WGS/SpreadSheet™ User's Guide

Version 2.0
Volume 1

Contents

Volume 1

3   Entering and Editing Spreadsheet Information

4 Spreadsheet Preferences

Conventions

This guide uses the following conventions.

- Command names are in boldface. Also, commands are shown as you type them, beginning with a slash (/) followed by the initial letters of each command word, for example,

  Use the **Range Erase** command (**/re**) to erase information from a cell.

- Virtual key names are used in this guide, so some keys listed may not be provided on your keyboard. For example, the guide uses the key name **Enter**; your keyboard may not provide an **Enter** key, but a **Go** key instead. Appendix A in this guide provides keyboard tables to help you find the appropriate key or keystroke sequence for your terminal.

- Keyboard names appear in boldface, for example:

  Press **Enter**

- Key combinations, in which you must press one key and hold it down while you press a second key, are shown as follows:

  Shift-Home

- Function keys provide many of the WGS/Spreadsheet commands. Most keyboards provide function keys labeled **F1** through **F10** or higher. The function keys are usually located across the top or along the sides of the keyboard. When a command is available from a function key, a label appears at the bottom of the screen. You press the function key corresponding to the command's function key label.

  In this guide we refer to the function keys by the key number, and then the associated command name in parentheses, for example,

  F1 (More)

1

Introducing WGS/Spreadsheet

WGS/Spreadsheet combines the features of two popular Spreadsheets, Lotus 1-2-3 and Multiplan, and makes those features available to workgroup users.

Because of WGS/Spreadsheet's similarity to Lotus 1-2-3, experienced 1-2-3 users can start using WGS/Spreadsheet commands and functions right away.

Experienced Multiplan users will recognize the concepts and many of the functions and commands; instead of starting from scratch, Extended Multiplan users need only learn how commands and functions are used in WGS/Spreadsheet.

WGS/Spreadsheet Features

The familiar features that make 1-2-3 and Multiplan popular are combined and enhanced in WGS/Spreadsheet:

- Complete on-screen menus with easy, one-letter use of commands.

- Over 60 built-in functions, covering the following categories:
    - Arithmetic
    - Statistics
    - Database
    - Financial
    - Logical
    - Lookup, Choose, and Index
    - Text and Labels
    - Trigonometric

- Online Help with convenient Table of Contents and access to topics using the screen keys.

- Database capability, with commands that help you sort, query, perform What If? analysis, perform data fill, and calculate frequency distribution.

The WGS/Spreadsheet advanced features offer enhancements that help you use the spreadsheet efficiently. The advanced features include:

- Macro capability for creating customized commands to streamline your work, create templates, or enable data-entry people to use the spreadsheet without extensive training.

- Automatic recording of macros, so you can create them quickly without programming know-how.

- Powerful advanced commands that let you link data between spreadsheets, perform goal-seeking, move entire columns and rows, move the cursor automatically, and copy information between spreadsheet files and other files.

- Access to the UNIFY database, with the ability to copy UNIFY data into a spreadsheet.

The spreadsheet's file-compatibility with Lotus 1-2-3 and Extended Multiplan includes the ability to read and write from one file format to another directly from the spreadsheet window. You can

- read and make changes to files created with 1-2-3 or Extended Multiplan, and then write the updated spreadsheet to a Spreadsheet file, a 1-2-3 Worksheet file, or a Multiplan SYLK file

- write files created with WGS/Spreadsheet to 1-2-3 Worksheet or Multiplan SYLK formats

Organization

This guide is a reference manual for WGS/Spreadsheet. It assumes that you know how to use the Desktop windows, menus, and forms. The Desktop Manager is discussed briefly in Chapter 2, "Basics." See the *WGS/Desktop Manager User's Guide* for more details.

This guide is organized into two volumes, divided into the following chapters:

Volume 1

Chapter 1, "Introducing WGS/Spreadsheet," introduces WGS/Spreadsheet and shows how to use this guide.

Chapter 2, "Basics," describes basic techniques for using WGS/Spreadsheet, including how to create, open, and close a spreadsheet, how to move the cursor around in a spreadsheet, and how to execute WGS/Spreadsheet commands. Chapter 2 also briefly summarizes some basic Desktop Manager features.

Chapter 3, "Entering and Editing Spreadsheet Information," shows how to enter and edit information in worksheet cells.

Chapter 4, "Spreadsheet Preferences," shows how to use the preference settings to define default settings for newly created spreadsheets.

Volume 2

Chapter 5, "Using Functions," describes the WGS/Spreadsheet functions.

Chapter 6, "Using Worksheet Commands," describes the Worksheet commands, which help you set standards for the current spreadsheet.

Chapter 7, "Using Range Commands," describes the Range commands, which help you work with groups of worksheet cells.

Chapter 8, "Copying and Moving Cells," describes the **Copy** and **Move** commands, which copy and move cells in a spreadsheet.

Chapter 9, "Using File Commands," describes the File commands, which help you manage your spreadsheet files.

Chapter 10, "Printing a Spreadsheet," describes the Print commands.

Chapter 11, "Using Data Commands," describes the Data commands, which help you manage spreadsheet information.

Chapter 12, "Using Advanced Commands," describes the Advanced commands.

Chapter 13, "Using Macros," describes how to create and use spreadsheet macros. The chapter also describes the Advanced Macro (/X) commands.

Chapter 14, "The Unexpected," describes what to do when something unexpected happens in a spreadsheet.

Appendix A, "Keyboard Tables," translates virtual key names used in this guide to equivalent keystrokes for specific terminal keyboards.

Appendix B, "Spreadsheet Compatibility," compares WGS/Spreadsheet with Lotus 1-2-3 and Multiplan. The information in this appendix should help you when you want to share spreadsheet information between the three spreadsheet applications.

Appendix C, "Using WGS/Spreadsheet from the CTIX Shell," describes how to open or create a WGS/Spreadsheet file from the CTIX shell instead of from the WGS/Desktop Manager; it also describes how to enter WGS/Spreadsheet Preferences from the CTIX shell.

Related Documentation

The set of WGS guides described below provides additional information that you may find helpful when you use WGS/Spreadsheet.

WGS/Calendar User's Guide (Version 2.0)

WGS/Desktop Manager User's Guide (Version 2.0)

WGS/Mail User's Guide (Version 2.0)

WGS/Word Processor User's Guide (Version 2.0)

NOTE: The WGS user's guides document Version 2.0 of the WGS software. Further references to these guides do not include the version number after the titles; always refer, however, to the Version 2.0 documentation.

The *WGS/Calendar User's Guide* describes how to use the Calendar to set appointments, create lists of things to do, and set alarms to remind you of appointments.

The *WGS/Desktop Manager User's Guide* describes how to use the Desktop Manager to access menus, windows, forms, and applications that run on the CTIX computer system.

The *WGS/Mail User's Guide* describes how to send, receive, forward, and print mail messages using the CTIX system; the guide also explains how to send mail to users of remote computers.

The *WGS/Word Processor User's Guide* describes how to create, edit, format, and print documents, how to find and replace text, and how to use the merge capabilities that run on the CTIX computer system.

2

Basics

This chapter describes basic techniques for using WGS/Spreadsheet. If you are familiar with another spreadsheet, read this chapter to find out how to create a spreadsheet, open a spreadsheet, move around and give spreadsheet commands in WGS/Spreadsheet. If you have never used a spreadsheet before, this chapter will help you get started.

This chapter also provides a brief introduction to WGS/Desktop Manager, including basic information about objects, windows, commands, menus, and forms.

NOTE: This guide assumes that the WGS/Desktop Manager software is installed on your system. If it is not, you can enter WGS/Spreadsheet and manage your files from the CTIX shell; refer to Appendix C, "Using WGS/Spreadsheet from the CTIX Shell," for information.

Using WGS/Desktop Manager

The WGS/Desktop Manager helps you manage your files and windows. Desktop Manager windows are always available, even while you work in a WGS/Spreadsheet file. Because you use the Desktop Manager to manage your files, you should be familiar with how its directories, windows, and commands work.

The *WGS/Desktop Manager User's Guide* provides complete details about Desktop Manager features, including objects, windows, commands, menus, and forms, which are briefly described below.

Objects

An *object* is any type of file you use in the Desktop Manager: a WGS/Spreadsheet file, a WGS/Word Processor document, a directory, a database, or any other kind of file.

The Desktop directory is an object you will use often, as it is your main directory. The Desktop directory is displayed when you enter the Desktop Manager.

Windows

A *window* is a portion of the screen, usually surrounded by a border, that contains your work, or information necessary to perform your work. For example, a window might contain the Desktop directory or a WGS/Spreadsheet file.

Several windows can be open on the screen at one time. The window that appears to be on top of the other windows and has a thicker border is the *current active window*. You use the Window Manager to manipulate the open windows: for example, you can shrink and enlarge windows, and move windows around on the screen. You also use the Window Manager to move the cursor between open windows, as follows:

1. Press **Control-z** to display the Window Manager function key menu.

2. Press **F8** (Menu) to display the Active Windows menu.

3. Move the cursor to the window you want to move into, and then press **Enter**.

The selected window is the current active window.

Commands

You can give Desktop Manager commands in either of two ways:

- Press the function key corresponding to the function key label that shows the command. (Function keys are described later in this chapter.)

- Press the action key (such as **Move**, **Copy**, or **Delete**) corresponding to the command you want to give.

Once you have entered the WGS/Spreadsheet program, you can give commands in these same two ways. In addition, WGS/Spreadsheet commands appear in the spreadsheet command panel. Use of the commands in this panel is described later in this chapter, under "Using Spreadsheet Commands."

WGS/Desktop Menus

The WGS/Desktop Manager sometimes displays choices (of commands or command options) in menus. A _menu_ is a list from which you can select one or more items. For example, the Create menu lists the types of objects you can create.

To select an item from a Desktop menu, press one of the cursor keys or **Return** to move the cursor to the item you want to select, and then press **Enter**.

To select more than one item from a Desktop menu, move the cursor to an item you want to select, and then press **Mark**. Repeat this for each item you want to select. When you have marked each item you want to select, press **Enter**.

NOTE: For information about selecting WGS/Spreadsheet commands from the command panel menu, refer to "Using Spreadsheet Commands," later in this chapter.

Forms

The WGS/Desktop Manager sometimes displays a form for you to complete with required information (to execute a command, for example). A *form* is a window that consists of areas called fields.

A *field* is an area in which you type or select information about the command or task you are performing. For example, one field in the Search form requests the text to search for, and another field requests the starting location for the search.

There are two types of form fields:

- fill-in fields, which require you to type information

- selection fields, in which you select information from a menu

Most fields provide a message line prompt that indicates whether you should type or select the information for the field.

Some forms are displayed with default values already filled in; you can accept the form as it is (by pressing **Enter**), or you can change the values before you accept the form.

You complete a form as follows:

- To move the cursor between fields in a form, use the cursor keys or **Return**.

- To change the value of a fill-in field, type the new value over the current value.

- To change the value of a selection field, press the **Spacebar** to cycle through the available selections until the value you want to use appears.

- To accept the completed form, press **Enter**.

Creating a New Spreadsheet

To create a new spreadsheet, you should first open the directory you want to contain the spreadsheet. When you create a new spreadsheet, you give it a name.

1. From the Desktop or the desired directory, press **F3** (Create) to display the Create menu.

2. Move the cursor to Spreadsheet and press **Enter**.

   The Spreadsheet Name form prompts you to type a name for the new spreadsheet.

3. Type a name for the new spreadsheet and press **Enter**.

   Spreadsheet names can be up to 12 characters, consisting of uppercase and lowercase letters, numbers, and the period (.) and underline (_) characters. Give your spreadsheet a unique name that reflects its contents.

   If you make a typing mistake, press **Backspace** to delete characters, and then type the name correctly.

   After pressing **Enter**, the spreadsheet screen is displayed.

Looking at the Spreadsheet Screen

The WGS/Spreadsheet screen is similar to the Lotus 1-2-3 screen. If you are familiar with 1-2-3, you'll recognize its features. The parts of the screen are described in the following paragraphs.
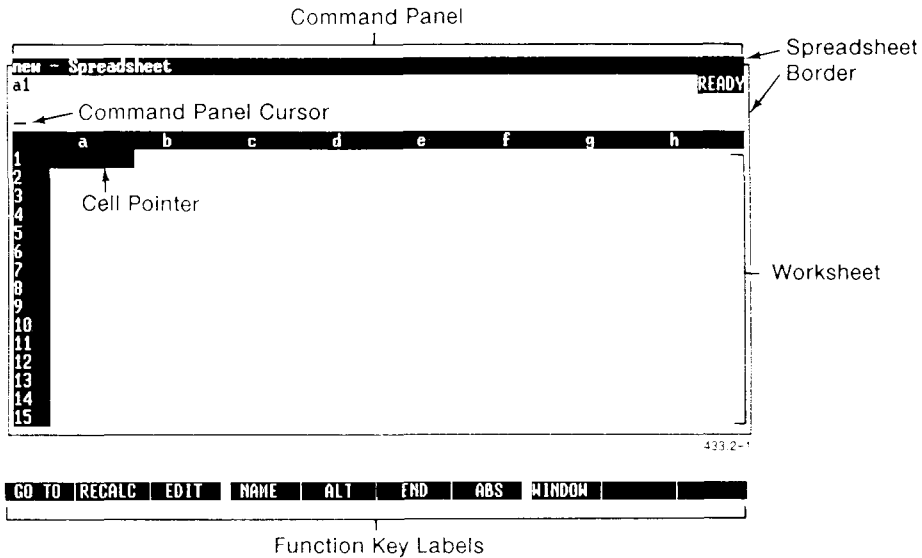
The Spreadsheet Border

The spreadsheet border surrounds the spreadsheet; the name of the spreadsheet is in the top left corner.

The top right corner of the spreadsheet border sometimes shows the state indicator, which displays the status of an operation. For example, if you press **F6** (End) to move the cell pointer to the end of a block of cells, the state indicator shows *END*

The Spreadsheet Cursors

When you open a spreadsheet, notice that there are two cursors: a blinking line cursor in the upper (command panel) portion of the spreadsheet window, and a bar cursor in the lower (worksheet) portion of the window.

If you type anything, the blinking cursor in the command panel moves as you type.
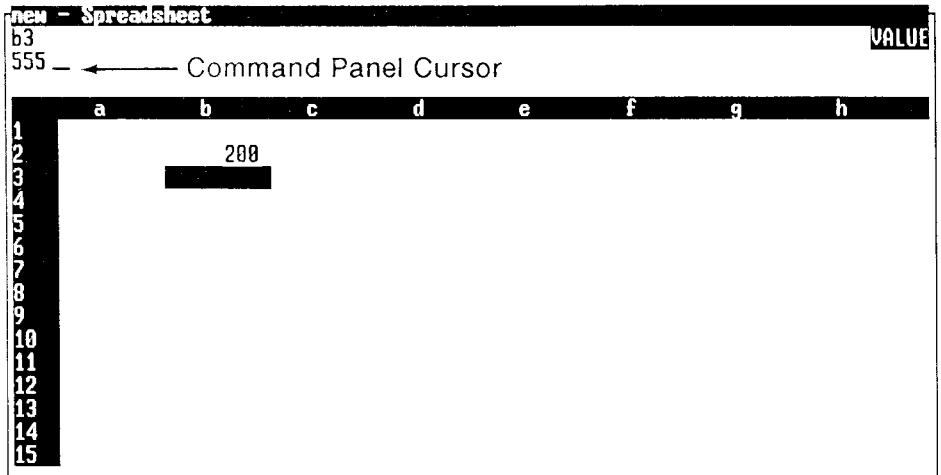
433.2-2

If you use the cursor keys (**Up, Down, Forward, Back**), the bar cursor in the worksheet moves in the appropriate direction.
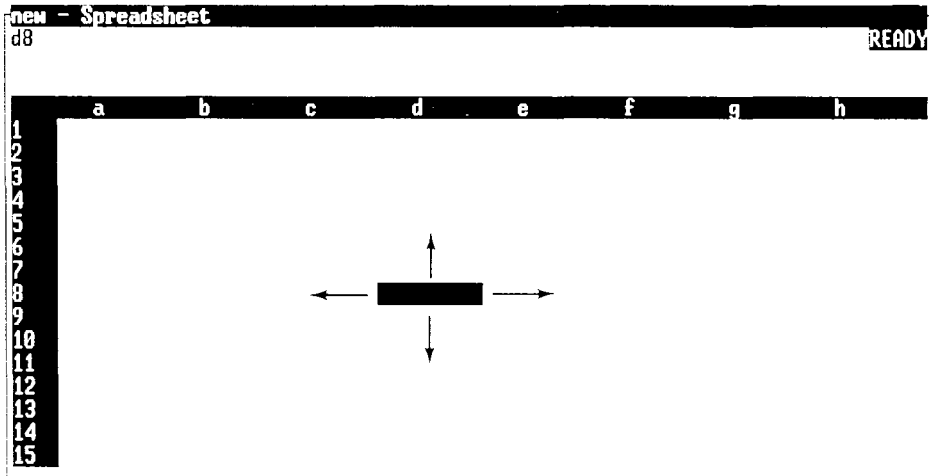
Throughout this guide, the cursor in the command panel is referred to as the *cursor*; the bar cursor in the worksheet area is called the *cell pointer*.

The Spreadsheet Command Panel

The spreadsheet command panel is the area at the top of the spreadsheet. The command panel is separated from the rest of the spreadsheet by a line of column letters (*a* through *sr*), as shown below:
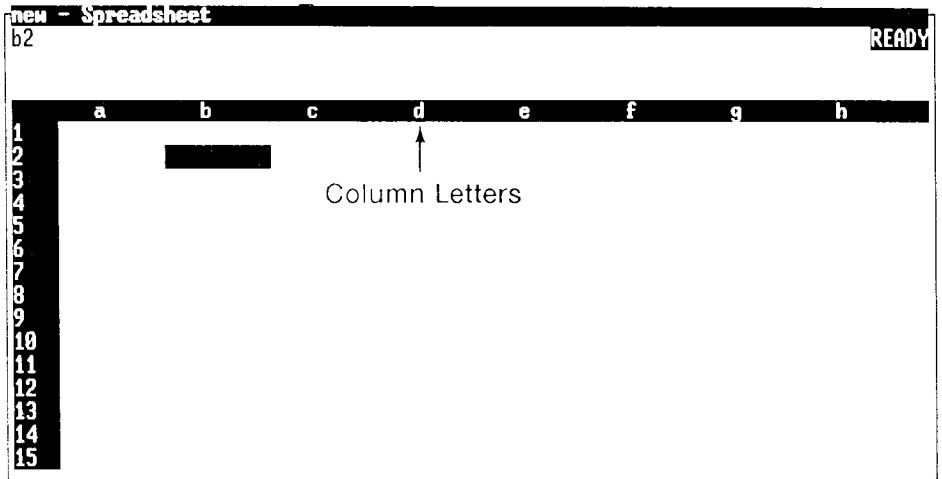
```
new - Spreadsheet
b2                                                                        READY

     a        b        c        d        e        f        g        h
1
2     ██████████
3                              ↑
4                         Column Letters
5
6
7
8
9
10
11
12
13
14
15
```
433.2-4

```
GO TO |RECALC | EDIT    NAME  |  ALT  |  END  |  ABS   WINDOW |
```

Depending on what you are doing in the spreadsheet, different information about the spreadsheet appears in the command panel.

The top line of the command panel shows:

- *The current cell location* of the cell pointer. This cell location defines the active cell.

- *The display format of the active cell.* You can specify a format to define how cell contents appear. If you specify a format, the command panel shows it here. (For details about formatting cell contents for an entire spreadsheet, see "Setting a Global Format for Values" and "Setting Global Alignment for Labels" in Chapter 6, "Using Worksheet Commands." For details about formatting cell contents for specific cells, see "Setting a Value Format for a Range" and "Setting the Label Alignment for a Range" in Chapter 7, "Using Range Commands.")

- *The protection status of an unprotected cell.* You can protect cells to ensure that they cannot be changed. You can also unprotect cells that you have protected. If the current cell is unprotected, the U indicator appears after the format status. For details about protection, see the discussions of the **Range Protect** and **Range Unprotect** commands in Chapter 7.

- *The contents of the active cell.* The contents of a cell appear in the command panel as you typed them. (For details about entering cell contents, see Chapter 3.

- *The mode indicator.* The mode indicator shows what you are doing in the spreadsheet. For example, when you open a new spreadsheet, the mode indicator is READY: the spreadsheet is ready to accept information. Other mode indicators are MENU, POINT, EDIT, VALUE, LABEL.

- *The submode indicator.* When you create or test a macro, the spreadsheet can be in one of two submodes: Single Step and Record. The SSTEP and RECORD submode indicators appear to the left of the regular mode indicator. See Chapter 13, "Using Macros," for details about creating and using macros in a spreadsheet.

  (Mode indicators are discussed in the appropriate chapters throughout this guide. For example, the EDIT indicator is discussed in Chapter 3.)

The middle line of the command panel shows:

- *The cursor.*

- *Cell information.* As you type, information appears in the middle line of the command panel. If you press **F3** (Edit), the contents of the current cell appear on the middle line.

- In Edit mode, *the contents of the current cell.*

- *Command menus.* If the spreadsheet is in Menu mode, the WGS/Spreadsheet Commands menu appears. (For details about how to use spreadsheet commands, refer to "Selecting Spreadsheet Commands," later in this chapter.

- *Prompts.* If a command needs more information, prompts appear.

The lower line of the command panel shows:

- *Additional information or menu choices.* If a menu appears on the middle line of the command panel, the lower line shows information about the highlighted choice. If a prompt appears on the middle line, the lower line either may give information or may contain a menu that you can use instead of filling out the prompt. (For more information on how to use commands, see "Selecting Spreadsheet Commands: Menu Mode," later in this chapter.)

The Worksheet: Spreadsheet Cells

The area containing spreadsheet cells is called the worksheet. The worksheet consists of 512 columns (with letter names from a to sr displayed across the top of the worksheet) and 8192 rows (with number names from 1 to 8192 displayed down the left side of the worksheet). The intersection of a column and row forms a cell.
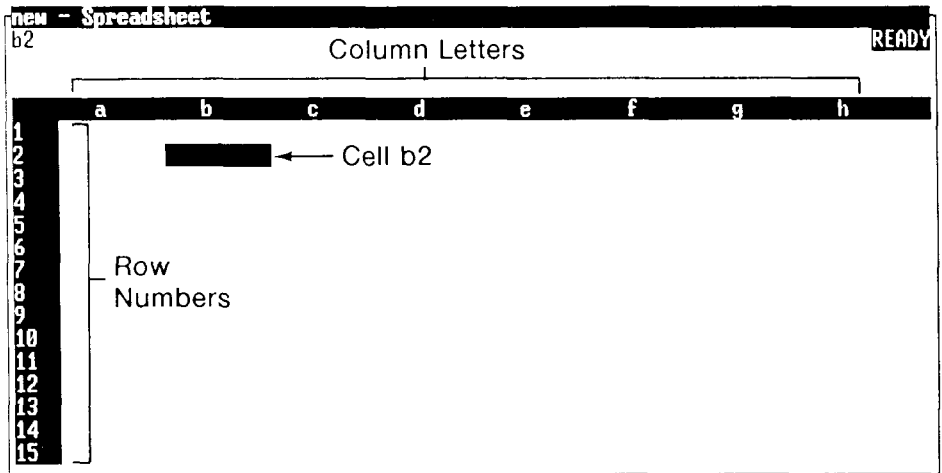
Each cell is identified by a cell address that consists of its column letter followed by its row number, for example, b2.

Using Spreadsheet Commands

WGS/Spreadsheet provides the following types of commands:

Worksheet commands	Determine the way the current spreadsheet looks and works.
Range commands	Determine the way a specific cell or group of cells look and work.
Copy and **Move** commands	Help you copy or move information from one location to another in a spreadsheet.
File commands	Help you store and retrieve information to and from the hard disk. The File commands also help you copy information from one spreadsheet to another.
Print commands	Send spreadsheet data to a printer or to a print file. You can format the page being printed, specify the portion of a spreadsheet you want to print, and clear printer format settings.
Data commands	Make it easy to manage spreadsheet information. If UNIFY is installed on your system, the Data commands help you access information in a UNIFY database. The commands are useful in all types of record keeping.
Advanced commands	Provide advanced spreadsheet features such as Record-Macro (a keystroke recorder), Link (which links data between spreadsheets), and Cut and Paste commands, which help you move information between different files.
Quit command	Ends a spreadsheet work session.

Selecting Spreadsheet Commands: Menu Mode

Some spreadsheet commands are available through the function keys (described under "Function Keys and Function Key Labels," later in this chapter). Some other spreadsheet commands, like **Copy** and **Move**, are available through command keys like **Copy** and **Move**.

All spreadsheet commands are available from the Spreadsheet Commands menu, which appears when you enter Menu mode.

To enter Menu mode and execute a command:

1. With the spreadsheet in Ready mode, type a slash (/) or press **Command**.

   Notice that the mode indicator changes to MENU, and a list of commands appears in the command panel.
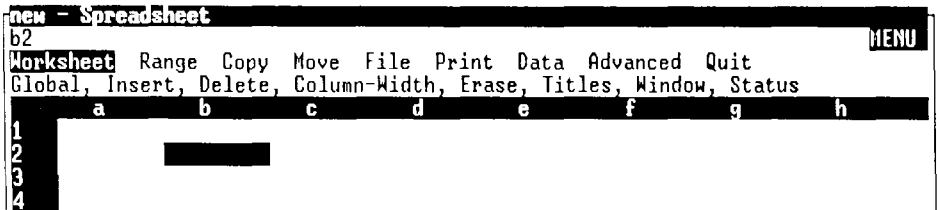
```
new - Spreadsheet
b2                                                                    MENU
Worksheet  Range  Copy  Move  File  Print  Data  Advanced  Quit
Global, Insert, Delete, Column-Width, Erase, Titles, Window, Status
       a       b       c       d       e       f       g       h
1
2
3
4
```
433.2-6

2. Select a command in one of two ways:

   Type the first character of the command

   or

   Move the cursor to the command, and then press **Enter**. Use the following keys and combinations to move the cursor in Menu mode:

   - **Back** and **Forward** highlight the next and previous commands, respectively, in the command line.

   - **Begin** and **End** highlight the first and last menu selections, respectively.

3. Respond to any prompts that appear, and then press **Enter**.

When you execute a command, the spreadsheet usually returns to Ready mode. Some commands, however, require that you select Quit to leave Menu mode and return to Ready mode.

NOTE: Sometimes it is necessary to select more than one command option to execute a command. For example, the **Worksheet Global Format** *command* (**/wgf**) *requires that you select Worksheet to display the Worksheet commands, then select Global to select the Global commands, and then select Format to display the format selections.*

In such cases, you can take a typing shortcut by typing the first character of each command option in succession. For example, to select the **Worksheet Global Format** *command, you can type* **/wgf**.

Canceling and Undoing Commands

If you decide that you do not want to continue with a command, you can "back up" a step in the command sequence, or you can cancel the command and start over from Ready mode.

To back up a step in a command sequence:

Press **Cancel**.

To cancel a command and return the spreadsheet to Ready mode:

Press **Cancel** several times, or press **ClearLine** once.

Once you press **Enter** to execute a command, it is too late to cancel the command; you must undo the effects of the command. Only three commands can be undone: **Advanced Move, Data Query Delete**, and **Data Sort**. To undo a command, press **Undo**; refer to the discussion of the specific command for information about the results of canceling the command.

NOTE: If you want to cancel an operation while it is executing, you can use the **Break** *key, which stops execution and prompts you to specify whether you want to exit the spreadsheet without saving changes or continue (if you continue, the spreadsheet is returned to the state it was in before you pressed* **Break**).

The **Break** *key is not a good substitute for the* **Cancel** *key; use* **Break** *only when you want to get out of the spreadsheet quickly, realizing that all the changes you have made to it will be lost.*

Function Keys and Function Key Labels

The spreadsheet function key labels at the bottom of the spreadsheet screen represent commands available from the functions keys. Depending on what you are doing in the spreadsheet, the function key labels show different functions.

Press the function key corresponding to a function key label to execute the command shown on the label. For example, when you open a spreadsheet, the **F3** function key corresponds to the Edit function key label; press **F3** to enter Edit mode.
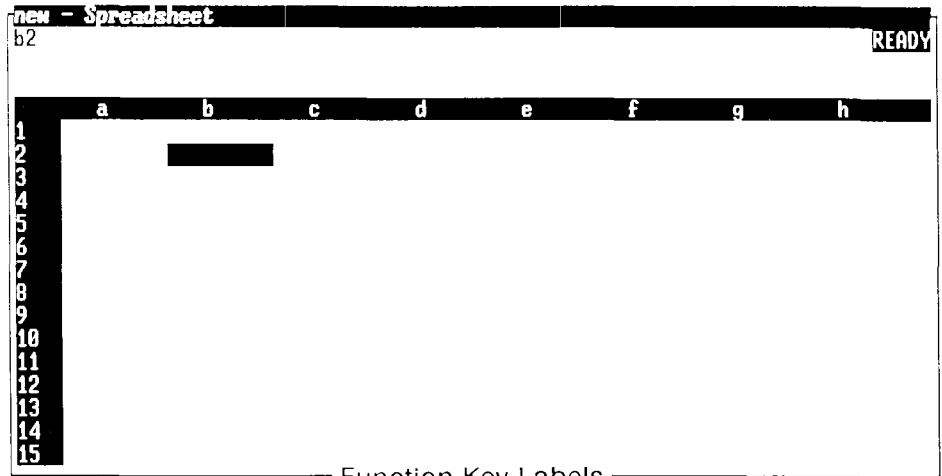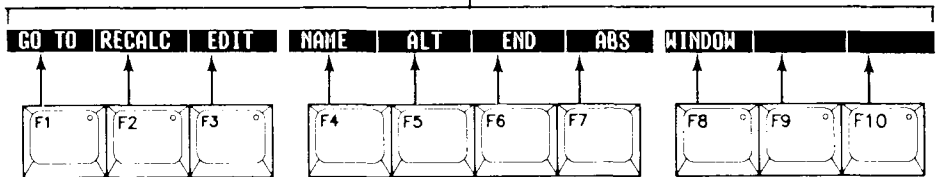
433.2-7

Getting Help With a Spreadsheet

Press **Help** anytime to display information about a spreadsheet command or function. If you press **Help** while you are entering a command, you see information about that command; otherwise, you see a general information window.

Use the following keys to scroll the text so you can look at information beyond the window borders:

- **Up** or **Down** displays the previous or next three lines of text, respectively.

- **Page** or **Shift Page** displays the next or previous page of text, respectively.

Displaying Related Help Information

After reading information about a specific Help topic, you may want to read about related Help topics. The function key labels show topics related to the current Help window. Press the function key corresponding to the desired function key label.

Press **F1** (Content) to display the Help Table of Contents, which shows the name and title of every Help window. To display information about one of the topics, move the cursor to the desired topic and press **Enter**.

Exiting Help

Press **Finish** to return to the spreadsheet after viewing Help. The cell pointer is positioned on the same cell it was on when you pressed **Help**.

Moving the Cell Pointer and Scrolling

The cell pointer marks the current active cell. Before you can enter information into worksheet cells, you need to know how to move the cell pointer. You also need to know how to scroll the worksheet so you can view cells outside the window.

The following paragraphs describe how to move the cell pointer and scroll the worksheet.

Moving the Cell Pointer From Cell to Cell

Use the cursor keys (**Up, Down, Forward, Back**) to move the cell pointer one cell at a time. Hold down a cursor key to move the cell pointer more than one cell in that direction.

Moving the Cell Pointer to a Specific Cell

Two function keys provide quick ways to move the cell pointer directly to a specific cell on the spreadsheet: **F1** (Go To) and **F6** (End).

The Go To Function Key

To move the cell pointer to a specific cell address:

1. Press **F1** (Go To).

2. Type the address, or range name, of the cell you want to move to, and then press **Enter**.

The End Function Key

To move the cell pointer across a block of empty cells to the next filled cell, or across a block of filled cells to the last filled cell:

1. Press **F6** (End).

    Notice that the state indicator displays *END* near the upper right corner of the spreadsheet border.

2. Press the appropriate cursor key for the direction you want to move.

    The cell pointer moves as follows:

    •If the cell pointer is positioned on a blank cell or at the very end of a block of filled cells, it moves (in the direction shown on the cursor key) to the first cell that contains an entry.

    •If the cell pointer is positioned within a block of filled cells, it moves (in the direction shown on the cursor key) to the last cell in that block.

Using Other Cursor and Scrolling Keys

You can use any of the following key combinations to move the cell pointer around the spreadsheet:

Home   Moves the cell pointer to cell a1.

Shift-Home   Moves the cell pointer to the lower right corner of the spreadsheet. The row number of the lower right corner cell is the largest row number you have used anywhere in the spreadsheet. The column number is the largest column number you have used. Moving the cell pointer to this position is useful for defining the print range when you want to print the spreadsheet.

Previous or **Next**	Moves the spreadsheet window one column right or left, respectively. The cell pointer position doesn't change except to keep from scrolling out of view: once the cell pointer reaches the window edge, it remains there.
Begin	Moves the cell pointer to the top of a column.
Page	Moves the spreadsheet up one window. The cell pointer moves to the top of the window in its current column position.
Shift-Page	Moves the spreadsheet down one window. The cell pointer moves to the bottom of the window in its current column position.
Tab	Moves the spreadsheet one window to the left. The cell pointer moves to the left window edge in its current row position.
BackTab	Moves the spreadsheet one window to the right. The cell pointer moves to the left window edge in its current row position.
F8 (Window)	If the spreadsheet is divided into two windows, moves the cell pointer from one window to the other.

Saving a Spreadsheet

It is important to save your spreadsheet often while you work on it. Until you save a spreadsheet, all recent work on it (since the last save) is temporarily stored in memory. When you save the spreadsheet, the updated spreadsheet file is saved to the hard disk.

You can update the current spreadsheet with the same name, or you can save an updated copy to a different spreadsheet file with a different name.

NOTE: If you save the spreadsheet to a different file, you get two copies of the spreadsheet: the original unchanged spreadsheet file with the original name, and a copy of the updated spreadsheet file with the new name. Be sure to keep track of the two different versions.

You can also save your spreadsheet when exiting a spreadsheet session. For details, see "Finishing and Exiting from a Spreadsheet," later in this chapter.

To save a spreadsheet:

1. Make sure the spreadsheet is in Ready mode.

2. Type **/fs**

You are prompted to enter the name of the file to which you want the spreadsheet saved. The current spreadsheet name appears with the prompt message.

3. If you want to save the updated spreadsheet under the current spreadsheet file name, press **Enter**.

   If you want to save the updated copy of the current spreadsheet under a different file name, type the new file name, and then press **Enter**.

4. If you try to save the spreadsheet to an existing file, you are notified that the file will be overwritten with the updated spreadsheet.

   If you want to overwrite the file, press **Enter**; otherwise, press **Cancel**, type a new file name, and then press **Enter**.

   When the save is complete, the spreadsheet window returns to the screen.

Finishing and Exiting From a Spreadsheet

When you finish working with a spreadsheet, you exit and leave the spreadsheet. There are two ways to leave a spreadsheet from Ready mode: you can use the **Quit** command or the **Exit** key.

To finish using the spreadsheet:

1. With the spreadsheet in Ready mode, press **Exit**, or type **/q**

   If you have not made any changes to the spreadsheet since the last time you saved it, the spreadsheet leaves the screen.

   If you have made changes since the last time you saved it, a prompt asks if you want to save the changes.

2. To save your changes, press **y** to select Yes. If you do not want to save the changes made since your last save, press **n**.

Opening an Existing Spreadsheet

When you open an existing spreadsheet, the cell pointer is positioned in the portion of the worksheet that was in view when the spreadsheet was last saved.

To open an existing spreadsheet:

1. Open the directory that contains the spreadsheet.

2. Move the cursor to the name of the spreadsheet you want to open, and press **Enter**.

What is a Cell Range?

A *cell range* consists of one or more contiguous cells treated as a single unit, to which a command or formula applies. A range must be a rectangle: a single cell or a contiguous group of cells.
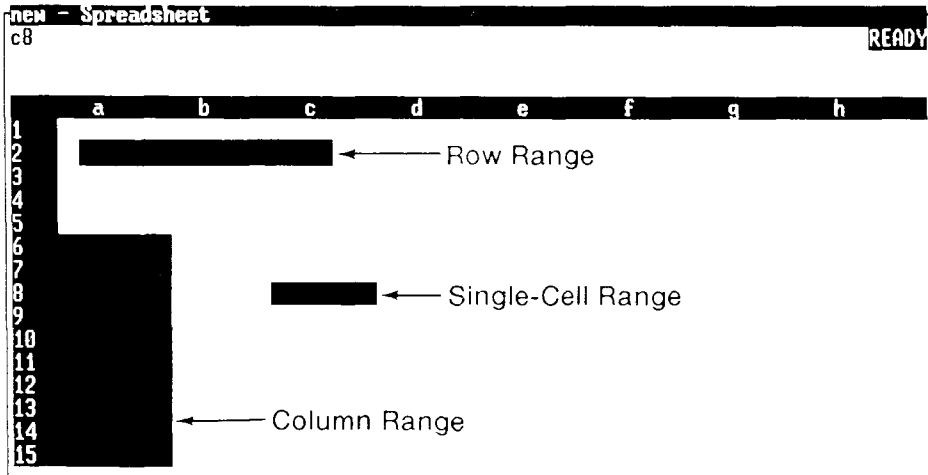
433.2-8

NOTE: *The following discussion focuses on using cell ranges in spreadsheet commands. For information about referring to a cell range in a formula, refer to "Range References in Formulas," in Chapter 3.*

When a spreadsheet command requires a range address, it prompts you with a suggested range. The prompt usually looks something like this:

    Enter range to format: a3..a3

Here the suggested range is a single cell, a3. The suggested range is sometimes based on the cell pointer's current position; sometimes the suggested range is recalled from the last time the command was executed. You can use the suggested range or you can indicate a different range.

A range is "anchored" at the beginning cell; the anchor point is the range's beginning point. The endpoint of the range is the cell listed after the period (.); this is the last cell in the range. In the example shown above, the anchor point is cell a3, and the ending point is cell a3.

Canceling a Cell Range

If you do not want to use a suggested or recalled range, you can press **Cancel** to release the range from being anchored at the beginning cell shown in the prompt. You can then move the cell pointer to another location to specify a different range, as discussed under "Indicating a Cell Range," below.

Indicating a Cell Range

To indicate a range, specify the beginning and ending cell addresses. The range includes the beginning and ending cells and all cells in between.

```
newss - Spreadsheet
a7  'Williams                                               POINT
Enter name: SALESFORCE        Enter range: a3..a7

         a          b         c          d          e          f
1
2   Salesperson   Tot Sales  Sales Goal  Territory
3   Abbott          9100       9300        1
4   Jones           9900      10100        1
5   Peterson        8100       8300        2
6   Rogers          8000       8200        1
7   Williams        7000       7200        3
8
9
```

Range Includes Cells a3 through a7.

433.2-9

There are three ways to specify the beginning and ending points of a range. You can

- type the cell addresses of the beginning and ending points

- use the cell pointer to point to the range endpoints

- type or select a previously-defined range name

Typing Cell Addresses for a Range

When a spreadsheet command prompts you for a range, you can indicate the range by typing the cell addresses of the opposite-corner cells (endpoints) of the range, separated by a period (.). As soon as you type a cell address, the suggested range is deleted.

```
newss - Spreadsheet
a2   'Salesperson                                          POINT
Enter name: SALESFORCE        Enter range: a2..a2 ◄──── Type the Range
                                                        Endpoints.      f
          a            b            c            d
1
2  Salesperson    Tot Sales    Sales Goal    Territory
3  Abbott             9100         9300            1
4  Jones              9900        10100            1
5  Peterson           8100         8300            2
6  Rogers             8000         8200            1
7  Williams           7000         7200            3
8
9
10 Salesperson    Tot Sales
11
12
13
14
15
```

433.2-10

```
GO TO  RECALC  EDIT    NAME    ALT    END    ABS   WINDOW
```

NOTE: You can type one or more periods between the cell address: the spreadsheet always displays two periods between range endpoints. Do not use the space character when typing a range.

Pointing to a Range With the Cell Pointer

When a spreadsheet command prompts you for a range, the spreadsheet is in Point mode, meaning that you can move the cell pointer to highlight the range. This is often the easiest way to indicate a range because you can see the cells included in the range.

When you move the cell pointer, you are changing the range's ending point, but the beginning point remains anchored.

If you want to have the range start at a different cell from the beginning cell shown in the prompt, you can release the range from its anchor by using either the **Cancel** key or the **Backspace** key.

The **Cancel** key leaves the cell pointer at the beginning point of the suggested range, but frees it so that you can move it without highlighting more cells.

The **Backspace** key frees the cell pointer and takes it back to the position from which you started the command.

NOTE: If the cell pointer is not anchored, pressing **Cancel** *backs up to the previous command step.*

To indicate a range by pointing:

1. With the spreadsheet in Point mode, move the cell pointer to the beginning endpoint of the range.

2. Press **Mark** or type a period (.) to anchor the range's beginning point.

3. Move the cell pointer toward the range's ending point.

    The range begins at the anchored endpoint and expands from there as you move the cell pointer. Cells are highlighted as you move the cell pointer, making it easy to see which cells are in the range.

Use any of the cursor keys to move the cell pointer in any direction to highlight more or fewer cells to be included in the range.

4. When the cell pointer reaches the ending point of the range, press **Enter**.

The range is defined, and the highlighting disappears.

NOTE: If the cell pointer is already anchored at an endpoint, typing a period (.) rotates the endpoints that define the range. For example, if the range was c3..e6, it becomes c6..e3.

Indicating a Range by Name

When a spreadsheet command prompts you for a range, you can specify a previously-defined range name.

NOTE: Before you can refer to a range by name, you must use the **Range Name** *command to define the range associated with the name. For details, refer to "Creating a Range Name (/**rnc**)," in Chapter 7.*

You can specify a range name in one of two ways:

Type the range name

or

Press **F4** (Name) to display the Range Name menu, which lists all defined range names. From this menu you can select the range you want to use.

3

Entering and Editing Spreadsheet Information

This chapter describes how to enter and edit information in worksheet cells.

When you enter information into a cell, you sometimes need to refer to another cell. This chapter describes how to make and use cell references. Another important thing to know is how to refer to a group, or *range*, of cells. This chapter also describes how to select a range.

Entering Information Into Cells

When you open a new spreadsheet, the spreadsheet is in Ready mode, and the worksheet is full of standard empty cells of the same size and format.

When you type, the information appears in the command panel only. When you finish typing, you press **Enter, Forward, Back, Up,** or **Down** to enter the information so it appears in the worksheet cell.

You can enter a value or a label into a cell. A *value* is a number or formula that you use in calculations. A *label* is everything that is not a value, usually text used to identify information in a spreadsheet.

WGS/Spreadsheet uses the first character you type to determine whether you are typing a value (number or formula) or a label (text). Depending on the first character, the spreadsheet moves from Ready mode to Value mode or Label mode, as shown by the mode indicator in the command panel.

Values

Values are numbers or formulas you want to use in mathematical calculations.

Numbers	Used in spreadsheet calculations. For example, you can add the numbers in a column.
@NA and @ERR	Special values that help keep errors out of a spreadsheet.
Formulas	Mathematical statements that calculate a number or a string. For example, you can calculate the average of a group of numbers.

The spreadsheet uses the first character you type to determine whether you are entering a value or a label.

Numbers

Remember the following rules when you type a number:

- Start the number with one of the following characters:

    1 2 3 4 5 6 7 8 9 0 - + . ($

- Type all numbers as decimal values.

- If you want to enter a percentage, type the number followed by a percent sign (%). The spreadsheet converts the number to a percent.

- A number can contain one decimal point.

- You can type a number in scientific format, ending with a power-of-ten scaling factor, as shown below.

    xxxxE±nn

- Do not use a comma (,) or space character ( ) in a number.

All of the following examples are valid number entries:

100

-416

25%

.25

111e+25

The way a number is displayed in the worksheet cell depends on how the cell is formatted. For details about formatting a cell, refer to "Setting a Value Format for a Range" in Chapter 7, "Using Range Commands," and to "Setting a Global Format for Values" in Chapter 6, "Using Worksheet Commands."

@NA and @ERR

Two special values, @NA and @ERR, are available to help keep errors out of your spreadsheet. (@NA and @ERR are also functions and are described as such in Chapter 5, "Using Functions.")

Use @NA when you don't know what value to enter into a cell. It's a good idea to enter @NA into a cell instead of leaving it blank; leaving a cell blank when you don't know its value can lead to errors (if other cells refer to the blank cell).

When you enter @NA into a cell, that cell displays NA. Any cell that refers to that cell displays ERR. When you know the value you want to enter into the cell, replace @NA with that value; all associated cells change to reflect the new value.

You can use @ERR to guard against having a calculation place an erroneous entry into a cell. An example is shown under the description of the @ERR function in Chapter 5, "Using Functions." Any cell that references a cell containing the value ERR also displays the value ERR.

Formulas

A formula contains some combination of operands and operators put together to calculate a number value. A formula (like a number) must begin with one of the following characters:

1 2 3 4 5 6 7 8 9 0 - + . ($

Operands

Operands are the values that are acted upon in an operation. For example, in the formula 1+2, 1 and 2 are operands. Operands can be any of the following:

- Numeric values, for example,

      1

- Functions or other formulas. (Functions, part of WGS/Spreadsheet, are prewritten formulas that perform standard calculations. Each function is listed and described in Chapter 5, "Using Functions.")

      @SUM(a1..a4)

- Strings of characters, enclosed in double quotes (" "), for example,

      "SALES: "

- References to cells or ranges of cells whose values will be used in the calculation, for example,

      a1

   Cell references and ranges are described later in this chapter, under "Cell References" and "Range References in Formulas."

Operators

Operators are symbols that indicate the action or operation to take place. For example, the plus sign (+) indicates addition. The four types of operators are arithmetic, intersection, string, and logical.

Arithmetic operators perform addition, subtraction, multiplication, division, exponentiation, and negation on operands as follows:

Symbol	Operation Performed
+	Adds values
-	Subtracts values
*	Multiplies values
/	Divides values
^	Raises a value to a specified power
-	Makes a positive value negative; makes a negative value positive.

NOTE: The arithmetic operators work with values; if used with labels, the labels are assumed to have a value of zero (0).

The *intersection operator*, the space character ( ), is used between ranges in a list to indicate that only the common cells (that form the intersection where the ranges overlap) are to be used in the formula.

433.3-1

The *string operator*, the ampersand character (&), is used to concatenate (join) labels or string operands enclosed in double quotes. For example, in the spreadsheet below, the formula +b2&" "&b3&" "Sb4&" TOTALS: " joins cells b2, b3, and b4, the spaces in between, and the string *TOTALS:* at the end.

	a	b	c	d	e	f	g	h
1								
2		JAN	1231					
3		FEB	2311					
4		MAR	3999					
5								
6		**JAN FEB M**AR TOTALS:			7541			
7								
8								
9								
10								
11								
12								
13								
14								
15								

433.3-2

GO TO | RECALC | EDIT | NAME | ALT | END | ABS | WINDOW |

NOTE: The ampersand string operator can be used with string operands, labels, and formulas resulting in strings only, not with values.

Logical operators evaluate an expression and return a true (1) or false (0) response, as follows (False means equal to 0; true means not False, in other words, not equal to 0). A *logical operator* evaluates an expression and displays the value 1 for a response of true or the value 0 for a response of false. False means equal to zero. True means not false: that is, not equal to zero. The returned values are numbers that can be used in calculations.

Operators return values as follows:

Symbol	Operation Performed
<	True (1) if the first operand is less than the second operand
>	True (1) if the first operand is greater than the second operand
=	True (1) if the first operand is equal to the second operand
<=	True (1) if the first operand is less than or equal to the second operand
>=	True (1) if the first operand is greater than or equal to the second operand
<>	True (1) if the two operands are not equal
#AND#	True (1) if both expressions are true; false (0) if one or both expressions are false
#OR#	True (1) if either expression is true; false (0) if both expressions are false
#NOT#	True (1) if the expression is false; false (0) if the expression is true

Logical operators can compare strings of characters as well as comparing numbers. Comparison of strings is case insensitive: that is, the difference between upper- and lowercase letters is ignored.

Order of Operation Within a Formula

The spreadsheet calculates formulas according to the following precedence rules:

- Expressions within parentheses are evaluated first, and operators are evaluated according to precedence, as follows:

^	exponentiation
-	negation
* /	multiplication and division
+ -	addition and subtraction
< > =	
<= >= <>	logical operators
#NOT#	logical #NOT# comparison
#AND# #OR#	logical #AND# and #OR# comparisons

- Where there is no precedence, expressions are evaluated left to right.

Entering Values

The following procedure shows how to enter a value into a spreadsheet cell. As you enter a formula, you might want to refer to another cell, or to a range of cells. Cell references and ranges are described later in this chapter.

To enter a number or formula:

1. Move the cell pointer to the cell you want to contain the value.

2. Type the value.

   As you type the value and make cell references or point to ranges, the value appears in the command panel.

Notice the mode indicator, which changes to READY, VALUE, POINT, and EDIT as the spreadsheet enters different modes. And remember, if you start a value with a letter, or any character other than those given earlier in this chapter, the spreadsheet enters Label mode.

3. To enter the value without moving the cell pointer, press **Enter**.

    To enter the value and move the cell pointer, press one of the cursor keys (**Up**, **Down**, **Forward**, **Back**). If the value is a number, the number appears in the current worksheet cell. If the value is a function or formula, the result of the calculation appears in the current worksheet cell.

Labels

In a spreadsheet, anything that is not a value is a label. The term *label* identifies information you do not intend to use in calculations. All of the following examples are valid labels:

SALES:

41683 Aloysius Street

4+16

As you can see, labels can contain any characters. Although a label can contain numbers, labels are not used in mathematical calculations; values are used.

Remember, the spreadsheet uses the first character you type into a cell to determine if you are entering a label or a value.

So imagine what happens when you type **41683 Aloysius Street** as a label: as soon as you type the number **4**, the spreadsheet enters Value mode. As a matter of fact, if you use any of the following characters to start a label, the spreadsheet enters Value mode:

1 2 3 4 5 6 7 8 9 0 - + . (@ #

If you want to type a label that starts with one of the characters shown above, you must precede the label with a special character, called a label-prefix character. Label-prefix characters, which also determine a label's alignment in a cell, are described below.

Label-Prefix Characters and Label Alignment

A *label-prefix character* indicates that you are typing a label, and that you want the label aligned in the cell as follows: left, right, or center.

If you do not use a label-prefix character to align a label, the label is aligned according to the current range or global alignment setting. For more information about global alignment settings, refer to Chapter 6, "Using Worksheet Commands"; for information about setting the alignment for a range of cells, refer to Chapter 7, "Using Range Commands."

The following list describes valid label-prefix characters:

Label-Prefix Character	Description
'	Left justified. The label starts at the left edge of the cell and extends into unused cells at the right if the label is longer than the column width.


```
new - Spreadsheet
b2   'JAN                                                    READY

       a      b      c      d      e      f      g      h
 1
 2         JAN
 3             FEB
 4         MAR
 5
 6         TOTTOTTOT
 7
```
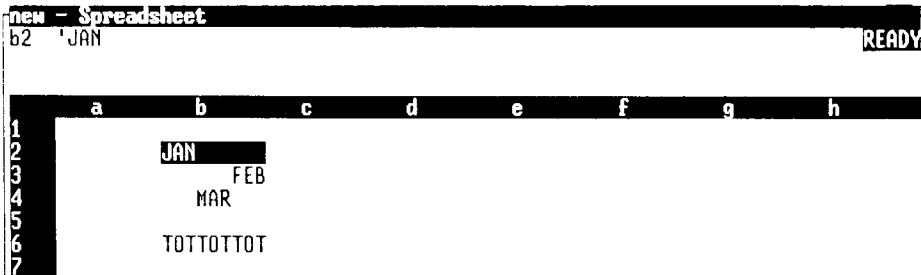
433.3-3

Label-Prefix Character	Description
"	Right justified. The label starts at the right edge of the cell and extends into unused cells at the left if the label is longer than the column width.

```
┌─new - Spreadsheet──────────────────────────────────────────┐
│b3  "FEB                                              READY │
│                                                            │
│     a     b     c     d     e     f     g     h            │
│1                                                           │
│2         JAN                                               │
│3              FEB                                          │
│4         MAR                                               │
│5                                                           │
│6         TOTTOTTOT                                         │
│7                                                           │
```
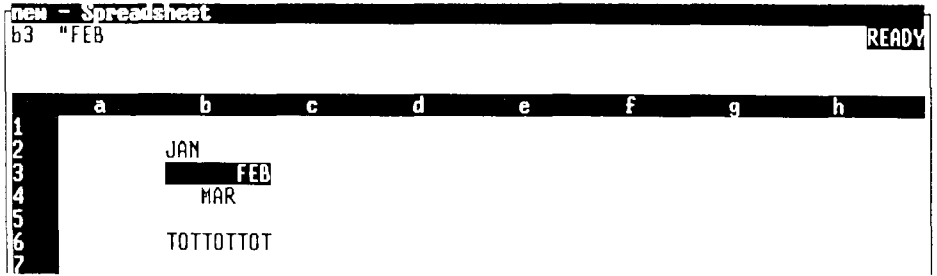
                                                    433.3-4

	Centered. The label is centered in the cell and extends into adjoining unused cells if the label is longer than the column width.
^	

```
┌─new - Spreadsheet──────────────────────────────────────────┐
│b4  ^MAR                                              READY │
│                                                            │
│     a     b     c     d     e     f     g     h            │
│1                                                           │
│2         JAN                                               │
│3             FEB                                           │
│4          MAR                                              │
│5                                                           │
│6         TOTTOTTOT                                         │
│7                                                           │
```
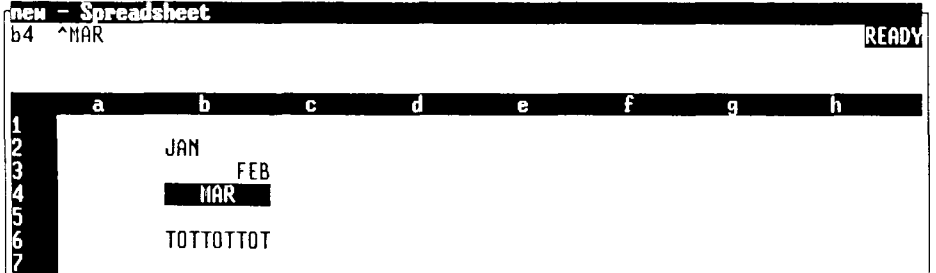
                                                    433.3-5

Label-Prefix Character	Description
\	Repeat label. The characters of the cell entry are repeated as many times as fit in the cell.

```
┌ new - Spreadsheet ───────────────────────────────────────┐
│ b6   \TOT                                         READY   │
│                                                           │
│ ┌─────a─────b─────c─────d─────e─────f─────g─────h─────────┐
│ │1                                                        │
│ │2        JAN                                             │
│ │3            FEB                                         │
│ │4         MAR                                            │
│ │5                                                        │
│ │6        TOTTOTTOT                                       │
│ │7                                                        │
```
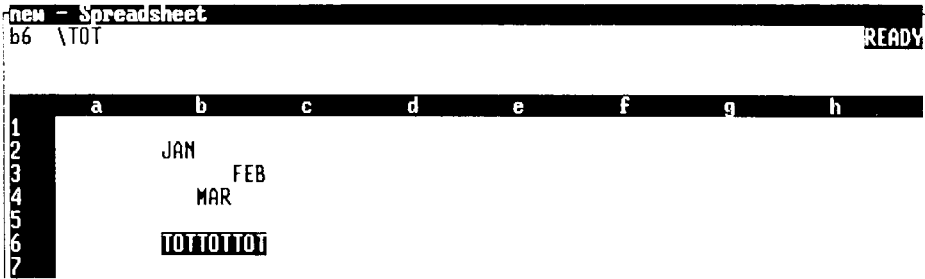
433.3-6

If a label is longer than the width of the cell, the extra characters appear in adjoining cells if they are empty. If the adjoining cells are not empty, those characters beyond the column remain hidden.

```
┌ new - Spreadsheet ───────────────────────────────────────┐
│ b6   'QUARTERLY SALES TOTALS:                     READY   │
│                                                           │
│ ┌─────a─────b─────c─────d─────e─────f─────g─────h─────────┐
│ │1                                                        │
│ │2        JAN      1211                                   │
│ │3        FEB      1500                                   │
│ │4        MAR      2999                                   │
│ │5                                                        │
│ │6        QUARTERLY 5710                                  │
│ │7              ↑                                         │
│ │8              │                                         │
│ │9              │                                         │
│ │10       Label Display                                   │
│ │11       is Truncated.                                   │
│ │12                                                       │
│ │13                                                       │
│ │14                                                       │
│ │15                                                       │
```
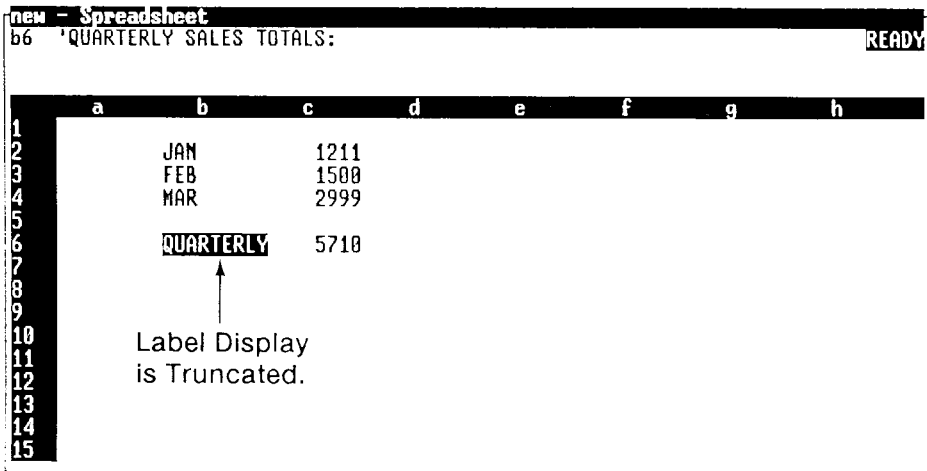
433.3-7

Entering a Label

To enter a label:

1. Move the cell pointer to the cell you want to contain the label.

2. If the first character of the label is a number or special value symbol, or if you want to specify a different label alignment than the current setting, type the label-prefix character you want to use (', ", ^, or \).

3. Type the label. Use the **Backspace** key to delete characters if you make typing mistakes.

   The label appears (in the command panel only) as you type it. The Label mode indicator appears in the command panel.

4. To enter the label without moving the cell pointer, press **Enter**.

   To enter the label and move the cell pointer, press **Up, Down, Forward,** or **Back**.

   The label (but not the label-prefix character) appears in the current worksheet cell.

Cell References

Sometimes, instead of specifying a value, you want to refer to a cell that contains the value you want to use. When you refer to another cell, you make a *cell reference*. Cell references are of three types:

Relative   Refers to the relative position of another cell (for example, the cell to the left of a given cell).

Absolute   Refers to the absolute position of a cell (for example, the cell at b4).

Mixed   Refers to a cell using a mix of absolute and relative reference.

Relative Cell References

Unless you specify otherwise, a *relative cell reference* refers to the positional relationship of the current cell to a referenced cell.

In the spreadsheet shown below, cell c3 contains a relative reference to cell b3, *the value one cell to the left of this cell.*

```
scores - Spreadsheet
c3   +b3                                                              READY

       a        b         c        d        e        f        g        h
1               SCORES
2
3    B. Dill    416     | 416 |
4    J. Sloe    614
5    S. Blue    333
6    P. Crolly  242
7    J. Row     254
8    R. Bly     222
9    J. Linb    113
10   S. Lamb    654
11
12
13
14
15
                                                                   433.3-8

GO TO |RECALC | EDIT    NAME  |  ALT  |  END  |  ABS  WINDOW |
```

If you copy the contents of cell c3 to cell c4, cell c4 will contain a relative reference to cell b4, still one cell to the left of it.

To type a relative cell reference, type the column letter and row number of the cell you want to refer to.

Absolute Cell References

Sometimes you want to refer to a particular cell value, no matter what its positional relationship to the current cell. A cell reference that refers to a row and column address and ignores the relationship between the two cells involved is called an *absolute cell reference*.

In the spreadsheet below, cell d3 contains an absolute reference to cell b3. Note that cell b3 is two cells to the left of cell d3.

```
┌scores - Spreadsheet──────────────────────────────────────────┐
│d3  1+$b$3                                             READY│
│                                                               │
│                                                               │
│       a      b       c       d       e     f     g     h      │
│1            SCORES                                            │
│2                                                              │
│3     B. Dill    416     416     417                          │
│4     J. Sloe    614     614                                  │
│5     S. Blue    333                                          │
│6     P. Crolly  242                                          │
│7     J. Row     254                                          │
│8     R. Bly     222                                          │
│9     J. Limb    113                                          │
│10    S. Lamb    654                                          │
│11                                                             │
│12                                                             │
│13                                                             │
│14                                                             │
│15                                                             │
└───────────────────────────────────────────────────────────────┘
```
433.3-9

```
GO TO │RECALC │ EDIT │ NAME │ ALT │ END │ ABS │WINDOW │
```

If you copy the contents of cell d3 to cell d4, cell d4 will still contain the absolute reference to cell b3, even though the relationship between the two cells is not the same. No matter where you copy cell d3, it will contain the absolute reference to cell b3.

Notice the dollar sign ($) preceding the column letter and row number in the cell reference. The dollar sign indicates that the reference is absolute.

To type an absolute cell reference, type a dollar sign ($) before the column letter and before the row number of the cell you want to refer to.

Mixed Cell References

A *mixed cell reference* combines relative and absolute references in a single reference. For example, the column reference can be absolute while the row reference is relative; or the column can be relative while the row is absolute.

To type a mixed cell reference, type a dollar sign ($) before the column letter or the row number that you want to remain absolute in the reference. (Remember, the dollar sign indicates an absolute reference.)

Pointing to Cells

Instead of typing a cell reference, you can use the cell pointer to point to the cell you want to refer to. Pointing to cells offers the following advantages to typing cell references:

- Moving the pointer to the actual cell ensures that you refer to the correct cell.

- Moving the pointer lets you see the positional relationships between the cells.

To point to a cell:

1. Type the operator that precedes the cell reference. If the formula begins with a cell reference, type the plus sign (+).

2. Move the cell pointer to the cell you want to use in the cell reference.

   Notice that as soon as you move the cell pointer, the spreadsheet enters Point mode.

   Notice the command panel as you move the pointer: when the pointer is positioned on a cell, that cell address and its contents appear in the command panel.

3. Notice whether the cell addresses that appear in the command panel are relative (no dollar sign: a1), absolute (two dollar signs: a1), or mixed (one dollar sign: $a1 or a$1).

   If you want to use the current type of cell reference, go to step 4.

   If you want to make a different type of cell reference, press **F7** (Abs) to display the *Cell Reference Types* menu, and then select one of the following choices:

   Both: column and row references are relative (a1)

   Column: column references are relative; row references are absolute (a$1).

   Row: row references are relative; column references are absolute ($a1).

   Absolute: both column and row references are absolute (a1).

4. When the pointer is positioned on the correct cell, continue typing the formula, or press **Enter** to enter the value.

The **Cancel** and **Backspace** keys work as follows in Point mode when you are making a cell reference:

   Cancel moves the cell pointer to the original cell (making the reference) and deletes the address of the referenced cell from the command panel.

   Backspace moves the cell pointer to the original cell (making the reference). The address of the referenced cell is *not* deleted from the command panel.

Range References in Formulas

You can refer to a range of cells in a formula. When you use a range in a formula, the formula calculates the result using the value of each cell in the range.

Note that you do not use normal arithmetic with ranges in a formula. For example, you cannot add range A to range B. Instead, you use ranges with functions.

For example, the following formula uses the @SUM function to total the values of the cells in range A and range B, and then performs normal addition on the results:

    +@SUM(A)+@SUM(B)

If a range contains a single cell, however, you can perform normal arithmetic on the range. For example, a range containing cell a1 only can be added to 1, as in the following formula:

    +a1+1

Just like cell references, range references are relative, absolute, or mixed.

NOTE: Only formulas distinguish between relative, absolute, and mixed ranges; commands do not make the distinction, and disregard it if you specify so.

As with cell references, you can type or point to a range you are using in a formula. You can also specify a range name.

Typing Range References

The following procedures show how to type the three kinds of range references.

To type a relative range reference, type the column letters and the row numbers of the beginning and ending cell in the range you want to refer to.

To type an absolute range reference, type a dollar sign ($) before the column letter and the row number of the beginning and ending cells in the range you want to refer to. The dollar sign indicates an absolute reference.

To type a mixed cell reference, type a dollar sign ($) before the column letter or the row number that you want to be absolute in the reference.

Pointing to Ranges

You can use the cell pointer to highlight the range you want to use in a formula. Pointing to a range offers the same advantages that pointing to a cell offers:

- It ensures that you refer to the correct cells.

- It lets you see the positional relationships between the cells.

To point to a range:

1. Type the operator preceding the reference (or, at the beginning of a formula, type a plus sign (+) or another character that indicates a value).

2. Move the cell pointer to the first cell in the range.

   Notice that as soon as you move the cell pointer, the spreadsheet enters Point mode.

   Also notice the command panel as you move the pointer: when the pointer is positioned on a cell, that cell address appears in the command panel.

3. Notice whether the cell addresses that appear in the command panel are relative (no dollar sign: a1), absolute (two dollar signs: a1), or mixed (one dollar sign: $a1 or a$1).

   If you want to use the current type of cell reference for the beginning cell in the range, go to step 4.

   If you want to make a different type of cell reference, press **F7** (Abs) to display the *Cell Reference Types* menu, and then select one of the following choices:

   Both: column and row references are relative (a1)

   Column: column references are relative; row references are absolute (a$1).

   Row: row references are relative; column references are absolute ($a1).

   Absolute: both column and row references are absolute (a1).

4. When the pointer is positioned on the correct beginning cell, and you have specified the type of cell reference for that cell, type a period (.) to anchor that cell of the range.

   Notice that the command panel shows the cell as a range, with two dots between the beginning and ending cells.

   If you want the range to contain this single cell, press **Enter** to complete the range reference. You can continue writing the formula, or press **Enter** to finish the formula and enter the value.

   If you want the range to contain more cells, continue on to step 5.

5. Repeat steps 2 and 3 to specify the ending cell in the range.

   As you move the cell pointer, notice that the cells between the anchor point and the cell pointer's position are highlighted. The highlighting helps you see which cells are contained in the range.

6. When the range contains the cells you want it to contain, press **Enter** to complete the range reference. Then continue writing the formula, or press **Enter** to finish the formula and enter the value.

NOTE: While you are making the range reference, you can type a period (.) to change the anchor point. Refer to "Indicating a Cell Range" in Chapter 2, "Basics," for information about anchoring the cell pointer.

When you are making a cell reference, the **Cancel** and **Backspace** keys work as follows in Point mode:

> **Cancel** moves the cell pointer to the cell at the anchor point (the first cell in the range) and removes the anchor. You can move the cell pointer without highlighting any cells.

> **Backspace** moves the cell pointer to the original cell (making the reference). The address of the original cell appears in the command panel, but the anchor is removed, so you can move the cell pointer without highlighting any cells.

Using Range Names in Formulas

You can use a range name anywhere you use a range in a formula. Range names are especially helpful in formulas because they are much easier to read than two cell references separated by dots.

For example, the formula

> +SUM(RENTS,TRANSPORTATION,FOOD)

is much easier to read than the formula

> +SUM(a1..a10,b1..b10,c1..c10)

Note that there is only one way to use a range name in a formula: you must type the range name. The **F4** (Name) key is available only from command prompts.

Editing Cell Contents

There are two times when you want to edit the contents of a cell: as you are typing the information into the cell, and after you enter the information.

Editing As You Type

As you type information into a cell, you can use the **Backspace** key to correct typing errors.

Sometimes you might want to move the cursor to a typing error, but you do not want to delete the cell information. WGS/Spreadsheet provides Edit mode to make it easier for you to edit cell contents. In Edit mode, you can still use the **Backspace** key, but you can also use the cursor keys to move the cursor in the command panel without deleting information.

The **F3** (Edit) key acts as a toggle, letting you switch from Value or Label mode to Edit mode, and back to Value or Label mode.

Editing Existing Cell Contents

There are a number of ways to make changes and correct errors in cell entries *after* you enter them. You can

- Replace the entire entry by moving the cell pointer to the cell, typing the new label or value, and pressing **Enter**.

- Use the **Range Erase** command to erase the contents of the cell. Refer to "Erasing the Contents of a Range (**/re**)," in Chapter 7, for more information.

- Use the **F3** (Edit) key to enter Edit mode, and then make the changes or corrections.

  If the spreadsheet detects an error when you enter a cell's contents, it enters Edit mode automatically (the EDIT mode indicator appears in command panel). Edit mode is described under "Using Edit Mode," later in this chapter.

Using Edit Mode

You can use Edit mode to edit information as you type, or to change an existing cell entry.

Entering Edit Mode

If the spreadsheet detects an error while you are typing an entry, or when you enter a cell's contents, you hear a beep and the spreadsheet automatically enters Edit mode.

You can also enter Edit mode on your own. With the cell pointer positioned on the cell you want to edit,

Press **F3** (Edit).

The command panel displays the Edit mode indicator and the current contents of the cell.

```
scores - Spreadsheet
b12   @AVG(b3..b10)                                          EDIT
@AVG(b3..b10)

        a         b        c       d       e       f       g       h
1                SCORES
2
3    B. Dill       416
4    J. Sloe       614
5    S. Blue       333
6    P. Crolly     242
7    J. Row        254
8    R. Bly        222
9    J. Limb       113
10   S. Lamb       654
11
12             ████356██
13
14
15
```

433.3-10

```
GO TO │RECALC │ EDIT │ NAME │ ALT │ END │ ABS │WINDOW │        │
```

Moving the Cursor in Edit Mode
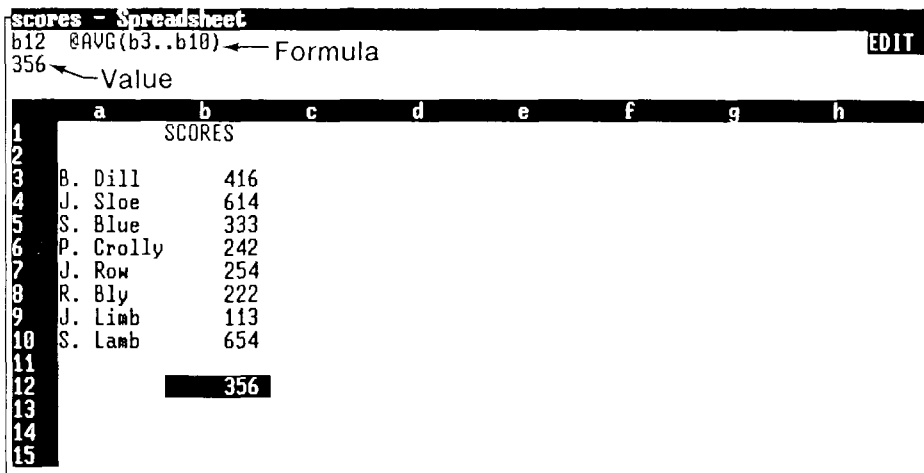
When you type in Edit mode, characters are automatically inserted at the current cursor location. You cannot overtype existing information in Edit mode; you must delete the existing information and then insert the new information.

The following list shows how the cursor keys function in Edit mode:

Backspace   Deletes the character to the left of cursor.

Delete-Char   Deletes the character at the cursor position.

Forward   Moves the cursor right one character.

Back   Moves the cursor left one character.

Begin   Moves the cursor to the first character.

End   Moves the cursor to the last character.

Next   Moves the cursor five characters to the right.

Previous   Moves the cursor five characters to the left.

Enter   Enters the changes; returns to Ready mode (if there were no errors).

Up   Enters the changes; returns to Ready mode, and moves the cell pointer up one row (if there were no errors).

Down   Enters the changes; returns to Ready mode, and moves the cell pointer down one row (if there were no errors).

Using the F2 (Recalc) Key in Edit Mode

In Edit mode, you can press **F2** (Recalc) to convert a formula to its
number value; the number value appears in the command panel.

```
 scores - Spreadsheet
 b12   @AVG(b3..b10)◄── Formula                                    EDIT
 356◄──Value
        a       b       c       d       e       f       g       h
 1              SCORES
 2
 3    B. Dill      416
 4    J. Sloe      614
 5    S. Blue      333
 6    P. Crolly    242
 7    J. Row       254
 8    R. Bly       222
 9    J. Limb      113
10    S. Lamb      654
11
12             ███356███
13
14
15
```

433.3-11

```
 GO TO | RECALC | EDIT | NAME | ALT | END | ABS | WINDOW |
```

If you want the cell to contain the formula again, press **Cancel**. The
command panel is cleared, and the spreadsheet returns to Ready mode.

If you want to permanently convert the formula to the number, press
Enter. The formula is lost, and the cell contains the number value.

Exiting Edit Mode

There are a number of ways to leave Edit mode. You can

- press **Enter** to enter the information and keep the cell pointer on the cell

- press **Up** or **Down** to enter the information and move the cell pointer

- press **F3** (Edit) to return to Value or Label mode (if the spreadsheet was in Value or Label mode when you entered Edit mode)

- press **Exit** or **Cancel** to cancel your changes and return to Ready mode

Why Spreadsheet Values Change

Ordinarily, as you enter data into a worksheet and then edit the data, the spreadsheet automatically recalculates information as it is affected by the updated information. This is a nice feature because you don't need to worry about updating the spreadsheet's formulas each time you change or enter cell information.

For information about the way spreadsheet values are calculated, refer to the descriptions of the **Worksheet Status** command or the **Worksheet Global Recalculation** command in Chapter 6, "Using Worksheet Commands." Recalculation is also described in Chapter 4, "Spreadsheet Preferences."

4

Spreadsheet Preferences

This chapter describes how to use the Spreadsheet Preferences to define default settings for newly-created spreadsheets.

Note that the Spreadsheet Preferences form is available from the Preferences object in the Desktop Manager Toolkit. If you are not familiar with the Desktop or the Toolkit, refer to the *WGS/Desktop Manager User's Guide.*

Refer to Appendix C, "Using WGS/Spreadsheet from the CTIX Shell," for information about using Spreadsheet Preferences from the CTIX shell.

What are Spreadsheet Preferences?

Spreadsheet Preferences let you customize spreadsheets to look and work the way you want. Use preference settings to set up the recalculation mode, the order in which the spreadsheet is recalculated, the way cell contents appear in the worksheet, and the way the **Range Erase** and **Copy** commands work.

The preference settings you define affect every *new* spreadsheet you create; the new preference settings do not affect existing spreadsheets.

Use the Worksheet Global commands to change settings for an existing spreadsheet; to change settings for individual cells in an existing spreadsheet, use the Range commands. For details on these commands, refer to Chapter 6, "Using Worksheet Commands," and Chapter 7, "Using Range Commands."

The *Spreadsheet Preferences* form is shown below. Descriptions of the field settings follow.
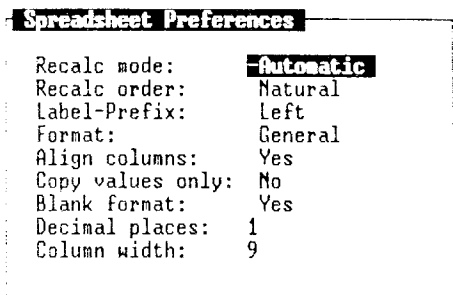
```
┌─■Spreadsheet Preferences■─────────────┐
│                                        │
│   Recalc mode:        ■Automatic■      │
│   Recalc order:       Natural          │
│   Label-Prefix:       Left             │
│   Format:             General          │
│   Align columns:      Yes              │
│   Copy values only:   No               │
│   Blank format:       Yes              │
│   Decimal places:     1                │
│   Column width:       9                │
│                                        │
└────────────────────────────────────────┘
```
<div align="right">433.4-1</div>

Recalculation mode. Specifies whether spreadsheet recalculation is automatic or manual.

Automatic (initial setting)	Specifies that the spreadsheet is recalculated each time you change the contents of a cell.
Manual	Specifies that the spreadsheet is recalculated only when you press **F2** (Recalc). Manual is a good choice for large spreadsheets with many functions and formulas, since recalculating such spreadsheets takes a lot of time.

Recalculation order. Determines the order of recalculation. Formulas in a spreadsheet often depend on the values of formulas in other cells. You can specify the order in which values are calculated.

Natural (initial setting)	Recommended for most spreadsheets. Calculation of some formulas depends on the results of other calculations. In this mode, the spreadsheet calculates a particular formula only after calculating other formulas on which it depends.

Columnwise	Calculates by column, starting at the top of column *a*, working downward, and continuing the same way with columns *b* through *sr*.
Rowwise	Calculates by row, starting at the left of row 1, working right, and continuing the same way with rows 2 through 8192.

Format. Determines how values appear in the worksheet cells. Note that formatting does not affect the stored value of a cell.

General (initial setting)	Does not display trailing zeroes. Values longer than 15 digits, or values equal to or longer than the column width appear in scientific (exponential) format: x.xxE+xx. If a value is still too long for the column, the cell is filled with asterisks (*).

```
┌fat2 - Spreadsheet──────────────────────────────────────────────────────┐
│b21   133                                                          READY │
│                                                                         │
│         a         b         c         d        e        f       g      h│
│20             1987 SALES 1988 SALES 1989 SALES                           │
│21   January:    ▓133▓       -22       133                                │
│22  February:     322        354       432                                │
│23     March:     -77         57       655                                │
│24     April:     576        687       766                                │
└─────────────────────────────────────────────────────────────────────────┘
```
433.4-2

Fixed	Displays values with a fixed number of decimal places (0 to 15), which you specify; does not use a thousands separator. Does not use a comma.

```
┌format - Spreadsheet────────────────────────────────────────────────────┐
│b21   133                                                          READY │
│                                                                         │
│         a         b         c         d        e        f       g       │
│20             1987 SALES 1988 SALES 1989 SALES                           │
│21   January:  ▓133.00▓    22.00    133.00                                │
│22  February:   322.00    354.00    432.00                                │
│23     March:    77.00     57.00    655.00                                │
│24     April:   576.00    687.00    766.00                                │
└─────────────────────────────────────────────────────────────────────────┘
```
433.4-3

Scientific	Displays values in exponential format, with a mantissa of up to 15 decimal places, and with an exponent of 10 from -99 to 99.

```
format - Spreadsheet
b21   133                                                          READY

          a         b          c          d          e          f          g
20
21    January: 1.33e+02   2.20e+01   1.33e+02
22    February:  3.22e+02   3.54e+02   4.32e+02
23       March:  7.70e+01   5.70e+01   6.55e+02
24       April:  5.76e+02   6.87e+02   7.66e+02
                                                              433.4-4
```

Currency	Displays values in monetary form, with a dollar sign, parenthesizing negative numbers. You specify the number of decimal places (0 to 15). This format uses a thousands separator. Uses a comma.

```
fmt - Spreadsheet
b21   133                                                          READY

          a         b          c          d          e          f          g          h
20              1987 SALES 1988 SALES 1989 SALES
21    January: $133.00    ($22.00)   $133.00
22    February:  $322.00   $354.00    $432.00
23       March:  ($77.00)    $57.00    $655.00
24       April:  $576.00   $687.00    $766.00
                                                              433.4-5
```

, (comma)	Inserts commas and parenthesizes negative values (uses 0-15 decimal places).

```
fmtl - Spreadsheet
b21   133                                                          READY

          a         b          c          d          e          f          g          h
20              1987 SALES 1988 SALES 1989 SALES
21    January: 133.00     (22.00)    133.00
22    February:  322.00    354.00     432.00
23       March:  (77.00)    57.00     655.00
24       April:  576.00    687.00     766.00
                                                              433.4-6
```

+/- Displays the number of plus signs (+) represented
by a positive number, and the number of minus
signs (-) represented by a negative number.

```
┌fmt- - Spreadsheet──────────────────────────────────────────────────┐
│b21  -5                                                       READY│
│                                                                    │
│        a         b        c        d        e     f     g        h│
│20            1987 SALES 1988 SALES 1989 SALES                      │
│21    January:█████   ++       +++                                  │
│22   February:--       -        ---                                 │
│23      March:----    -----    ++++                                 │
│24      April:++++++   ++       +++++                               │
└────────────────────────────────────────────────────────────────────┘
                                                              433.4-7
```

Percent Displays values in percent form, followed by a
percent sign (%). You specify the number of
decimal places (0-15).

```
┌fmt - Spreadsheet───────────────────────────────────────────────────┐
│b34  @AVG(b21..b32)                                           READY│
│                                                                    │
│        a         b        c        d        e     f     g        │
│20            1987 SALES 1988 SALES 1989 SALES                      │
│21    January:  13300.0%  -2200.0%  13300.0%                        │
│22   February:  32200.0%  35400.0%  43200.0%                        │
│23      March:  -7700.0%   5700.0%  65500.0%                        │
│24      April:  57600.0%  68700.0%  76600.0%                        │
└────────────────────────────────────────────────────────────────────┘
                                                              433.4-8
```

Text Displays the text of a formula instead of its value.
Numbers are displayed in general format

```
┌fmt - Spreadsheet───────────────────────────────────────────────────┐
│b34  @AVG(b21..b32)                                           READY│
│                                                                    │
│        a         b        c        d        e     f     g        │
│20            1987 SALES 1988 SALES 1989 SALES                      │
│21    January:     133      -22      133                            │
│22   February:     322      354      432                            │
│23      March:     -77       57      655                            │
│24      April:     576      687      766                            │
└────────────────────────────────────────────────────────────────────┘
                                                              433.4-9
```

Day-Month-
Year

Displays dates in the following format:

```
┌fmtdl - Spreadsheet
│a1  @TODAY                                                  READY
│
│        a          b        c        d        e        f        g
│1   21-MAY-87
│2
```
433.4-10

Day-Month

Displays dates in the format shown below:

```
┌accts - Spreadsheet
│a1  @TODAY                                                  READY
│
│        a          b        c        d        e        f        g
│1   22-MAY
│2
```
433 4-11

Month-Year

Displays dates in the following format:

```
┌accts - Spreadsheet
│a1  @TODAY                                                  READY
│
│        a          b        c        d        e        f        g
│1   22-MAY
│2
│3   Date Due    Account Name
│4   04-NOV      Smith & Co.
│5   12-DEC      A.R. Trucking
│6   02-JAN      Perfect Pools
│7   25-JAN      Sam's Kitchen
│8
│9
│10
│11
│12
│13
│14
│15
```
433.4-12

```
GO TO  RECALC  EDIT   NAME   ALT   END   ABS   WINDOW
```

NOTE: The date formats show the day and month as three characters each. If the year is under 2000, it is shown as two numbers (87); if the year is over 2000, it is shown as four numbers (2525).

Decimal places. Determines the number of decimal places, from 0 to 15.

Label-Prefix. Determines the default label-prefix character used for labels.

Left (initial setting)	Aligns labels at the left edge of cells.
Center	Centers labels in cells.
Right	Aligns labels at the right edge of cells.

Column Width. Determines the width of worksheet cells, from 1 to 72 characters. The initial setting is 9 characters.

Blank Format. Determines what the **Range Erase** command (**/re**) erases.

Yes (initial setting)	Sets the **Range Erase** command to erase the format, protection settings, and label-prefixes for a specified range.
No	Sets the **Range Erase** command to erase only cell contents, and none of the previously mentioned settings.

Align Columns. Determines whether a single space to the right of each column is reserved or is available for display.

No (initial setting)	Specifies that all spaces in the cell are available.
Yes	Saves a single space, to the right of each column, that cannot be used for numbers or other characters. The spreadsheet is more readable when the columns are aligned like this: negative, positive, and parenthesized numbers all line up.

Copy values only. Determines what information the **Copy** command copies.

No (initial setting)	Specifies that the **Copy** command copies everything, including formulas.
Yes	Specifies that the **Copy** command copies everything but formulas.

Setting Spreadsheet Preferences

To change any of the Spreadsheet Preferences:

1. From the Desktop Manager, press **F1** (Toolkit) to display the *Toolkit* menu.

2. Move the cursor to *Preferences,* and press **Enter** to display the *Preferences* menu.

3, Move the cursor to *Spreadsheet,* and press **Enter** to display the *Spreadsheet Preferences* form.

4. Move the cursor to the field you want to change, and select or type the new setting.

5. Repeat step 4 for each setting you want to change.

6. After changing all the settings you want to change, press **Enter**.