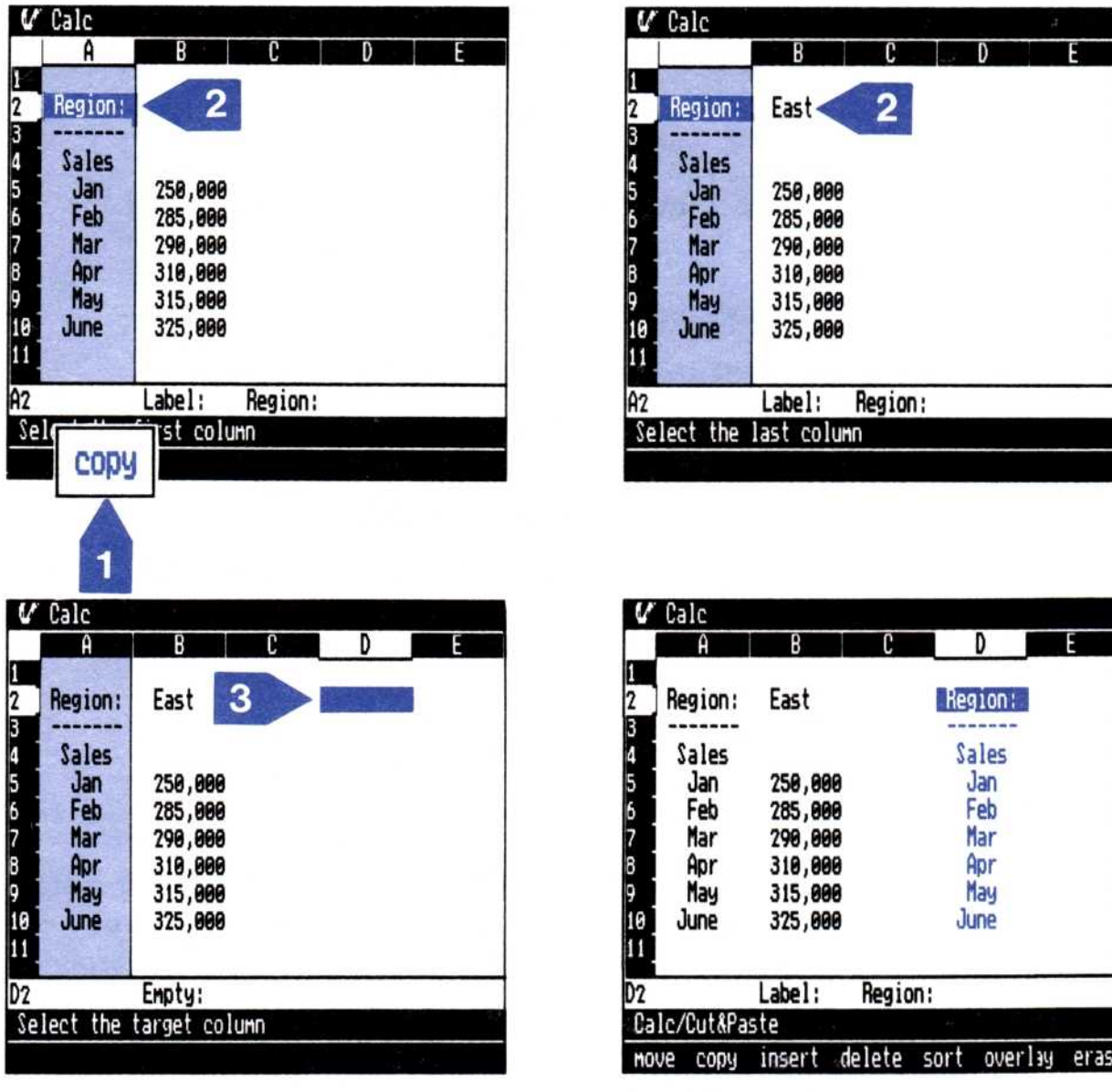


Figure 8-5. *To copy column A into column D, (1) select "copy" from the Calc menu, (2) select column A as the first and last column to be copied, and (3) select column D. A copy of column A appears in column D.*

Using Two Views with the "Copy" Command

Menu Path "Calc/Cut&Paste/copy"

When you are working with two views of the same worksheet, you can select the start and end of an area from either view. This is a fast way to define an area to be copied if it is larger than what would normally fit into a full-size view.

To use two views in copying an area

1. Select "Cut&Paste" from the Calc menu.
2. Select "copy" from the Cut and Paste menu.
   You are prompted to select the type of area to be copied, either "rows" or "columns."
3. Select either "rows" or "columns" for the type of area to be copied.
4. Select the starting row or column to be copied.
   The starting row or column is highlighted.
5. Select the other view.
6. Select the ending row or column to be copied.
   The entire area to be copied is highlighted.
7. Select the row or the column where you want your rows or columns to be copied.

After the area is copied, you are returned to the Cut and Paste menu.

Inserting Rows or Columns

The "insert" command allows you to insert one or more rows or columns into your worksheet. The width of inserted columns is the width established on the Display options sheet.

Refer to Chapter 7 for more information on changing column widths.

Inserting Rows

Menu Path "Calc/Cut&Paste/insert"

To insert rows into your worksheet

1. Select "Cut&Paste" from the Calc menu.
2. Select "insert" from the Cut and Paste menu.
   You are prompted to select the type of area to be inserted, either "rows" or "columns."
3. Select the starting row where you want new rows inserted.
4. Select the ending row where you want new rows inserted.

The data is then transferred to the new location. You are returned to the menu you were using before you transferred the data, but the destination window remains the active window.

You cannot type in coordinates to select cells for transfer. Note, however, that you can scroll rapidly by scrolling the left or top margin of the worksheet. While you scroll these margins, the entire worksheet is highlighted and does not move. When you release the scroll button, the worksheet is adjusted to its new coordinate positions.