

# TIMeworks

For  
COMMODORE  
**128**  
COMPUTERS  
80 COLUMN

# SwiftCalc with Super Graphics

# 128 TM

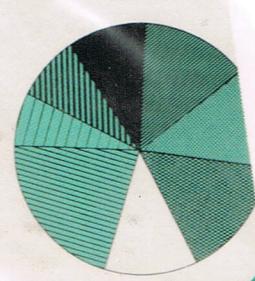
A powerful, easy-to-use electronic spreadsheet designed especially for home and small business use.

With **SIDEWAYS™**  
Prints Your Spreadsheets Sideways

January 1998

BUDGET	Budget	Actual
Categories		
<b>INCOME:</b>		
Salary	1675.00	1866.00
Dividends	125.00	97.00
Total Income	1800.00	191.00
<b>EXPENSES:</b>		
Mortgage Payment	1675.00	-27.00
Electricity, Gas	97.00	111.0
Car Payment	125.00	22.8
Groceries	111.00	102.4
Car/Transport	19.00	28.5
Maintenance	86.00	
Medical/Dental	7.00	
Clothing	19.00	

..... PLANT PRODUCTION 1985 (MILLIONS) .....



This Program Will INTERFACE With  
Word Writer 128 and Data Manager 128

**MONEY BACK GUARANTEE**  
Details on back



**TIMeworks**<sup>®</sup>

**User's Manual**

# *SwiftCalc* **128**<sup>TM</sup>

With **SIDEWAYS**<sup>TM</sup>

For **COMMODORE 128 Computers\*** (80-Column, 128K)

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## Customer Technical Support Plan

**Timeworks'** Telephone Consulting Service is available to all Registered users at no charge to support your installation and ongoing operations.

To become eligible for this service, you must complete and return the enclosed Software Registration Card.

The answers to almost all of your questions can be found in your manual. To save you time, please read it thoroughly before calling our Help Line. If your question concerns your hardware, contact your computer, disk drive, or printer manufacturer first. If your question concerns the program, we will be happy to receive your call at one of the following numbers during normal business hours.

Help Line: 0628-74678

---

NOTE: Please read the Pre-Call Checklist, which you will find in Chapter 8 of this manual, before calling our Help Line.

---

If you enjoy this program, try these other, equally stimulating programs from **Timeworks (U.K.) Ltd.:**

<b>Cat. No.</b>	<b>Program</b>
Home Management	
7351UK	<b>Data Manager 128</b>
7352UK	<b>Word Writer 128</b>
7354UK	<b>Swiftcalc 128</b>
7360UK	<b>Sideways 128</b>

**TIMEWORKS**<sup>®</sup>

**User's Manual**

# *SwiftCalc* **128**<sup>TM</sup>

With **SIDEWAYS**<sup>TM</sup>

For COMMODORE 128 Computers\* (80-Column, 128K)



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- What is a Spreadsheet and What Can it Do For You?
- How Does SWIFTCALC 128 Differ from Other Spreadsheets?
- Alphabetical Glossary of Terms

The power of SWIFTCALC 128 lies in its ability to apply mathematical functions and algebraic formulae to any spreadsheet-type analysis, such as budgeting, financial planning, or cost estimating. Because SWIFTCALC automatically calculates these formulae for you, you can produce complicated “what if?” reports at the press of a key and make further modifications quickly and effortlessly.

#### At a Glance:

- \*SWIFTCALC can be used by itself (stand alone) or interfaced with Timeworks' DATA MANAGER 128 and WORD WRITER 128 software programs. Enables you to produce customized reports incorporating information generated from all three systems.
  - \*SIDEWAYS, a unique option that permits printing all of your columns on one continuous sheet by rotating your spreadsheet 90 degrees before printing it.
  - \*250 rows and 250 columns provide more than 62,500 cells (locations in the spreadsheet) in which to place information.
  - \*Performs mathematical functions up to 17 digits. Allows the use of minimum and maximum values, averages, sums, integers, absolute values, and exponential notation. Also performs trigonometric functions such as sine, cosine, tangent, and arctangent and logarithmic functions such as natural exponent and logarithm.
  - \*Calculates the present and future value of a pound and the present and future value of a constant amount (annuity).
  - \*Produces bar charts, pie charts, scatter plots, and line plots from your numerical data, allowing you to compare values graphically.
  - \*Help screens. These scrolling displays list all of SWIFTCALC's available functions. No need to refer to your user's manual each time you want to apply a mathematical function.
-

## 1: Introduction

---

\*Sorts your spreadsheet information by row or column into ascending or descending order.

\*Financial models illustrate budgeting, trip planning, and financial analysis. Sample spreadsheets help you become familiar with SWIFTCALC and the program commands.

\*Full Prompting. You will be guided through this program by thoughtful, easily understood instructions from your screen, complemented by a manual written in easy-to-understand English.

### ■ Using SWIFTCALC 128 alone:

Move/Copy                      Moves or copies cell information to other cells within your spreadsheet.

Search & Replace              Locates information within your spreadsheet and automatically replaces data – at your direction.

Insert or Delete                Inserts or deletes rows or columns – at the press of a key.

Formatting                      Choice of three formats: decimal (up to 9 places); graphics; or exponential notation.

Horizontal and Vertical Scrolling      Moves your spreadsheet in any direction, allowing you to view any section of the spreadsheet you desire.

Automatic Cursor              Moves the cursor automatically in any direction you specify after each data entry.

Disk Cataloguing	Displays the file names (titles) of documents stored on your data disk – at the press of a key.
Reset	Allows you to clear and start a new spreadsheet – at the press of a key.
Colour Control	Choose your own colours for your SWIFTCALC display, for maximum eye comfort.

## ■ When interfaced with Timeworks' DATA MANAGER 128 or WORD WRITER 128:

SWIFTCALC transfers information from your DATA MANAGER (data base) program directly into spreadsheets produced with SWIFTCALC. It also incorporates spreadsheets produced by SWIFTCALC directly into documents created with the WORD WRITER.

## ■ What is a Spreadsheet and What Can it Do For You?

A spreadsheet is an “electronic worksheet” located in the computer’s memory. The worksheet is made up of rows and columns, and each point where a row and column intersect is called a cell. Each cell is labelled by a letter designating its column and a number designating its row. The following is an illustration of the SWIFTCALC display. This will give you an idea of how the spreadsheet will appear on your screen.

	a	b	c	d	e	f	g	h
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

a1 (B)

CALC

Fig. 1

Because the spreadsheet is so large by comparison with the computer display, you must look at it in sections. The screen, then, becomes a window into your spreadsheet. By moving the cursor throughout the spreadsheet, you can view different sections of the spreadsheet on your display.

Each cell may contain text, numbers, or formulae. You determine what type of information each cell will hold. Text can be used as labels, or titles, for columns or rows in your spreadsheet. The numbers you enter into your spreadsheet are called values. You can change a cell's format, or the number of decimal places, to fit any size value you wish to enter. Most important, you can use algebraic formulae capable of performing a variety of mathematical functions to create specific mathematical relationships between cells. For example, you can multiply the number in one cell by the number in another cell, and place the product in a third cell. If you change the number in one of the first two cells in that formula, the electronic spreadsheet will automatically recalculate the formula for you.

What can a spreadsheet do for you?

Obviously, a spreadsheet can eliminate your need for a calculator, fully computerizing all of your calculations, especially the repetitive ones. But a spreadsheet has an even greater advantage over a calculator: it allows you to perform complicated "what if" comparisons – like financial analyses and building cost estimates – effortlessly. After you construct your spreadsheet the first time and obtain your results, all you need to do is enter new values and the computer will automatically recalculate all of your formulae, performing a task in seconds that might have taken you hours or even days.

Now on to the world of computerized spreadsheets.

## ■ How Does SWIFTCALC 128 Differ From Other Spreadsheets?

SWIFTCALC 128 differs from other spreadsheets in three major ways. First, SWIFTCALC features help screens that make all of the commands available to you at the press of a key. You will enjoy the speed with which you will be able to operate SWIFTCALC.

Second, SWIFTCALC may also be used as a stand-alone spreadsheet, or it can be interfaced with Timeworks' DATA MANAGER 128 (data base system) and WORD WRITER 128 (word processor) into a fully integrated productivity program. This interfacing allows you to share and utilize information between these three computer programs. You will only need to enter your information into the computer once.

For example, let's say you are using DATA MANAGER to keep track of sales in your company. Your data base includes the sales figures for all your salespeople. You want to do an analysis of these sales figures for an annual report you are writing. Simply transfer your sales information from DATA MANAGER 128 to SWIFTCALC, perform the analysis you want, and then merge those results right into the document you create with WORD WRITER.

Most important, SWIFTCALC features SIDEWAYS, a unique option that allows you to print an entire spreadsheet vertically on the same page at the same time. With most spreadsheet programs, wider spreadsheets are printed several columns at a time on separate pages. Not so with SWIFTCALC. Print as wide a spreadsheet as you like, with complete control over margins, spacing, and type sizes. Your finished product will have a professional look that other spreadsheets lack.

## ■ Alphabetical Glossary of Terms

<b>ANNUITY:</b>	An amount of money paid to an investor at regular intervals over a period of time, starting at some date in the future.
<b>AVERAGE:</b>	The mean of a given number of values, calculated by adding those values and dividing the sum by the number of values.
<b>BACKUP:</b>	A duplicate set of data to be used in case the original is lost, destroyed, or accidentally altered.
<b>BYTE:</b>	In computer language, the name given to eight bits of information. For our purposes, one byte = 1 character.
<b>CHARACTER:</b>	
Numeric:	0 to 9
Alphabetic:	A to Z
Symbol:	! - # \$ % ' * + / = ? ( )
Alphanumeric:	Any combination of numeric and alphabetic characters or symbols.
<b>COMMAND:</b>	An instruction for the computer to follow.

CURSOR:	The computer-generated square that pinpoints your position on the display.
DATA:	The information you enter to be processed.
DATA BASE:	A collection of data.
DATA DISK:	The disk created to store your information.
DD/MM/YY:	The calendar date, DAY/MONTH/YEAR. EX: 05/03/88 for 5 March 1988.
DELETE:	To remove from the file.
EXPONENTIATION:	A mathematical operation in which numbers written above other numbers indicate multiplication, or “raising to a power.”
FIELD:	A number of characters that represents one specific piece of data. Ex: Description.
FORMAT:	A predetermined arrangement of characters, fields, lines, punctuation, and page numbers.
FUNCTION KEY:	The special set of keys on your computer identified as <b>F1</b> , <b>F2</b> , <b>F3</b> , etc.
INITIALIZATION:	To create a file the first time.

INTERFACE:	A connection between two systems or devices.
LABEL:	Characters or words entered into the spreadsheet as row or column titles.
LAST SEARCH:	The most recent search performed.
PROGRAM DISK:	The disk you purchased containing the SWIFTCALC program.
PROMPT:	The line of words, located at the very bottom of your screen, that requests your response. Ex: ENTER FILE NAME?.
RANGE:	A column, row, or block of cells in the spreadsheet.
SCIENTIFIC NOTATION:	A way of writing large numbers as fractions and multiples, or powers, of 10.
SEARCH:	A systematic examination of information in a specific field of interest.
SEARCH ITEM:	A group of characters within any given field that the computer will search for.
SPREADSHEET:	A worksheet for numerical data usually used for accounting and financial calculations.

**SUM:** The total of values added together.

**VALUE:** A number entered into the spreadsheet.

- Loading SWIFTCALC 128
- The SWIFTCALC Display
  - Changing the Display Colours
  - Pull-Down Menus
  - The Spreadsheet Window
  - The Status and Prompt Areas
- Important Keys on Your Keyboard
- Entering Information into SWIFTCALC
  - Entering Labels
  - Entering Values
  - Entering Formulae
- The Help Windows

## **2** **Let's Get Started**

## ■ Loading SWIFTCALC 128

---

NOTE: Before you begin using SWIFTCALC, you must format a few 5¼" floppy disks and label them as data disks. You can use the "DOS Commands" option on the DISK COMMANDS menu for this task.

---

1. Turn on your disk drive.
2. Place your SWIFTCALC program disk in the disk drive. (If you are using a dual drive, place the disk in drive 0.)
3. Press the **40/80 DISPLAY** key at the top of your keyboard so that it is in the down position. Then turn on your computer and monitor. The program will load into your computer.

---

NOTE: You must use an 80-column monitor with this program. This monitor must be connected to the RGBI socket on the back of your computer. Consult your computer and monitor manuals for instructions.

---

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A NOTE ON COPY PROTECTION: The SWIFTCALC program disks are all copy protected, so you will not be able to make backup copies. (Backup copies are available from Timeworks for a nominal fee.) The program disk you have is duplicated on the finest quality 5¼" floppy disk available. It should stand up to many years of intensive use. If a TIMEWORKS program disk fails to load, send the disk to us and we will promptly replace it.

---

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**NOTE – MAKING BACKUP DATA DISKS:** To guard against the loss of important information, you should always make “backup” copies of data stored on disk. It is also a good idea to store your information on disk at least every ½ hour while you are working.

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**NOTE:** Make sure that you take a look at the file called **UPDATE** on your disk. This file contains any modifications that do not appear in the manual. Use the instructions in Chapter 4 to load this file into the computer.

---

## ■ **The SWIFTCALC Display**

When the program is loaded into the computer, a framework of rows and columns will appear on your display. Your display will look like this:

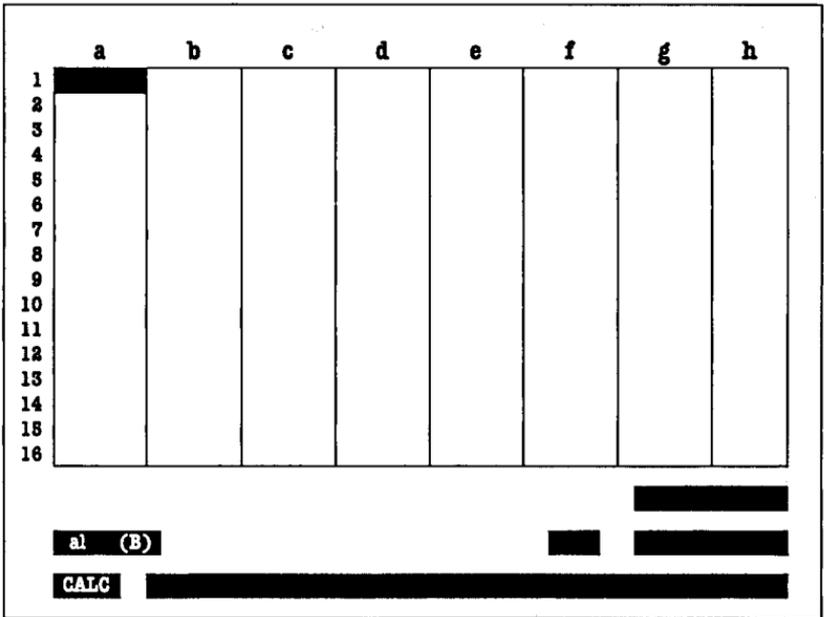


Fig. 2

---

**NOTE: TO CHANGE YOUR DISPLAY COLOURS:** You can select a colour for the background of your display by pressing **CTRL B** until you see a colour you like. To change the character colour, press **CTRL C**.

---

There are three main areas on the SWIFTCALC display:

### The Pull-Down Menus

SWIFTCALC features pull-down menus to help you use this program as easily and as quickly as possible. Use the **ESC** key to recall the menu headings, which appear at the top of your screen. Your screen will look like this:

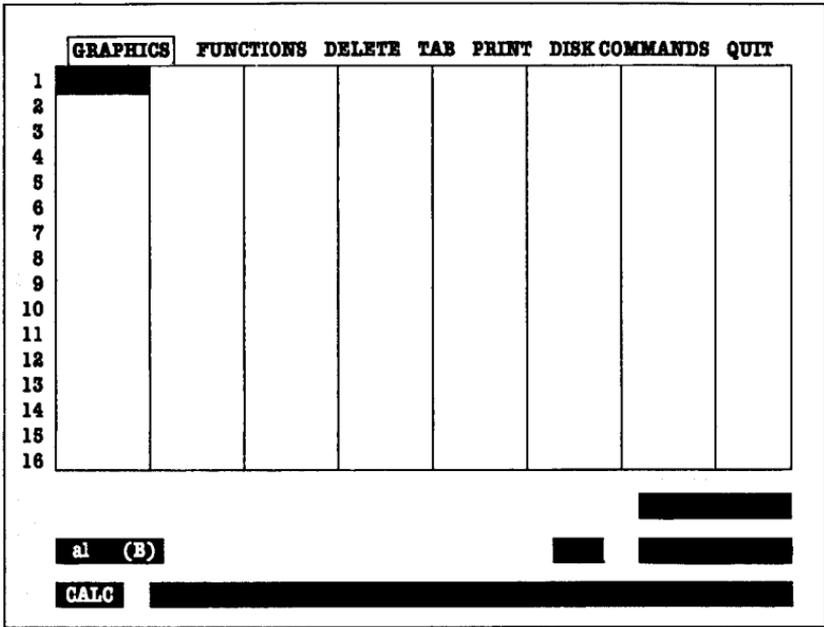


Fig. 3

Then use the right and left cursor keys to select the menu heading you want. When the heading you want is highlighted, press **RETURN**, and the menu for that heading will pull down. Use the up and down cursor keys to select the menu option you want, and press **RETURN** again to execute that option.

If you change your mind about using a menu or menu option after you select it, press **Esc** and you will be able to select another menu heading.

To recall the menu item you just used, press the **⌘** and **F1** keys. For example, if you use the "Copy" menu item to copy information from one cell to another, you can use the "Copy" option again, without having to call up the menu headings, by pressing **⌘ F1**. The computer will then prompt you for whatever information it needs to execute the option.

## The Spreadsheet Window

The largest part of the SWIFTCALC display is the spreadsheet window, which contains the rows and columns that make up the spreadsheet. Located across the top of this window, you will see eight column headings labelled a to h. Down the left side of the display, you will see 16 numbered rows. The points in the spreadsheet where each row and column meet are called "cells". Each cell is labelled with a letter and number. The letter represents the column where the cell is located. The number represents the row where the cell is located. The following illustration shows you the spreadsheet window:

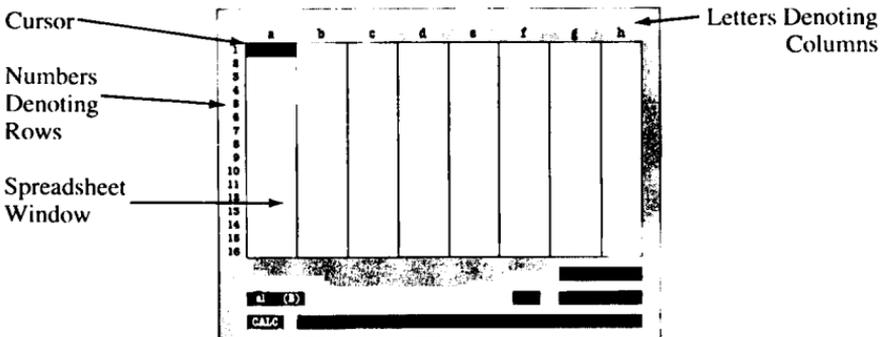


Fig. 4

### Example:

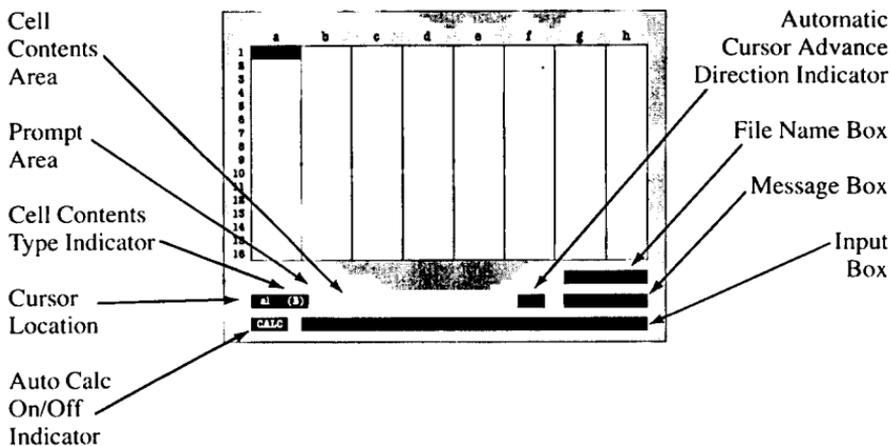
The cell located in column a on row 1 is called cell "a1".

The window on your screen is only a part of a larger spreadsheet which has 250 columns labelled from a to ip, and 250 rows numbered from 1 to 250. The first 26 columns are labelled from a to z, the next 26 columns are labelled aa to az, the next 26 are labelled ba to bz, and so on.

Press the right cursor key (→) and the cursor will move toward the right edge of the display. Continue pressing the key. You will notice that the letters at the top of your display, which denote columns, are changing. The cursor is moving, or scrolling, through the spreadsheet. The same will happen if you press the down cursor key (↓). Notice that the numbers denoting rows change as you move the cursor down the spreadsheet. Press the **CLR/HOME** key to move the cursor back to cell a1.

### **The Status and Prompt Areas**

The area below the spreadsheet window is very important. This is where you will enter your spreadsheet information, and this is where you will find other important information during your operation of SWIFTCALC. The boxes in this area are grouped under the name "the status area," while the area surrounding these boxes is known as "the prompt area".



(Fig. 5)

Let's start at the upper left of this area:

First you will see a box containing the characters a1. "a1" denotes the current location of the cursor in the spreadsheet. In the line above this box is the PROMPT area. This area is especially important because this is where you will see the program prompts, which are questions you need to answer to work with SWIFTCALC. Refer to this area often.

The letter in brackets to the right of the "a1" is the cell contents type indicator. This letter tells you what type of information is in the cell that currently contains the cursor. A "B" stands for Blank, an "L" stands for Label, a "V" for Value, and an "F" for Formula. (For more information on these last three elements, see "Entering Information into SWIFTCALC" later in this chapter.)

The area to the immediate right of this letter is the CELL CONTENTS area. In this area you will see the contents of the cell in which the cursor is currently located. For example, if the cursor were in cell a1, and a1 contained a formula, the CELL CONTENTS area would display that formula.

Beneath the cursor location (the box containing the cell address a1), you will see the word "CALC" in a box. This tells you that SWIFTCALC's "Automatic Calculation" feature is on. If this feature is operational, every time you enter a new value into the spreadsheet, the computer will recalculate all of the formulae that are affected by that new value. (For more information on "Automatic Calculation", see Chapter 3.)

Next to the box containing "CALC" is a long box called the INPUT box. This is where you must enter all of your information into the spreadsheet. After you have entered your information in the cell where the cursor is currently located and pressed **RETURN**, your entry will appear in that cell.

At the top right hand corner of this bottom section of your screen is the FILE NAME box. Your file name is the name that you assign to the spreadsheet that is currently in the computer's memory. (See Chapter 4 for instructions on naming your spreadsheet file.)

Under the FILE NAME box is the MESSAGE box. The MESSAGE box will keep you informed about the operation of the program. Different messages you may see are LOADING, when you are loading a file, SAVING, when you are saving a file, or WAIT, when the computer is executing a command or menu option. You will also see the words LABEL, VALUE, or FORMULA in this box whenever you enter one of these types of information into the spreadsheet.

To the left of the MESSAGE box is a small box. When you are using the Automatic Cursor Advance option, this box will display one of four directions: Right, Left, Up, or Down. These represent the direction you have chosen for the computer to move the cursor automatically through the spreadsheet. (For more information on this feature, see Chapter 3.)

## ■ Important Keys on Your Keyboard

There are several keys on your keyboard that are instrumental in operating this program. Listed below are these keys and their functions:

---

NOTE: Any time you need a quick review of a command, you have several options. You can call up the Help windows onto your display which list the commands and functions (see the end of this chapter for more on the Help windows), or you can consult the reference guide in Chapter 9 of this manual. You should find the information you are looking for in any of these reference tools.

---

1. Cursor keys  $\uparrow \downarrow \leftarrow \rightarrow$ : Use these keys (marked by arrows on your keyboard) to move the cursor around the spreadsheet and to select options on the pull-down menus and windows. You can also press a cursor key to tell the computer that you have finished with that cell and want to move on to the next cell.
  2. **RETURN**: Use this key to tell the computer that you have finished typing an entry into the computer. You will also use this key to make selections in pull-down menus and windows.
  3. **SHIFT**: Use this key to enter upper-case letters and special characters into the computer.
-

4. **F3**: Use this key to access several of the function key commands. See Chapter 3 for more information on these commands.
5. **Esc**: Use this key to call up the pull-down menu headings on your display. You can also use the **Esc** key to exit from a command if you change your mind about using that command. Instructions in the prompt line will tell you if the **Esc** key is operational when you select a particular command.
6. **CLR/HOME**: Press this key to return the cursor to cell a1 in your spreadsheet.
7. **SHIFT CLR/HOME**: Press this key to move the cursor to the the cell containing information which is the farthest down and the furthest to the right in your spreadsheet.
8. **C CLR/HOME**: Press these keys to move the cursor to the top left hand corner of your display.

---

NOTE: The function keys on your keyboard (those labelled **F1** to **F8**) have special purposes in this program. They are discussed in Chapter 3, "SWIFTCALC 128 Commands".

---

## ■ Entering Information into SWIFTCALC

Three types of information can be entered into your spreadsheet: labels (titles), values, or formulae.

A label is a title that you give to a column or row.

A value is a number that you enter into the spreadsheet. Values are often used by the computer to perform calculations.

A formula is simply a mathematical sentence telling the computer which mathematical operations to perform. A formula can include values from the spreadsheet or cell addresses indicating values to be used, or a formula can include values that are not used in the spreadsheet. When the value in one cell is changed, all formulae containing that value will be recalculated automatically using the new value. Next we will look at entering these different types of information into the spreadsheet.

## Entering Labels

To enter a label, move the cursor to the desired cell in the spreadsheet. Type a letter between a and z, or press the **SPACE BAR**. The word "Label" will appear in the MESSAGE box. Then enter the word or phrase that will help you identify that cell and press **RETURN**. What you have entered will appear in the CELL CONTENTS area. An "L" will appear in the brackets, indicating that you have entered a label.

Notice that as soon as you press an alphabetic key (any key that is not a number or symbol) the computer assumes that you are entering a label. To enter a number or other numeric-type character as a label, press the inverted commas **'** (**SHIFT 2**) key first to indicate that you want to enter a label.

Example:

Use the cursor keys to move the cursor to cell c1. Now press the inverted commas **'** (**SHIFT 2**) key and enter the label 2ND QUAR SALES. Press **RETURN**. An "L" will appear in the brackets at the bottom of the display, indicating that you have entered a label. The CELL CONTENTS area and the cell in the spreadsheet will show the label 2ND QUAR SALES.

### Entering Values

To enter a value, move the cursor to the desired cell in the spreadsheet. Type in a number and press **RETURN**. (If the number is negative, enter a minus [-] sign first.) The word "Value" will appear in the MESSAGE box after you have entered the first digit. You can type in up to 17 characters. (This is the number of digits that the computer will calculate.) If you have formatted your cell in a special way, the computer should display your value in the format you have designated (see page 60 for information on special cell formats). The cell will widen automatically (up to 20 characters wide) to hold your complete value.

There are exceptions to this process. For example, if you have formatted your cells to display each value with 3 decimal places and a pound sign, you have automatically added 4 characters to each value you enter in those formatted cells. If you enter a value that is 17 characters long, the computer will try to display your entire value in your chosen format, a total of 21 characters. But the cells can only be widened to 20 characters, so the computer will not be able to display your value in the cell. Instead you will see a row of # symbols in that cell, and the complete unformatted number will appear in the CELL CONTENTS area.

---

**NOTE:** If you enter a number into a cell that is either very small or very large in magnitude (say .000000000002 or 9,999,999,999,999,999), the computer may display this number in scientific, or exponential, notation in the CELL CONTENTS area. (This is a way to write large or tiny numbers in an abbreviated form.) The cell that contains this value will display a row of # signs, but you can format the cell to display the value in scientific notation. See the following section on scientific notation or see Chapter 4 for information on the "Format" menu option.

---

Try entering a value into your spreadsheet using the following example:

Using the cursor keys, move the cursor to cell c2. Type in the number 12000000 and press **RETURN**. A “V” will appear in the brackets at the bottom of the display, indicating that you have entered a value.

### **Scientific Notation**

---

**NOTE:** Scientific notation is a form of shorthand for writing large numbers. To find out more about scientific notation, consult a mathematics book.

---

When entering a number using scientific notation, always use the following format.

Correct	Incorrect
6.34e + 05	6.34e5
3.223e - 09	3.223e - 9

Do not enter blank spaces before or after the (e). Always enter a zero in front of single digits. (To view the complete values produced by the above examples, widen your spreadsheet cells to 20 characters and format the cells for 9 decimal places. If the values are longer than 20 characters, the computer cannot display them in the spreadsheet. See Chapter 4 for information on cell width and formats.)

### **Entering Formulae**

The real power of an electronic spreadsheet lies in its ability to compute a formula located in one cell, based on values which are located in one or more other cells.

### Example:

If you want cell d3 to hold the sum of the values in cells d1 and d2, you would enter a mathematical formula in cell d3 telling the computer to add the values in d1 and d2. The sum would then appear in cell d3.

To enter the formula for the above example, enter the value 2 in cell d1 and the value 4 in cell d2. Then place the cursor in cell d3 and press the **=** key. (Disregard the prompt on your screen for just a moment.) The word "Formula" will appear in the MESSAGE box, signifying that you are about to enter a formula. Now enter

d1 + d2

Your display will look like this:

	a	b	c	d	e	f	g	h
1				2.00				
2				4.00				
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

<F2> Edit Cell, <F7> Browse, <Help> Help

d3 (B) Formula

CALC d1 + d2

Fig. 6

Now, press **RETURN** or a cursor key. The letter "F" will appear next to the cell address (d3) at the bottom left corner of your display. The following illustration shows the formula in the CELL CONTENTS area and the result in cell d3.

	a	b	c	d	e	f	g	h
1				2.00				
2				4.00				
3				6.00				
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

**d3 (F) d1 + d2**

**CALC**

Fig. 7

In the example above, cell addresses such as d1 and d2 are used to tell the computer that you want to use the values in those cells in your formula. But you can also use values that are not currently in your spreadsheet. For example, the formula  $d1 + 6$  uses a cell address (d1) and a value not currently in the spreadsheet (6) in a formula in the spreadsheet.

Your formulae can be up to 240 characters long. They can use addition (+), subtraction (-), multiplication (\*), division (/), exponentiation ( $\uparrow$ ), or any combination of these. You can use these five operations in formulae you enter into your spreadsheet.

---

NOTE: You can't use the address of the cell that contains your formula in the formula itself. For example, if you are entering a formula in cell c3, you can't use the cell address c3 in that formula. If you do so, an error message will appear on your screen, and you will have to re-enter the formula.

---

---

NOTE: If the "Automatic Calculation" feature is turned off when you enter a formula, the computer will only display a 0 in the cell where you entered the formula. You must then press **F5** to calculate your formula using the "Execute Calculations" command. After you use this command, the result of your formula will appear in your spreadsheet. To learn more about "Automatic Calculation" and "Execute Calculations", see Chapter 3.

---

## **Rules for Entering Formulae**

Follow these rules when entering your formulae:

1. The computer will always calculate the operations in your formula in a specific order: exponential ( $\uparrow$ ) operations first, division ( $/$ ) and multiplication ( $*$ ) second, and addition ( $+$ ) and subtraction ( $-$ ) last. Formulae with a series of additions and subtractions or a series of multiplications and divisions would be solved from left to right.

### Examples:

For the formula  $2 * 3 \uparrow 2 + 4$ , the computer would first compute the exponential operation,  $3 \uparrow 2$ . (The **↑** key is next to the **RESTORE** key on the right side of your keyboard.) The arrow symbol denotes an exponential calculation, which is also known as “raising to a power.”  $3 \uparrow 2$  means “3 times 3” or “3 to the second power.” (For more information on exponents, see Chapter 5.) The answer to this part of the equation is 9. Then the computer will perform the multiplication operation, multiplying 9 by 2 for an answer of 18. Lastly, it would add 4 to that answer. The result of the entire equation is 22.

For the formula  $2 + 3 * 2 + 2$ , the computer would calculate  $3 * 2$  first (6), and then add 2 and 2 to that product, giving you a final answer of 10.

For the formula  $2 + 3 + 5 + 4/2$ , the computer would perform the division problem ( $4/2$ ) first, and then add that answer, 2, to the other numbers in the formula, giving you a final answer of 12.

2. You may use brackets in your formula to designate operations that you want the computer to perform first. Be sure that you use a pair, and not a single bracket. If your brackets are not in pairs, your formula will not be accepted by the computer. Listed below are some examples of formulae using brackets:

$$(2 + 3) * (2 + 2) = 20$$

$$(4/2) + (5 * 4) / 2 = 12$$

Example:

Enter the following values into cells in your spreadsheet.  
Your spreadsheet will look like this.

	a	b	c	d	e	f	g	h
1								
2	2.34	5.67						
3	3.45	6.78						
4	4.56	7.89						
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

Fig. 8

Now move the cursor to cell a5 to enter a formula. If you want the value in cell a5 to equal the sum of the values in a2, a3, and a4, press the **=** key, and then enter  $a2 + a3 + a4$  in the INPUT box at the bottom of your screen. Then press **RETURN**. The number 10.35 will appear in cell a5. Notice that only the result of the formula is placed in the cell, but the complete formula is shown in the CELL CONTENTS area.

Now move the cursor to cell b5 and press the **Enter** key. Then enter the formula  $(b2 + b3 + b4)*2$ , and press **RETURN**. The result, 40.68, will appear in cell b5. Notice how the brackets determined the order of mathematical operations that the computer performed. If the brackets were left out, the formula would look like this:

$$b2 + b3 + b4*2$$

Given this formula, the computer would compute the multiplication operation  $(b4*2)$  first, finding a product of 15.78. Then it would add the values from cells b2 (5.67) and b3 (6.78) to that product. The result of the entire calculation would be 28.23.

3. When entering a negative cell notation in a formula, you must put the negative cell in brackets. For example, to add 5 to the negative of the value in cell a32, enter this formula:

$$5 + (-a32)$$

When entering a negative number in a formula, you must put the negative number in brackets. For example, to add 5 to negative 2, enter this formula:

$$5 + (-2)$$

---

**NOTE:** SWIFTCALC works best for you when your spreadsheet contains no forward references. A forward reference is a formula that uses a value in a cell below or to the right of the original formula.

For example, if the formula in cell a5 of your spreadsheet uses a value in cell c8, your spreadsheet contains a forward reference. The computer calculates from left to right in one row before moving down to the next row, so it would first compute the formula in cell a5 using the current value in cell c8. Remember, however, that the formula in cell c8 has not yet been updated, so cell a5 would be calculated using whatever value cell c8 currently holds. Next, the computer would calculate the formula in c8, and a new value would appear in that cell. The computer would then have to make a second pass through the spreadsheet and recompute the formula in cell a5 with the new value in cell c8.

For each forward reference in your spreadsheet, the computer must make an extra pass to recompute your formulae. For maximum speed and efficiency, limit the forward references in your spreadsheets.

---

## **The Special Function Keys for Formula Entry**

When you first pressed the **⏏** key before entering your formula, you saw the prompt

<F2> Edit Cell <F7> Browse <HELP> Help

The **F2**, **F7**, and **HELP** keys have special purposes for formula entry. Let's take a look at each of these keys and how they can make formula entry easier for you.

### 1. **F2**: Edit Cell

To make changes in a formula, press **F2** (**SHIFT F1**) to move into the Edit mode. Several keys will become available to you for editing your formula. First, you can use the right and left cursor keys to move the cursor through your formula.

You can also use the **INST/DEL** key to edit your formulae. To insert a space or character in your formula, move the cursor to the place where you want to insert something and press the **SHIFT INST/DEL** keys until there is enough space or enough room for your new character(s). To delete a space or character in your formula, move the cursor to the space or character you want to delete, and press the **INST/DEL** key. The space or character that is currently under the cursor will be erased and all characters to the right of the cursor will move to the left one space.

### 2. **F7**: The Browse Mode

If you want to view a section of your spreadsheet as you enter your formula, press **F7**. You can then move the cursor to the cell you want to view. Place the cursor in that cell, press **RETURN** or press **F7** again, and that cell's address will appear in your formula in the INPUT box. If you don't want to enter a cell address in your formula, just press **Esc** to continue entering your formula.

When you press **RETURN**, **F7**, or **Esc**, the computer will exit the browse mode and return to the formula entry mode. When you finish entering your formula, the cursor will return to its original location (the cell where you began entering your formula).

### 3. **HELP**: The Formula Help Window

To review the mathematical signs and functions that you can use in SWIFTCALC, press the **HELP** key. A Help window will appear on your screen. Use the up and down cursor keys to scroll this window. When you find the information you need, press **Esc** to continue entering your formula.

---

**NOTE:** SWIFTCALC offers you a number of mathematical functions to use for your formulae. Chapter 5 discusses those functions in detail. When you have learned about all of SWIFTCALC's functions, take time to construct the sample spreadsheets in Chapter 6. These will give you some practice in working with the spreadsheet.

---

## ■ The Help Windows

To review SWIFTCALC's commands and mathematical functions, press the **HELP** key at the top of your keyboard. A window containing a list of SWIFTCALC's program commands will appear on your screen. It will look like the one below.

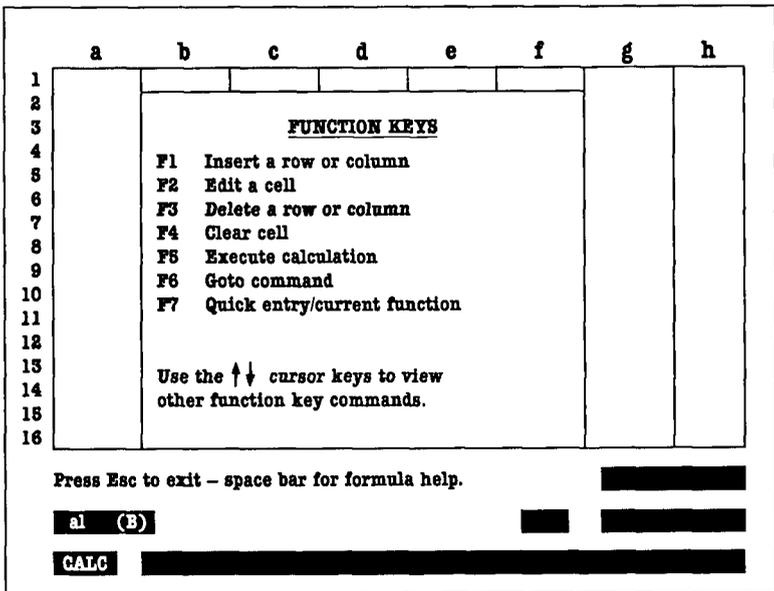


Fig. 9

Use the up and down cursor keys to scroll the window. You will find that it contains more information on commands. On this Help window, the word "CMDR" refers to the **C** Commodore key and "CTRL" stands for the Control key.

SWIFTCALC also includes a Help screen which contains information on the program's mathematical functions. To bypass the program command Help window and call up the mathematical function Help screen, press the **SPACE BAR**. You will see the following display:

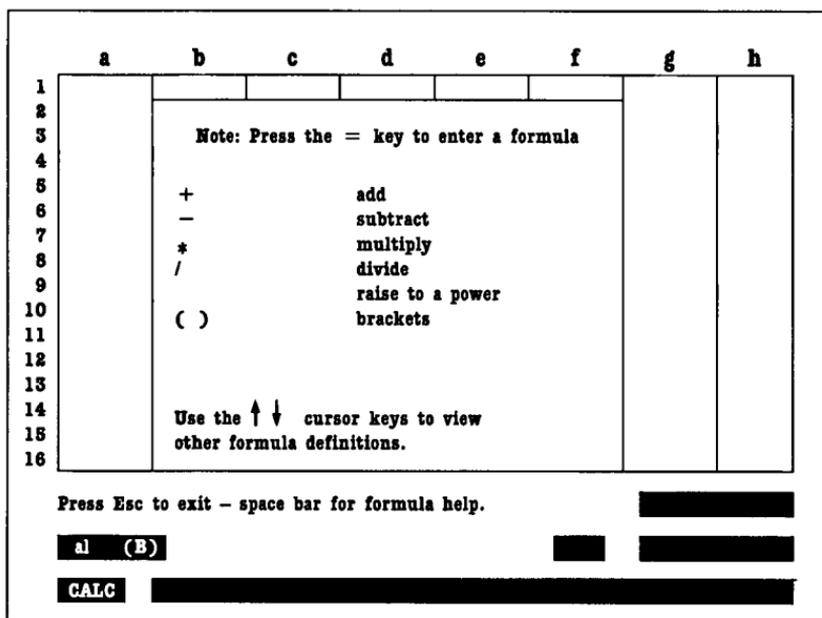


Fig. 10

To return to the program command Help screen, simply press the **SPACE BAR** again. Press **Esc** to return to the spreadsheet.

- Shifting Your Display
- Inserting a Row or Column
- Editing Cell Information
- Deleting a Row or Column
- Deleting Information in a Cell
- The “Automatic Calculation” Feature
- The “Executive Calculations” Feature
- The Goto Command
- The Quick Entry Key
- Freezing a Row or Column
- Calling Up the Previously Used Menu Item
- Locking or Unlocking a Cell
- The Automatic Cursor Advance Feature

### **3**

## **SWIFTCALC 12**

### **Commands**

Following is a discussion of each of SWIFTCALC 128's functions.

## ■ Shifting Your Display

Press **CTRL** and the left arrow key (←) to shift the entire SWIFTCALC window you are currently viewing to the left.

Press **CTRL** and the right arrow key (→) to shift the entire SWIFTCALC window to the right.

Press **CTRL** and the up arrow key (↑) to shift the entire SWIFTCALC window up.

Press **CTRL** and the down arrow key (↓) to shift the entire SWIFTCALC window down.

## ■ Inserting a Row or Column

To insert a new row or column into the spreadsheet, move the cursor to the location for the row or column. Then press **F1**. You will see the prompt ROW OR COLUMN? (R/C). To insert a row, press **R**. To insert a column, press **C**. The rest of your spreadsheet information will be shifted to allow room for the new row or column, and all of the formulae in your spreadsheet will be updated to reflect the change.

## ■ Editing Cell Information

To edit the contents of a cell, move the cursor to the cell that contains the information you want to edit. Then press **F2**. You can then use the **INST/DEL** key to erase characters, or press the **SHIFT** and **INST/DEL** keys to insert new spaces in the cell. Then you can enter new information in the cell. Press **RETURN** to tell the computer you have finished editing your cell information.

## ■ Deleting a Row or Column

To delete a row or column from your spreadsheet, move the cursor to the row or column you would like deleted, and press **F3**. You will see the prompt DELETE ROW OR COLUMN? (R/C). Press **F2** to delete a row or **F3** to delete a column. Your spreadsheet information will be adjusted after the deletion, and all of your formulae will be updated to reflect the change.

## ■ Deleting Information in a Cell

To delete information in a cell, move the cursor to that cell and press **F4**, and the contents of that cell will be erased.

## ■ The “Automatic Calculation” Feature

SWIFTCALC comes equipped with an “Automatic Calculation” feature. If you make any changes in the values in your spreadsheet, SWIFTCALC will automatically recalculate all of your corresponding formulae, giving you instant results for otherwise time-consuming “what-if” calculations.

At times you may want to turn off the “Automatic Calculation” feature. When you are using a large spreadsheet, it may take many seconds to recalculate the formulae in your spreadsheet. If you turn off the “Automatic Calculation” feature, you will be able to save time during data entry, because you won’t have to wait for the computer to recalculate your entire spreadsheet between entries.

To turn off the “Automatic Calculation” feature, press **F6** and **F5**. The word “CALC” will no longer be present in the lower left area of your screen. Now when you enter data, your spreadsheet will not be updated.

---

**NOTE:** If you turn off the “Automatic Calculation” feature and then change values in your spreadsheet, you must use the “Execute Calculations” command to update your formulae before turning on the “Automatic Calculation” feature again. See the following section for information on “Execute Calculations”.

---

To switch the “Automatic Calculation” feature back on, just press **C** and **F5** again. The word “CALC” will reappear in the lower left portion of your screen and the feature will once again be operational.

## ■ The “Execute Calculations” Feature

To update the calculations in your spreadsheet while the “Automatic Calculation” feature is turned off, use the “Execute Calculations” feature. This feature updates the calculations all at once, rather than after entry of each new value. Just press **F5**, and the computer will recalculate your spreadsheet.

---

**NOTE:** When you are using a large spreadsheet, it may take many seconds for the “Automatic Calculation” feature to recalculate your spreadsheet after you make a change. You may want to use the “Execute Calculations” feature instead.

---

## ■ The Goto Command

To move the cursor quickly across a large block of cells, use the Goto command. To execute the Goto command, press **F6**. You will then see the prompt GOTO? (a1...ip250). Type in the address of the cell to which you want to move, and press **RETURN**. The cursor will move immediately to the cell you indicated.

## ■ The Quick Entry Key

Often when you enter information into a spreadsheet, you will find the need to enter the names of successive months, days of the week, years, or a number of successive weeks. SWIFTCALC offers you a feature called "Quick Entry" to help you enter this information with a minimum of data errors. When you enter the name of the first month, year, or day of the week into the spreadsheet, SWIFTCALC will enter the other months, years, or weeks for you. All you have to do is press **F7** and move the cursor to the cells you want to fill with this information.

Let's say you need to enter information into your spreadsheet for each month of the year 1988. To enter the names of all the months, place the cursor in the cell which will contain the first month. Enter Jan. 88, and press **F7**. Then move the cursor to the right one cell. The words Feb. 88 will appear in that cell. Keep moving the cursor to the right one cell at a time, and the computer will fill each cell with a new month name. If after you enter Dec. 88, you decide to go on, SWIFTCALC will enter Jan. 89, and continue entering months for 1989. To turn off this feature, change the direction of the cursor. Instead of moving it to the right, move it down one cell.

The following is a list of some of the entries you can make with the Quick Entry key:

- \* Days of the week and their abbreviations
- \* Months of the year and their abbreviations
- \* Any series of numbers entered as a label, including those denoting years

\* Series of numbers with a selected word (such as Week 1, Week 2, Week 3, or Month 1, Month 2, Month 3)

You can use “quick entry” moving in any direction on your spreadsheet – up, down, right, or left. To turn off this feature, just change the direction of the cursor.

## ■ Freezing a Row or Column

As you read earlier, the SWIFTCALC screen scrolls as you move the cursor from cell to cell. For example, as you move the cursor down the spreadsheet, the first 16 rows disappear, one by one, as new rows appear at the bottom of the screen and scroll up. The same happens when you move the cursor to the right: the columns at the left disappear to make room for new columns on the right. This means that to view information in those rows or columns that have scrolled off-screen, you must move the cursor back to those locations.

You won't have to go to all that trouble if you use the “Freeze” feature. With this feature, accessed with the **F8** key, you can retain a row of information or a column of information (not both at once) on your screen while the rest of the screen scrolls. For example, let's say you want to keep all of the information in row 7 on your screen while you view the information below that row. To do this, just move the cursor to a cell in row 7, and press **F8**. You will see the prompt FREEZE ROW OR COLUMN? (R/C). Press **R** to freeze this row on your screen. A message telling you which row is frozen will appear in the prompt area.

Now try moving the cursor down from row 7 on your screen. You will notice that all of the rows under row 7 will scroll up, but row 7 and all rows above it will be frozen on your screen. You will also notice that you will be able to move the cursor freely through the frozen area, but you will not be able to scroll the screen to view anything above the frozen cells. Much the same thing happens when you freeze a column.

Turn off the “Freeze” feature by moving the cursor to the frozen row or column and pressing **F8** again. However, pressing **Esc**, deleting or inserting a row or column, using the Goto command, or using the Browse mode while entering a formula will turn off this feature automatically. In general, watch the prompt area for the message telling you which row or column is frozen. If that message disappears, you have just turned off this feature.

## ■ Calling Up the Previously Used Menu Item

To call up the most recently used menu item, press **C** and **F1**. This will save you time as you work with SWIFTCALC. For example, if you use the “Copy” menu item, and then return to entering information in the spreadsheet, you can call up the “Copy” menu item again by pressing **C F1**. (If you did not select a menu item before pressing these keys, the Help window will appear on your screen.)

## ■ Locking or Unlocking a Cell

Use this option to “lock” or “unlock” the contents of a cell. By locking a cell, you tell the computer that you want to protect the contents of that cell. Then you won’t change that cell’s contents by mistake. You may want to do this to a cell that contains an important formula that you don’t want to lose. You can always unlock the cell later if you change your mind.

To lock a cell, move the cursor to the cell you want to lock and press the **C** and **F3** keys. You will see a \* symbol flashing on and off in the status area in the box containing the cursor location. To unlock a locked cell, move the cursor to the cell you want to unlock and press the **C** and **F3** keys. The \* symbol will disappear from the status area.

## ■ The Automatic Cursor Advance Feature

The automatic cursor advance feature causes the cursor to move to the next cell automatically after you enter information in a cell and press **RETURN**. To use the Automatic Cursor Advance feature, press the **C** and **F7** keys. In the status box, at the left of the MESSAGE box, the word "right" will appear. This is the default direction for the Automatic Advance feature. To use the Automatic Advance in a different direction, just press one of the cursor keys. The word in the status area will change to correspond to the direction you selected. You can change the direction of the cursor at any time by pressing another cursor key.

To turn off this feature, simply press the **C** and **F7** keys again. The code at the bottom of your screen will disappear, and you will be able to move the cursor manually around the spreadsheet.

- **The GRAPHICS Pull-Down Menu**
  - Vertical and 3D Bar Charts
  - Scatter Plots
  - Line Plots
  - Pie Charts
  - Exploded Pie Charts
  - Producing Graphs from Your Spreadsheet Data
  - Producing 3D Bar Charts
- **The FUNCTIONS Pull-Down Menu**
  - Formatting a Cell
  - Changing the Width of Your Spreadsheet Cells
  - Moving Cell Information
  - Copying Cell Information
  - Sorting Spreadsheet Information
  - The Search Command
  - The Search & Replace Command
  - Checking the Computer's Memory
- **The DELETE Pull-Down Menu**
  - Deleting Information in a Block of Cells
  - Deleting Information Up to the End of Your Spreadsheet
- **The TAB Pull-Down Menu**
  - Setting Tabs
  - Clearing Tabs
- **The PRINT Pull-Down Menu**
  - Printing Your Spreadsheet
  - Setting Your Printer for Special Print Jobs
  - Setting a Page Length for Your Printouts
  - Choosing a Line Length for Your Printouts
  - Printing Your Spreadsheet Sideways

## **4 The Pull-Down Menus**

- The DISK COMMANDS Pull-Down Menu

  - Saving a File

  - Loading a File

  - Viewing the Disk Directory

  - Erasing a Spreadsheet File

  - Renaming a Spreadsheet File

  - Assigning File Names to Your  
Spreadsheets

  - DOS Commands

- The QUIT Pull-Down Menu

  - Resetting SWIFTCALC 128

  - Returning to the System

- The Quick Commands

All of the commands discussed in this section are accessible through the pull-down menus. This manual will tell you which menu heading and which option to select to activate each feature. Let's take a look at each of the menu options available in SWIFTCALC.

## ■ The GRAPHICS Pull-Down Menu

SWIFTCALC includes 6 different types of graphs which you can use to display your numerical data. First, let's take a look at a description and illustration of each graph. Then we'll tell you how to produce graphs of your own.

### Vertical and 3D Bar Charts

Bar charts, which are commonly used graphs, display values as vertical bars on the graph. SWIFTCALC includes two types of bar charts. The vertical charts display bars that run up and down on your screen. The three-dimensional charts are more complex and visually interesting, with bars that appear as solid blocks. More than one set of data can be displayed and compared (such as sales data for different quarters of the year) on 3D bar charts. Vertical and three-dimensional bar charts look like this:

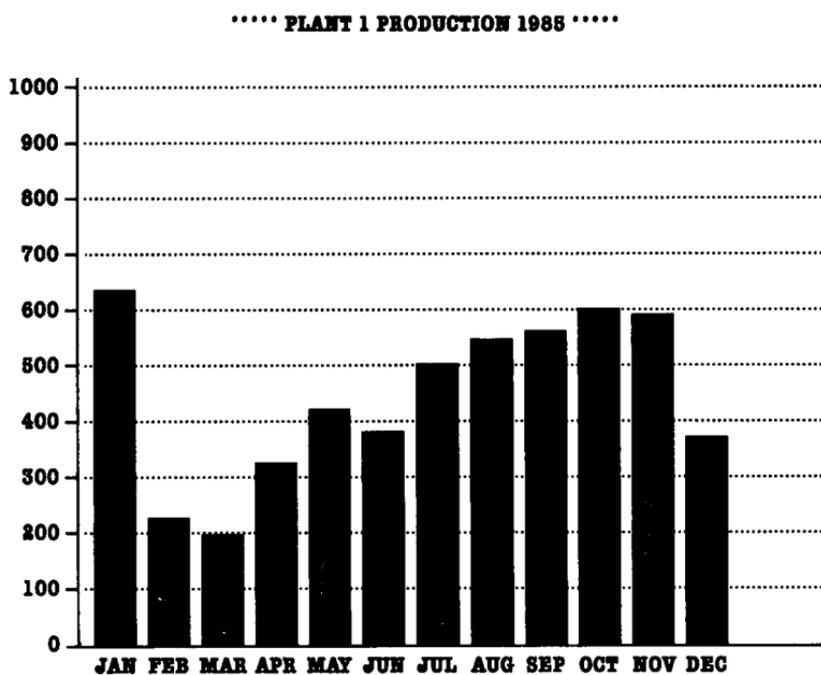


Fig. 11

\*\*\*\*\* PLANT PRODUCTION 1985 (MILLIONS) \*\*\*\*\*

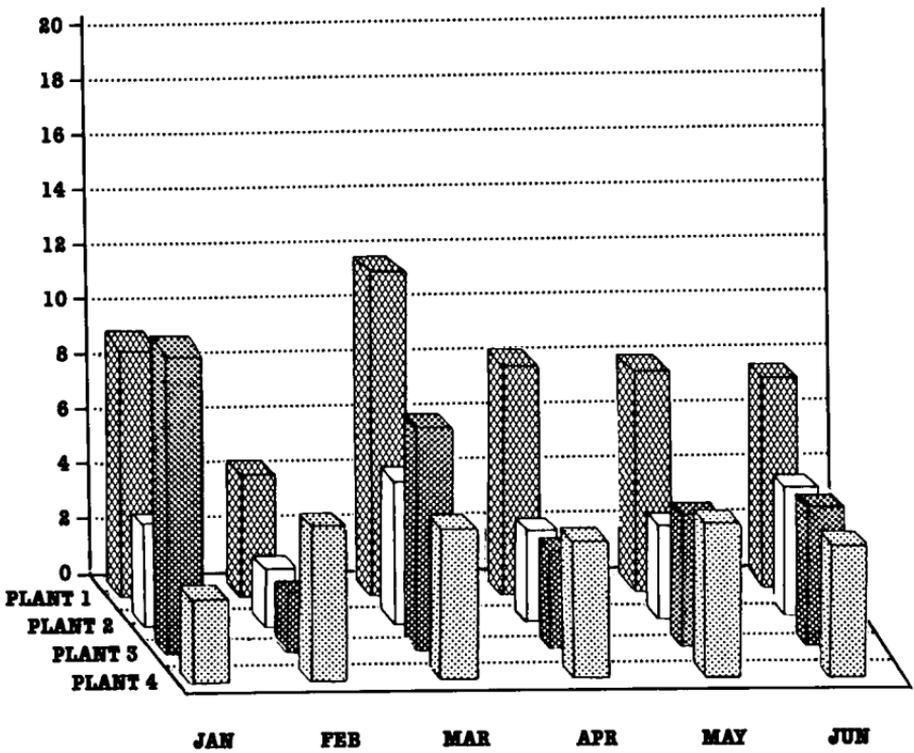


Fig. 12

## Scatter Plots

A scatter plot (also known as a point or cluster diagram) shows your data as a series of dots or points on a graph. You can then draw conclusions based on the way the points are clustered. For example, you can see more clearly the frequency of a particular value in your data.

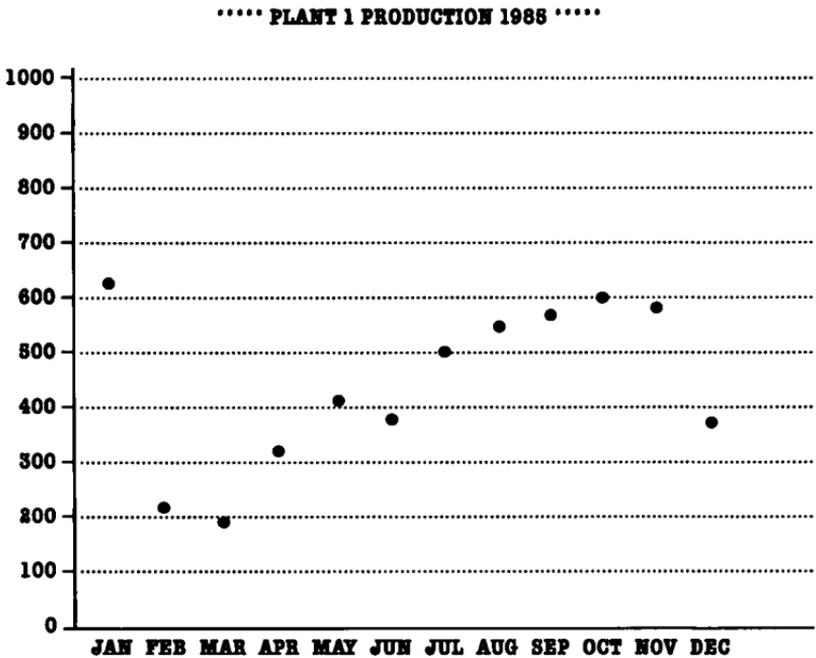


Fig. 13

## Line Plots

In a line plot, your data is represented by dots on the graph. Then the dots are connected to make trends in the data clearer to you.

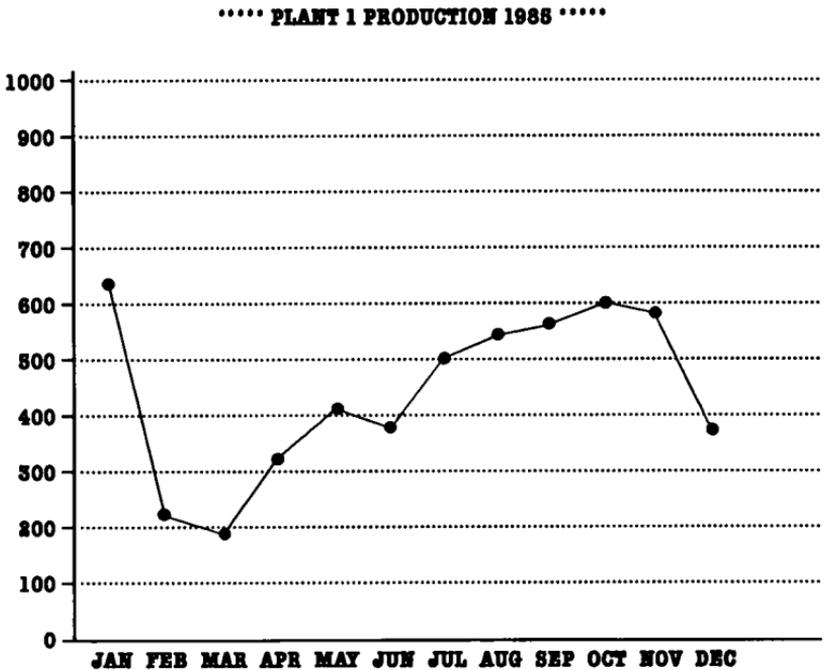


Fig. 14

## Pie Charts

A pie chart can display values using a “pie” format. The size of each pie “slice” will vary according to the size of the value represented by that “slice”.

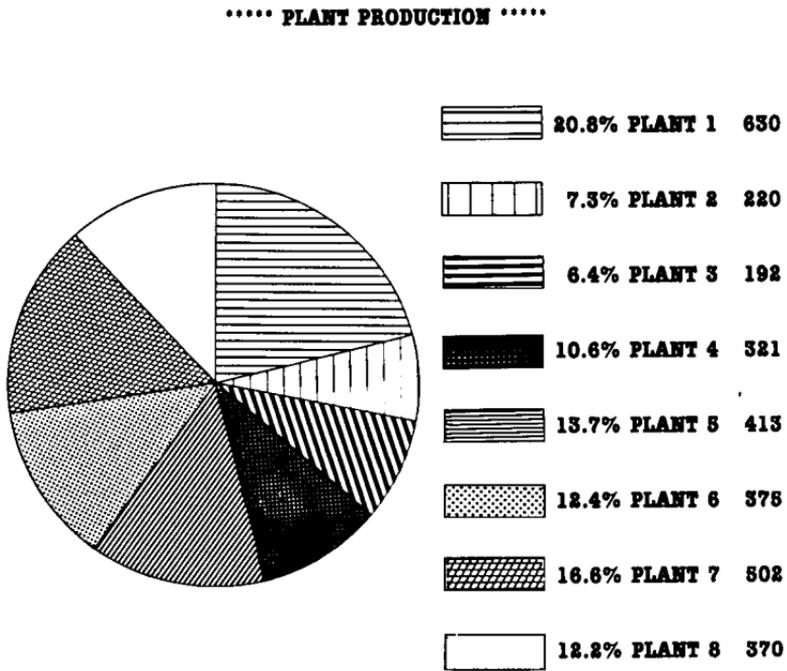


Fig. 15

## Exploded Pie Charts

An exploded pie chart, like a pie chart, consists of a number of slices, each of which represents a value. The slices in this graph, however, are separated and look as if they have been forced from the middle of the pie outward.

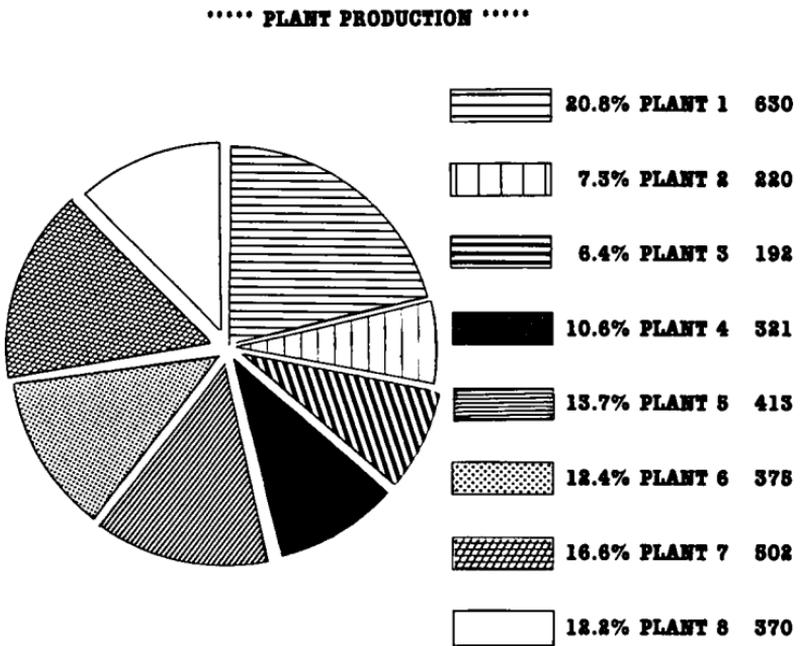


Fig. 16

### Producing Graphs from Your Spreadsheet Data

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**NOTE:** Three-dimensional bar charts are produced using a different procedure than the other graphs in this program. See the next section for information on producing 3D Bar Charts.

---

**NOTE:** When you select an option on the GRAPHICS pull-down menu, you may see several disk-switching prompts. To avoid these prompts, you can copy two files, MOD1 and MOD2, onto your data disk from your SWIFTCALC program disk. Use any copy program to copy these files.

---

Before producing a graph, select the "Print Spreadsheet" option on the PRINT pull-down menu. Then set the "Linefeed" option, which appears in the Print window on your screen, for your printer. Press **Esc** twice, and move to the GRAPHICS pull-down menu. Select the "Printer Options" menu item. When the window of options appears on your screen, move the cursor to the name of your printer (or a printer with which yours is compatible) and press either **RETURN** or **Esc** to set the program for your printer.

Now, select a graph on the GRAPHICS pull-down menu (any graph but a 3D bar chart) and follow the disk placement prompts. Then follow the steps below to produce your graph. First-time users will find the following example useful in reviewing the procedure before getting started.

## Sample Spreadsheet – Sales

Name	1983	1984	1985	1986	1987
Johnson	220,100	200,000	230,000	250,000	265,000
Smith	163,000	175,000	200,000	210,000	225,000
Williams	150,000	146,000	160,000	175,000	183,000
Abner	213,000	217,000	225,000	232,000	239,000
Stevens	235,000	242,000	245,000	248,000	253,000
Pevey	145,000	156,000	170,000	202,000	214,000

1. Now, in response to the prompt on your screen, you must tell the computer which cell(s) contain the information that will be the title for the graph. Move the cursor to the leftmost cell of the cells that contain the title and press **F7**, or press **RETURN** only (indicated by <CR> in the prompt) to leave the title blank. For the example, you would move the cursor to the word "Sample" and press **F7**.
2. Now you must tell the computer which labels you want to use in your graph. Move the cursor to the top left hand corner of the column or row of labels, and press **F7**. For the example, we want to use the entire column of names from Johnson to Pevey, so you would move the cursor to the cell that contains Johnson and press **F7**. To mark this column of labels, you only need to mark the top left cell.
3. Next you must tell the computer which column or row of values you want to use in your graph. Just move the cursor to the bottom right value in the column or row you want to display graphically, and press **F7**. For the example, you would move the cursor to the bottom figure in the 1984 column (£156,000) and press **F7**.

The computer would then use ONLY the figures in the 1984 column for the graph, ignoring the values in the column for 1983. Graphs other than the 3D bar chart cannot display more than one column or row of values.

4. Your graph should now appear on the display. If you have indicated too many values, or if you made an error in marking your block, you will see an error message. Press any key and repeat steps 1 to 3.

After you have viewed your graph, press **P** to print the graph or press any other key to return to the spreadsheet.

### Producing 3D Bar Charts

To produce a three-dimensional bar chart, you will need to follow a slightly different procedure than for the other types of graphs. Select the "3D Bar Chart" option on the GRAPHICS pull-down menu and follow the steps below. Let's use the same sample spreadsheet as an example.

1. First, to enter the title for the graph, move the cursor to the leftmost cell that contains the title and press **F7**. (Press **RETURN** only to leave the title blank.) For the example, you would move the cursor to the cell that contains the word "Sample" and press **F7**.
2. Now you must tell the computer which labels will appear on the vertical axis and which will appear on the horizontal axis of your graph (refer to the illustration of a 3D bar chart at the beginning of this section). All you need to mark is one cell – the cell of your spreadsheet that is the exact spot where the labels for the vertical axis and those for the horizontal axis meet.

In our example, the cell where the labels meet is that which contains the word "Name", because the names from Johnson to Pevey will appear on the horizontal axis and the years from 1983 to 1987 will appear on the vertical.

Move the cursor to this cell and press **F7**.

3. Next, mark the block of values for the graph. Move the cursor to the top left hand corner of this block, and press **F7**. Then move the cursor to the bottom right hand corner of the block of values you want to display graphically and press **F7** again. (Your block cannot be larger than 6 cells wide by 4 cells deep.) In our example, we could use the information from Johnson's 1983 sales (£200,000) to Abner's 1987 sales. Unlike the other graphs, the 3D bar chart will display on a graph all values in this block, not just the last column or row you mark.
4. Your graph should now appear on the display. If you have indicated too many values, or if you made an error in marking your block, you will be asked to repeat steps 1 to 3.

After you have viewed your graph, press any key to return to the spreadsheet, or press **P** to print the graph. When the printer finishes your graph, you will return to your spreadsheet automatically.

## ■ The FUNCTIONS Pull-Down Menu

### Formatting a Cell

When you load SWIFTCALC into your computer, all of the spreadsheet cells share a common format: they are all 9 characters wide, and they will all display 2 digits to the right of the decimal. You can change this format by selecting the "Format" option on the FUNCTIONS menu. A window containing the format options will appear on your screen.

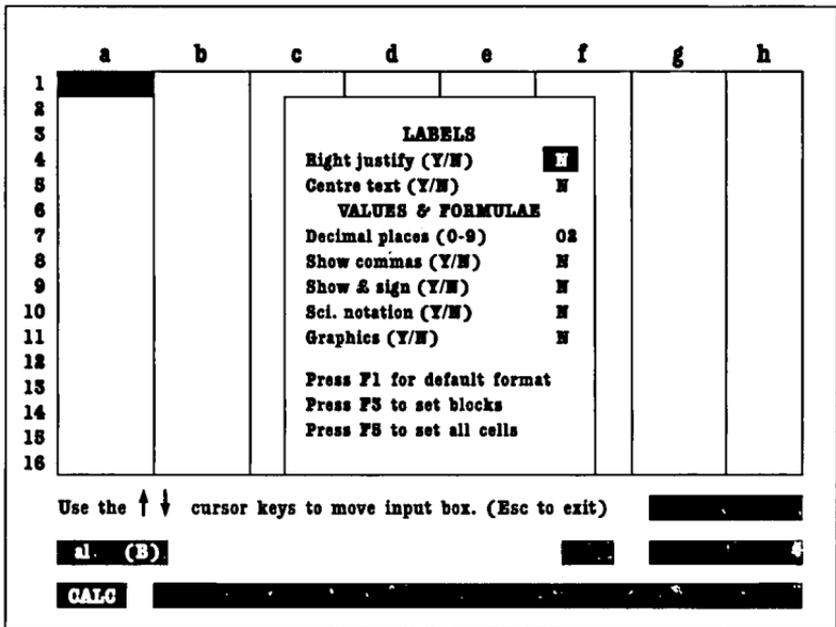


Fig. 17

The format options in the window will be set to the current format of the cell that contains the cursor when you select this menu item. You will also see a cursor in this window. Move the cursor to an option you want to change. The following discussion of the format options will help you select a setting for each.

### **Right Justifying Your Labels**

To align your labels at the right hand side of your cells, press **Y** for yes. If you choose the default setting of N for no, your labels will be justified on the left hand side of your cells.

### **Centring Your Labels**

To centre your labels in your cells, press **Y** for yes. If you choose the default setting of N for no, your labels will be justified on the left hand side of your cells.

---

NOTE: You will only be allowed to choose one label format option. The other one must be set at N for no.

---

The following options pertain to cells containing values and formulae only.

### **Specifying Decimal Places for Values**

SWIFTCALC's cells are set to display values with two decimal places. To change that format, enter a number from 0 to 9.

### **Displaying Commas or Pound Signs in Your Values**

If the values in your spreadsheet represent monetary amounts, you may want to display commas and pound signs (£) in the spreadsheet. To do so, select these options in the Format window and press **Y** for yes. If you do not specify Y for these options, no commas or pound signs will be displayed in your spreadsheet.

### **Scientific Notation**

If you are working with extremely large values, you may want to express them in the spreadsheet using scientific notation. (For more information on scientific notation, consult a mathematics book.) If so, press **Y** for yes. The computer will automatically write your values in scientific notation.

### **Graphics**

If you choose to enter Y for the “Graphics” option, the numerical value(s) in the cell or cells you designate will be converted to a bar of asterisks. The overall effect is that of a bar chart. The length of each bar in a column will depend on the width of the column.

---

**NOTE:** It is a good idea to widen your cells to 20 characters before selecting the “Graphics” option. Then SWIFTCALC will have the maximum amount of room available to display your values as graphs.

---

For example, let's say you have formatted a 20-character-wide column to display graphics. In that column are the values 5, 10, and 25, which will be displayed as bar charts. The bar for the value 5 will be 5 asterisks long and fill one-quarter of the 20-character wide cell. The value 10 will fill half of its cell. The bar for the value 25 (and any value that is too large for the cell it occupies) will fill the entire cell.

You may want to convert large numbers to smaller amounts to make it easier to display them graphically. Just divide all of your numbers by the same number (called a constant), thereby maintaining their proportional relationship to each other. This will also allow the computer to display a more accurate graph, as smaller numbers, or bars of asterisks, will fit in your spreadsheet cells.

---

NOTE: See "The GRAPHICS Pull-Down Menu" for information on other graphics options.

---

NOTE: When you select one of the above four options, you may cancel out your selection for another of the four. For example, if you enter Y for "Show Commas" and then enter Y for "Graphics", the computer will automatically enter N for "Show Commas" because it obviously cannot display both commas and graphics for your values and formulae. If you decide later to display commas in your values, return to the Format window and modify your selections.

---

### **Selecting the Default Format**

If you want to apply the default format to all of the cells in your spreadsheet, press **F11**. The computer will reset all of the options in the Format window to the default settings.

Now that you have selected the cell format you want, you must tell the computer which cell or cells in the spreadsheet you want to follow that format. You have two options.

### **Formatting a Block of Cells**

To format a block of cells, press **F3**. The Format window will disappear from your display, and you will be asked to specify the cell in the top left hand corner of the block you want to format. To do so, you must move the cursor to that cell and press **F7**.

Next you will be asked to designate the cell in the bottom right hand corner of the block you want to format. Move the cursor to that cell and press **F7**. (If you only want to format a single cell, move the cursor to that cell and press **F7** twice.) After you designate your block, the computer will apply the format you selected to the block of cells you just specified.

### **Formatting All of Your Cells**

To format all of the cells in your spreadsheet, press **F5**. The computer will then apply the format you selected to your entire spreadsheet.

## Changing the Width of Your Spreadsheet Cells

All of SWIFTCALC's cells default to a 9-character width. To widen your cells to hold larger labels or values, select the "Width" menu item on the FUNCTIONS pull-down menu. A window will appear on your display.

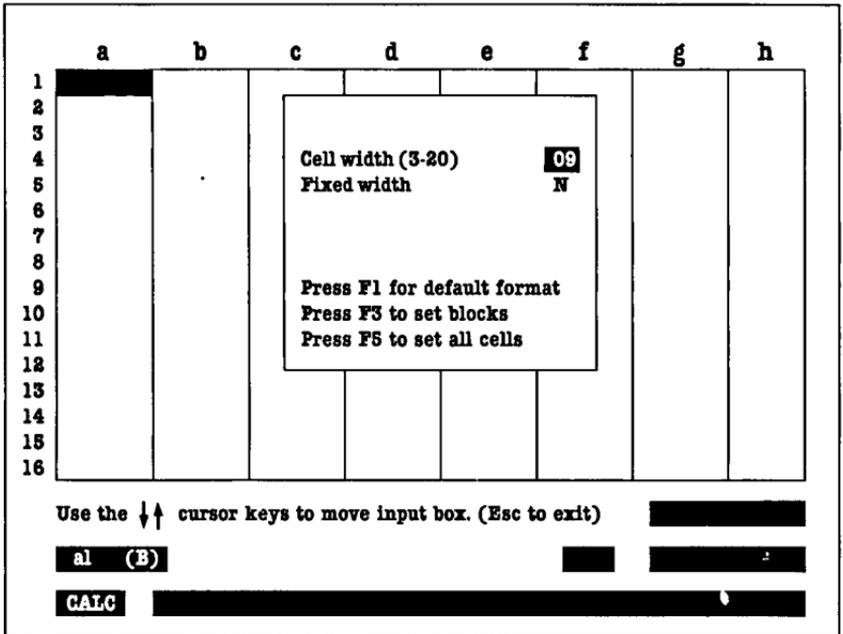


Fig. 18

The width options in the window will be set to the current width of the cell that contains the cursor when you select this menu item. You will also see a cursor in this window, which you must use to select options to change.

Let's take a look at these options.

### **Adjusting the Cell Width**

You can change the cell width to a number between 3 and 20 characters. To do so, move the cursor to the "Cell Width" option and enter a number between 3 and 20.

Now you must tell the computer which cells you want to widen. Press **F5** to widen all of the cells in your spreadsheet. If you want to specify a block of cells, press **F3** and follow the prompts to designate the block.

### **Using the Fixed Width Option**

The columns in the SWIFTCALC spreadsheet are set to widen automatically if you enter a value that is longer than the current cell width but less than the maximum width of 20 characters.

If you want to turn off this feature, move the cursor to "Fixed Width" in the Width window, and press **Y** for yes. If you use a fixed width for your cells – either the default width of 9 characters or one that you have specified with the "Cell Width" option – any information you enter that is too long to be contained in a cell will not be displayed in full in your cells. (Values that are too wide for a cell may appear in scientific notation, if you have selected that option on the Format window.) Complete information for a cell will appear in the CELL CONTENTS area.

Now you must tell the computer which cells you want to widen. Press **F5** to apply this option to all of the cells in your spreadsheet. If you want to specify a block of cells, press **F3** and follow the prompts to designate the block.

## **Moving Cell Information**

To move the contents of a cell or a block of cells to another location in your spreadsheet, select the "Move" option on the FUNCTIONS pull-down menu. You will then be asked to specify the cell in the top left hand corner of the block you want to move. Move the cursor to that cell and press **F7** to enter this cell address into the computer.

Next you will be asked to designate the cell in the bottom right hand corner of the block you want to move. Move the cursor to that cell and press **F7**. (If you only want to move a single cell, place the cursor in that cell and press **F7** twice.)

Next you will be asked to specify the new location to which you want to move the information. You only need to designate the cell in the top left hand corner of the new location. Move the cursor to that cell and press **F7**.

The computer will move the block of cells from the old location to the new location. When the block is moved, the current contents, width, and format of these cells will be preserved. All formulae that refer to cell locations will be modified automatically to account for the move.

---

**NOTE:** When you designate the new location for the block of cells you are moving, you must specify a location that can hold the entire block or the move will not occur. For example, if the new location you designate is too close to the edge or bottom of the spreadsheet (so close that some of your moved cells will not fit in the spreadsheet), the computer cannot move your block. Also, if you designate a new location that intersects the present location of the block, the computer will not be able to move your block.

---

### **Copying Cell Information**

You may want to copy the contents of either a block of cells or of a single cell to another location in your spreadsheet. To perform either type of copy, select the “Copy” option on the FUNCTIONS pull-down menu. The procedure for copying a block and copying a single cell differs, so let’s look at them one at a time.

#### **Copying Information from a Single Cell**

To copy information from a single cell to another cell or cells in your spreadsheet, select the “Copy” menu item. You will then be asked to specify the beginning and ending cells of a block to copy. Since you are copying a single cell, move the cursor to that cell and press **F7** twice.

Now you must designate the new location for your copied information. If you are copying to a single cell, place the cursor in that cell and press **F7** twice. If you are copying to a row or column, you must specify the beginning and ending cells of the material to be copied.

You will now see the prompt RELATIVE OR FIXED? (R/F). If you are copying a label, a number, or a formula that does not contain cell addresses, press **F7** or **F8** (neither will affect the copy in these cases) and the computer will copy your information automatically. If you are copying a formula that contains cell addresses, your formula will appear in the INPUT box with the first address on the left highlighted. When you see the prompt RELATIVE OR FIXED? (R/F), press **F7** if you would like this cell address to remain unchanged in the formula in the new location. Press **F8** if you want the cell address to vary depending on its location in the spreadsheet. You will be asked to specify whether each cell address in the formula is fixed or relative.

#### Example:

Let's say you want to enter a formula into your spreadsheet that would produce values in cells a1 to a6 that are each 1,000 units higher than the cell before. For example, if the value in cell a1 is 0, the value in a2 would be 1000, and a3 would be 2000, etc.

To perform these calculations, enter a 0 in cell a1. Then for cell a2, enter the formula a1 + 1000. The value 1000 will appear in cell a2. Now you can use the "Copy" menu item to enter formulae in cells a3 to a6.

First select the "Copy" option on the FUNCTIONS pull-down menu. Then, in response to the prompt, move the cursor to cell a2 and press **F7** to specify the cell containing the formula you want to copy. Press **F7** again to tell the computer you are only copying information from one cell.

When asked to specify the block you are copying the formula to, move the cursor to cell a3 and press **F7**. Then move the cursor to cell a6 and press **F7** again. Now you will see the prompt **RELATIVE OR FIXED? (R/F)**. The formula  $a1 + 1000$  will appear in the INPUT box, and the cell address a1 will be highlighted. Press **R** for relative. When this formula is copied to cells a3 to a6, the cell address in the formula will be adjusted in each new cell. For example, the computer will automatically specify the formula  $a2 + 1000$  for cell a3, and each of the other formulae for cells a4, a5, and a6 will be adjusted automatically.

The computer will now calculate all of the formulae in your spreadsheet, and you will find the following values in cells a1 to a6.

$$a1 = 0$$

$$a2 = 1000$$

$$a3 = 2000$$

$$a4 = 3000$$

$$a5 = 4000$$

$$a6 = 5000$$

This procedure may seem complicated, but with a little practice, you will easily get the hang of it. Try copying other formulae throughout your spreadsheet so that you can become familiar with this concept.

## Copying a Block of Cells

To copy a block of cells, select the “Copy” menu item. You will be asked by the computer to specify the cell in the top left hand corner of the block you want to copy. Move the cursor to that cell and press **F7**.

Next you will be asked to designate the cell in the bottom right hand corner of the block you want to copy. Move the cursor to that cell and press the **F7** key. You will now see the prompt **RELATIVE OR FIXED? (R/F)**. Press **R** if you would like all of the information in the block to remain unchanged in the new location. Press **F** if you want the information to vary depending on its location in the spreadsheet. See “Copying Information from a Single Cell” for more information on fixed and relative variables. After you respond to this prompt, the computer will copy your block of cells to the new location.

## Sorting Spreadsheet Information

This option allows you to sort information in your spreadsheet into increasing or decreasing alphabetic or numeric order. You will be able to sort up to 3 rows or columns simultaneously. Let’s take a look at the “Sort” option using the following sample spreadsheet.

---

**NOTE:** To guard against accidental loss of your spreadsheet information, make sure that you save your spreadsheet on disk before performing a sort.

---

## 4: The Pull-Down Menus

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LAST NAME	FIRST NAME	AREA	SALES
Johnson	Tim	North	10,000
Williams	Bill	South	5,000
Johnson	Jane	North	8,000
Adams	Bob	West	7,800
Brown	Betty	East	23,000

Let's say you want to alphabetize the names in your spreadsheet by first and last name. To do so, select the "Sort" option on the FUNCTIONS pull-down menu and follow these steps.

1. First you must mark the block of information that you want to sort. Move the cursor to the cell in the top left hand corner of the block, and press **F7**. For our example, you would move the cursor to the cell that contains the name Johnson (across from Tim, not Jane), and press **F7**.
2. Next, in response to the prompt, move your cursor to the bottom right hand cell of the block you want to sort. For the example, you would move the cursor to the cell containing 23,000, and press **F7**.
3. In response to the prompt on your screen, press **R** to sort by row or **C** to sort by column. For the example, you would press **C**, because the names we're sorting are in two columns.
4. Next you must tell the computer to sort your information in ascending (increasing) or descending (decreasing) order. Press **A** for ascending or **D** for descending. For the example, you would press **A**.

5. If the block you marked for the sort contains only one column or one row, the sort will take place. If your block contains more than one column or row, you must tell the computer which column or row to sort first, then second, and, if necessary, which to sort third. These are also called the first, second, and third levels of the sort. Follow the prompts on your screen to indicate the order for the sort.

For this example, you would move the cursor to the first column (which contains last names), and press **F7**. Then, in response to the prompt on your screen, press **F1** to tell the computer you want to indicate the second column, or level, for the sort. Move the cursor to the column of first names, and press **F7** to start the sorting process.

6. After the sort takes place, your spreadsheet information will be rearranged on your screen in the order you requested. All formulae within the block you marked for the sort will be updated. The sample spreadsheet would look like this after the sort:

LAST NAME	FIRST NAME	AREA	SALES
Adams	Bob	West	7,800
Brown	Betty	East	23,000
Johnson	Jane	North	8,000
Johnson	Tim	North	10,000
Williams	Bill	South	5,000

### The Search Command

At times you may want to locate a specific label in your spreadsheet. For example, you may want to look at every month's sales for a single product in your line. You can do this with the Search command. To use this command, select the "Search" option on the FUNCTIONS pull-down menu. You will be asked to enter the characters that you want the computer to search for. Do so, and then press **RETURN**.

The computer will search through your spreadsheet until it finds the information you specified. You can then use the Edit Cell command (accessed through the **F2** key) to make changes to your cell information. To continue your search for other cells where this information might appear, press **F7**, and the computer will go on searching through your spreadsheet. To cancel a search, press **Esc**.

---

NOTE: The Search command will only search your labels for the information you indicate.

---

---

NOTE: The computer always begins a search from the point where your cursor was located when you initiated the search.

---

### The Search & Replace Command

Use the Search & Replace command if you would like to change a specific label everywhere that it appears in your spreadsheet. To use this command, select the "Search & Replace" option on the FUNCTIONS pull-down menu. You will be asked to enter the characters that you want the computer to search for. Do so, and then press **RETURN**. Then you will be asked to enter the characters that will replace your first entry anywhere that it appears in the spreadsheet.

The computer will search through your spreadsheet until it finds the first word you entered. The cursor will then be placed in that cell, and you will be asked if you want to replace it with the new word. Press **Y** if you want to replace it, or press **N** if you do not want to replace it. If you press **Y**, the word will be replaced. If you press **N**, you can continue the search by pressing **F7**, or you can stop the search by pressing **Esc**.

---

NOTE: The Search & Replace command will only search your labels for the information you indicate.

---

---

NOTE: The computer always begins a search from the point where your cursor was located when you initiated the search.

---

## **Checking the Computer's Memory**

To find out how much of the computer's memory is still available to you for information entry, select the "Memory Remaining" option on the FUNCTIONS pull-down menu. A message in the prompt area will tell you the amount of memory you have used and the number of bytes of computer storage space that are still available (see the glossary for the definition of a byte). Press any key to continue entering information in the spreadsheet.

### ■ The DELETE Pull-Down Menu

#### Deleting Information in a Block of Cells

To erase the information in a section of your spreadsheet, select the “Delete Block” option on the DELETE pull-down menu. You will be asked to specify the cell in the top left hand corner of the block you want to delete. Move the cursor to that cell and press **F7**. Repeat this procedure to enter the cell address of the cell in the bottom right hand corner of the block you want to delete. You will then be asked to verify that you want to delete the block. If you press **Y**, your block will be deleted. If you press **N**, your block will not be deleted.

#### Deleting Information Up to the End of Your Spreadsheet

This option will delete information from the current location of the cursor up to the end of your spreadsheet. Select the “Delete to End” option on the DELETE pull-down menu. You will be asked to verify that you want to delete all information to the end of the spreadsheet. Press **Y** to delete your information. If you press **N**, your spreadsheet will not be changed.

### ■ The TAB Pull-Down Menu

After you have been working with a particular spreadsheet for a while, you may find that you return to certain cells repeatedly. SWIFTCALC’s TAB pull-down menu options will help you move the cursor quickly to those cells.

## Setting Tabs

Tabs are positions in your spreadsheet where the cursor will stop after you press the **TAB** key. You can pre-set those positions using the “Tab Set” option on the TAB pull-down menu. When you select this option, you will be able to use the **F7** key to specify your tab stops. Use the cursor keys to move the cursor to one of these cells, and press **F7** to “mark” that cell in the computer’s memory. Continue indicating your tab stops in this way. When you are finished, press **Esc**.

Now when viewing or entering information into the spreadsheet, press the **TAB** key to move the cursor to each tab stop. If you press **SHIFT TAB**, you can move back to the previous tab stop. When you are using the **TAB** key, the cursor will move across your spreadsheet from left to right, stopping at each tab position in a row. Then it will move down to the next row, starting at the far left of that row. (This process is similar to reading a book.)

## Clearing Tabs

Use this option to erase the tab stops that you set previously. To delete a tab stop, select the “Tab Clear” option on the TAB pull-down menu. Then move the cursor to the tab stop you want to delete and press **F7**. The tab stop will be erased from the computer’s memory.

## ■ The Print Pull-Down Menu

### Printing Your Spreadsheet

Use this option to print out your spreadsheet information. When you select this option, a window will appear on your screen. This window contains a list of items that affect the way your printed spreadsheet will look.

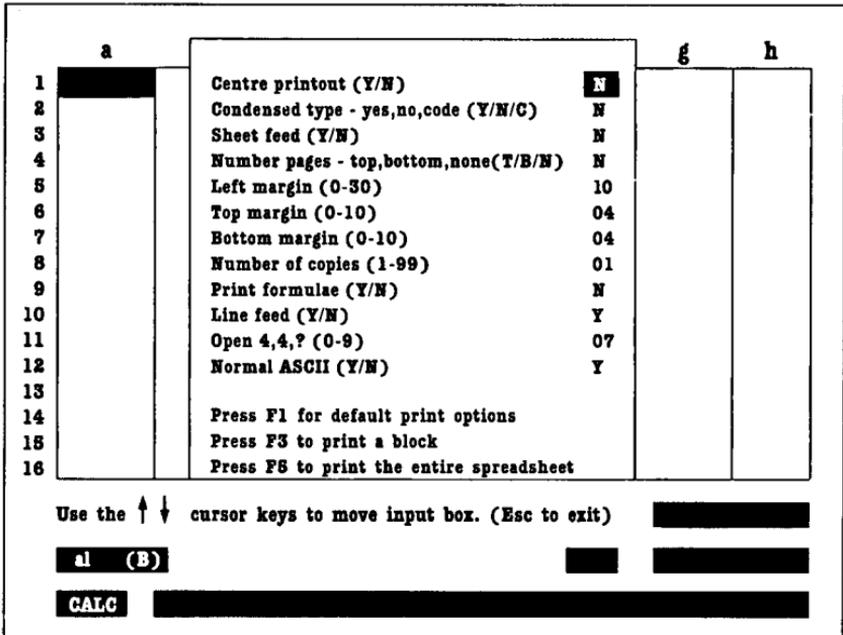


Fig. 19

In the column to the right of the list are the codes for the computer's default settings for printing your spreadsheet. You can change any of these settings to fit your own printing needs, but first, take a look at the explanation for each of these settings.

## Centre Printout

This option will centre your printed spreadsheet according to the line length you specify using the “Change Line Length” option (see page 85). To centre your spreadsheet, press **Y**. (Make sure the “Left Margin” option is set at 0 and the “Change Line Length” menu item is set for the width of your printer paper.) If you do not want your spreadsheet centred at printout time, move the highlight to this option and press **N** for no. At printout time your spreadsheet will be left justified.

## Condensed Type

If you are about to print a large spreadsheet, you may want to select condensed type, so the printer will be able to fit more of your spreadsheet onto a single sheet of paper. To use condensed type, move the highlight to this option. Then press **Y** for yes. (If you do not want to print in condensed type, press **N** for no.) If you press **Y**, make sure that you specify a new line length for your printout (see “Choosing a Line Length for Your Printouts”, discussed later in this chapter).

---

**NOTE:** SWIFTCALC is pre-set with the condensed and non-condensed type codes for Epson printers. If your printer uses a different code for condensed type (you will know it does if your spreadsheet is printed out in some other type face), you will need to reset the code. To do so, move the highlight to the “Condensed Type” option and press **C** for code. You will be asked to enter the two codes for your printer:

1. You must enter the code that your printer uses for condensed type. This is the code it will use when you set this print option to Y for yes.

2. Next you must enter the code that you want your printer to use whenever you do not request condensed type. For example, if you want the printer to print your spreadsheets in emphasized type when the “Condensed Type” option is set at N for no, enter your printer code for emphasized type.

Consult your printer manual for the correct codes. **If your printer does not have the ability to print in condensed type, this feature will not work for you.**

---

**NOTE:** If your spreadsheet is too wide for a single sheet of paper (whether or not you are using condensed type), the printer will first print a number of columns in their entirety (depending on the line length you specify). Then it will print another section of your spreadsheet under the first section. It will continue printing in this manner until it has produced your entire spreadsheet in sections. To print your entire spreadsheet on a single page, see the section on the Sideways printing feature later in this chapter.

---

### Sheet Feed

You may want your spreadsheet printed out one page at a time, especially if you are using a friction feed printer printing on single sheets of paper. If you would like to use the “Sheet Feed” option, move the highlight to this option in the Print window and press  for yes. When the printer is printing your spreadsheet, it will stop after each page. You can then place the next sheet of paper into the printer. Press any key and the printer will print the next page of your document. If you decide not to use the “Sheet Feed” option, change the code in the window to N for no.

## Number Pages

To number your spreadsheet pages, move the highlight in the Print window to "Number Pages" and press **⏏** to place numbers at the top of each page or **⏏** to place numbers at the bottom of each page. You will then be asked for a starting page number. Enter a number between 1 and 255. If you do not want your pages numbered, press **⏏** for none.

---

**NOTE:** If you choose to number your pages, you must set the top or bottom margin (wherever you want to display the page numbers) for a number of lines. For example, if you choose to display page numbers at the bottom of each page, you must set option 10, "Bottom Margin", for a number other than 0, otherwise the printer will have no place to print your numbers.

---

## Left Margin

This option tells SWIFTCALC the number of spaces you want to leave open on the left hand side of the page that contains your printed spreadsheet. Move the highlight to this option on the Print window, and enter the number of spaces for your left margin. If you do not change the setting, the printer will give your spreadsheet a 10-space left margin.

---

**NOTE:** You do not need to enter a value for your right margin. That value is defined by the amounts you enter for your line length and left hand margin, or it is defined by the computer if you tell it to centre your spreadsheet.

---

### **Top and Bottom Margins**

Use these options to tell SWIFTCALC the number of lines you want the printer to leave at the top of each page of your printed spreadsheet. If you do not set these options, the printer will automatically leave 4 blank lines at the top of each page. To set margins, move the highlight to these options on the Print window and enter the number of blank lines you want at the top and bottom of each page.

### **Number of Copies**

To tell SWIFTCALC how many copies of your spreadsheet you want to print, move the highlight to this option on the Print window and enter a number from 1 to 99. At printout time, the printer will print the number of copies you specify.

### **Print Formulae**

To see a list of the formulae for a particular spreadsheet, set this print option at Y for yes. IF THIS OPTION IS SET AT Y, ONLY YOUR FORMULAE WILL BE PRINTED. To print out your spreadsheet, set this option at N for no.

### **Line Feed**

If your printer requires a line feed command, press **Y** for this option. You will know your printer needs a line feed command if you try to print a document and the printer prints all your text on one line.

### **Open 4,4,? (Secondary Address)**

Use this option to enter the secondary address for your printer interface. The default value for this option is 7, which will work with most interfaces. Refer to your interface manual for the correct secondary address. If you are using a Commodore printer, refer to your printer manual for this information.

### **Normal ASCII**

Most printers work with normal ASCII characters. However, Commodore printers use PetASCII characters, so if you are using a Commodore printer, you must press **N** for no for this option.

### **Selecting the Default Print Settings**

If you want to apply the default settings to your printout, press **F1**. The computer will reset all of the options in the Print window to the default settings.

Now you must tell the computer which cells you want to print. You have 2 options for this task.

### **Printing a Block of Cells**

To print a block of cells, press **F3**. The Print window will disappear from your display, and you will be asked to specify the cell in the top left hand corner of the block you want to format. To do so, move the cursor to that cell and press **F7**.

Next you will be asked to designate the cell in the bottom right hand corner of the block you want to print. Move the cursor to that cell and press **F7**. (To print a single cell, move the cursor to that cell and press **F7** twice.) The computer will apply the print settings to the block of cells you specified.

### Printing All of Your Cells

To print all of the cells in your spreadsheet, press **F5**. The computer will then print all of your spreadsheet cells.

### Setting Your Printer for Special Printing Jobs

Use this menu item to send a printer code directly to your printer. This option allows you to print an entire spreadsheet in a special type face. If you would like your spreadsheet printed out in emphasized print, for example, use this option to set your printer in emphasized mode.

When you select the "Set Printer" option, you will see the prompt **ENTER PRINTER CODES? (ENTER CODE OR ESC TO EXIT)**. Now enter the printer code you want to send to the printer, and press **RETURN**. (Press **Esc** at any time to return to your spreadsheet without entering codes.) When sending more than one number to the printer, you must separate them with commas. The codes for emphasized print might be entered as shown below:

27,69

---

**NOTE:** For information on the printer codes used by your printer, consult your printer manual. To cancel a special option, either use a code specified in your printer manual, or turn the printer off and then on again.

---

## Setting a Page Length for Your Printouts

This option allows you to enter the number of characters that you want to print lengthways on a piece of paper. For example, most fan-fold printer paper is 66 characters, or lines, long. To print out the entire page with no top or bottom margin, set this option for 66. If you want top and bottom margins on your paper, subtract the total number of margin lines from 66, and enter the result as your page length.

For example, if you want a 4-line top margin and a 4-line bottom margin, subtract 8 lines from 66. Then enter the result, 58, as your page length.

To set your page length, select "Change Page Length" on the PRINT pull-down menu. You will then see the prompt CURRENT PAGE LENGTH IS XX. ENTER PAGE LENGTH? (1-255). Enter the number of characters that you want the printer to print lengthways on a piece of paper.

## Choosing a Line Length for Your Printouts

Use this menu item to enter the number of characters that you want to print across your page. For example, most printer paper is 80 characters across. If you want to print across the entire page with no margins, you would set this option for 80. If you want a 15-space margin on one side, you would set this option for 65 ( $80-15 = 65$ ).

To set your line length, select this menu item on the PRINT pull-down menu. You will then see the prompt CURRENT LINE LENGTH IS XX. ENTER LINE LENGTH? (1-255). Enter the number of characters that you want the printer to print across a piece of paper.

---

**NOTE:** When you are using condensed type, you will need to modify the line length of your printout. For example, you might want to try printing your spreadsheet first in non-condensed type on an 80-column line length to see how much of your spreadsheet is printed. Then you can try printing in condensed type. If you do not re-set the line length from 80 columns to a new line length (say, 132 columns), your printer will not print any more of your spreadsheet than it did before. Instead, it will print 80 columns of your spreadsheet in condensed type.

---

### **Printing Your Spreadsheet Sideways**

SWIFTCALC features “Sideways”, a very unique option: it will print an entire spreadsheet vertically on the same page at the same time. You can print as wide a spreadsheet as you like, with complete control over margins and spacing. You can also choose from a variety of type sizes.

Before you can print a spreadsheet sideways, however, you must first create a file containing the spreadsheet or block of cells you want to print in this manner.

### **Creating Your Sideways File**

Follow these steps to create your Sideways file.

1. Select the “Create Sideways File” option on the PRINT pull-down menu. A window containing the following options will appear on your screen:

Press F3 to save a block

Press F5 to save all cells

2. Now you need to specify the block of cells you want to save for printing sideways. If you want to save your entire spreadsheet, press **F3**.

To save a block of cells to print sideways, press **F3**. Then move the cursor to the cell in the top left hand corner of the block you want to save, and press **F7**. Move the cursor to the cell in the bottom right hand corner of the block, and press **F7** again.

3. Lastly, insert your SWIFTCALC data disk in the disk drive and enter a file name for the Sideways file containing your spreadsheet information. (Your file names may be in upper case, lower case, or a combination of the two. Sideways ignores case when searching for a file name.) Press **RETURN**. Your file will be saved on your SWIFTCALC disk.

---

**NOTE:** If you save a spreadsheet or block of cells as a Sideways file, you will not be able to load it back into SWIFTCALC, because the computer will rewrite the spreadsheet in a form that only Sideways can read.

If you want to use that spreadsheet in SWIFTCALC in the future, you must also save it on your SWIFTCALC data disk using the "Save" menu item on the DISK COMMANDS pull-down menu. See page 99 for information on saving a file for use in SWIFTCALC.

---

### Installing Sideways

Before you can use Sideways, you must tell it what type of printer and interface you are using, the device number of your printer (most use a device number of 4), and the number of data bits that your printer will accept (usually 8). This process is called "installation". The "Installation Guide" which accompanies this manual contains a list of interfaces and printers that will operate with Sideways, as well as information on selecting and entering the number of data bits used by your printer.

To install Sideways, follow these steps:

1. Press the **40/80 DISPLAY** key on your computer so that it is in the DOWN position. Then turn on your disk drive, computer, monitor, and printer. Remove the write-protect tab from the SWIFTCALC program disk.
2. Insert your SWIFTCALC program disk in the disk drive.
3. Type RUN"SWINSTALL" and press **RETURN**.
4. The "Install" program menu will appear on your screen, along with a message informing you of the current installation settings of the program. If the program is already set to work with your printer, move on to step 5. If not, follow the prompts on your screen to install Sideways with your printer and interface.

---

**NOTE:** If your printer is not listed in the Installation program, check with your printer manufacturer to see if your printer emulates another brand. If so, try installing your printer as the brand it emulates.

---

---

NOTE: For best results, be sure your printer interface is in the "Transparent" mode and that you have not selected ASCII conversion.

---

---

NOTE: If you are using a Star printer, be sure to turn off the IBM compatibility switch, or Sideways will not work.

---

5. When you have made all of the necessary changes, you can use the "Test Interface" option to do a preliminary check of the system. Just press **5** and then press **RETURN**. This will send a line of text to your printer continuously. When the next message appears on your screen, press any key to begin printing the test message.

Your printer should begin printing the text line. (This line will not be printed sideways.) If it does not begin printing, hold down any key to return to the "Install" menu. Then refer to the "Installation Guide" provided with this manual before re-entering installation settings for your printer and interface.

6. When the "Test Interface" option produces a correctly printed line of text, use the "Exit" option to leave the Install program and start the newly installed Sideways program.

---

NOTE: When you are finished installing Sideways, **place a write-protect tab on the SWIFTCALC program disk**. This will guard your installation selections. If you buy a new printer, or otherwise change your configuration, be sure to return to the Install program and change your settings.

---

### Loading Sideways

1. Press the **40/80 DISPLAY** key on your computer so that it is in the DOWN position. Then turn on your disk drive, computer, monitor, and printer.
2. Insert your SWIFTCALC program disk in the disk drive.
3. Press **SHIFT RUN/STOP**.
4. Sideways will load into your computer automatically, and you will see the Sideways display.

<b>S I D E W A Y S</b>		<b>For Swiftcalc version 2.10</b>
<b>Vertical form size (inches):</b>	<b>11.00</b>	
<b>Horizontal form size (inches):</b>	<b>8.00</b>	
<b>Double strike:</b>	<b>OFF</b>	
<b>Character font:</b>	<b>NORMAL</b>	<b>5 × 9 dot matrix</b>
<b>Character spacing (dots):</b>	<b>1</b>	<b>10.50 characters per inch</b>
<b>Line spacing:</b>	<b>2</b>	<b>5.45 lines per inch</b>
<b>Left margin (inches):</b>	<b>0.00</b>	
<b>Top margin (inches):</b>	<b>0.00</b>	
<b>Bottom margin (inches):</b>	<b>0.00</b>	<b>43 lines per page</b>
<b>Starting page:</b>	<b>1</b>	
<b>Enter name of print file:</b>	<b>██████████</b>	
<b>File text format:</b>	<b>ASCII</b>	
<b>CTRL - E to exit    CTRL - A for HELP</b>		

Fig. 20

## Selecting Print Options

On your screen you will now see a number of formatting and printing options and their current settings. You can alter any of the settings by moving the cursor to the option you want to modify and entering new information. (We will explain these options in just a minute.)

---

**NOTE:** When you load Sideways, each of the options will already be set for a particular value. These are the most commonly used settings, and they will probably work with your printer, so before making any changes, try printing your file. If you experience difficulty printing, enter new settings using the information in this section as a guide.

---

You will see the cursor in the "Print file" field. Use the up and down cursor keys to move the cursor around the screen to different fields. To change the value, or number, in a particular field, move the cursor to that field and re-enter the value. Then press **RETURN**, the up cursor key, or the down cursor key.

To delete the last character typed, press the **INST/DEL** key. To delete the entire entry, press **F1**. If you enter an invalid value, an error message will appear on your screen and the field you just entered will revert to its previous value.

## 4: The Pull-Down Menus

---

For several of the options, such as “Horizontal form size”, “Character font”, and “Double strike”, we have already entered selections. You can choose any of these selections by moving the highlight to one of them and pressing the **SPACE BAR** or any alphanumeric key. Each time you press that key, the displayed selection will change. When you see the one you want, press the up or down cursor key to enter your choice and move on to the next option.

---

**NOTE:** To learn more about Sideways as you work with the program, press the **CTRL** and **A** keys. A help screen will appear on your display. To return to Sideways, press any key.

---

Now you are ready to select settings for the other options. Let's take a look at them. (For the first five options, refer to Figure 21.)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
***** PROFIT AND LOSS STATEMENT -- 1984 (PROJECTED) *****													
Revenue	289,411	304,262	327,508	309,309	327,009	326,419	382,073	411,289	417,166	444,720	446,477	457,483	4,251,142
Product Sales	71,333	76,066	76,366	77,499	79,366	82,129	86,704	91,636	88,180	87,703	87,228	89,312	1,202,821
Rentals	42,812	42,881	43,131	43,468	44,112	42,823	49,337	49,137	49,431	50,174	50,785	50,911	502,821
Maintenance Fees	399,376	423,309	447,023	480,335	482,627	486,303	518,134	520,542	526,620	523,233	523,078	611,846	6,133,388
Cost of Sales	128,818	134,704	133,961	134,912	148,726	181,178	189,366	199,042	213,722	218,621	232,589	229,613	2,283,941
Material Costs	9,818	9,746	9,676	9,676	10,630	11,414	11,678	12,540	13,469	13,776	14,633	14,844	142,629
Overhead	9,818	9,746	9,676	9,676	10,630	11,414	11,678	12,540	13,469	13,776	14,633	14,844	142,629
Direct Costs	21,178	22,435	23,692	23,468	25,482	28,778	27,461	29,200	29,607	30,912	31,433	32,428	325,174
Sales Commissions	186,831	186,880	186,549	200,769	204,938	218,587	224,505	240,782	228,799	263,339	278,678	282,880	2,731,744
Proportional Expenses	9,190	10,082	10,339	11,230	11,279	11,907	13,063	14,196	13,811	14,131	14,793	16,229	150,479
Agency Expenses	29,193	31,398	31,322	33,520	33,018	33,140	33,271	33,747	37,624	36,323	37,146	39,201	410,679
Media Cost	1,250	1,242	1,298	1,411	1,479	1,327	1,580	1,624	1,624	1,702	1,800	1,888	17,888
Direct Mail	39,609	42,722	43,309	46,376	45,764	46,374	47,914	49,995	52,459	51,954	50,691	57,416	579,633
Overhead	16,340	16,304	16,300	16,096	15,993	16,056	15,787	16,176	16,407	16,132	17,698	18,134	197,223
Equipment	42,488	43,096	42,374	44,276	43,388	46,507	48,135	51,314	51,317	50,986	52,104	51,173	591,378
Facilities	6,012	6,222	6,569	6,663	6,863	7,497	7,982	8,603	9,260	9,392	9,721	10,464	90,360
Administration	7,644	7,174	7,307	6,733	6,323	6,782	6,776	6,376	6,180	6,239	6,413	6,223	60,177
Depreciation	3,000	3,083	3,234	3,481	3,747	3,782	3,853	4,030	4,121	4,209	4,300	4,391	40,171
Miscellaneous	74,904	75,869	75,684	77,289	76,016	80,604	82,345	86,499	87,290	91,888	97,178	100,282	1,008,889
Total Expenses	399,576	423,309	447,023	480,335	482,627	486,303	518,134	520,542	526,620	523,233	523,078	611,846	6,133,388
Total Revenue	301,244	320,466	325,922	321,814	325,114	318,134	379,876	379,876	379,876	379,876	379,876	431,945	4,320,266
Pre-Tax Profit	98,332	117,843	141,033	150,921	152,969	140,838	163,170	174,066	162,072	176,052	161,333	171,293	1,816,122
Taxes	39,333	47,137	62,413	62,368	61,188	56,335	63,268	69,626	64,829	70,421	64,613	68,517	726,049
Net Profit	58,999	70,706	84,620	88,553	91,781	84,503	97,902	104,440	97,243	105,631	96,720	102,776	1,089,073

Fig. 21

### **Paper Dimensions and Page Format Options**

#### **Horizontal Form Size**

This option refers to the width of your printer paper. If you have a printer with a wide carriage, you have your choice of settings: 8 or 13 inches. If your printer has a narrow carriage, you should leave this option set at 8 inches.

#### **Vertical Form Size**

This option allows you to enter the distance between perforations on your printer paper. The default setting for this option is 11 inches.

#### **Left Margin**

The left margin is the amount of white space between the top of the printer page and the leftmost Sideways print column.

#### **Top Margin**

The top margin is the amount of white space between the first Sideways printed line at the top of your spreadsheet and the right edge of the paper.

---

**NOTE:** If you are using a Star printer, set the top margin for .01 or greater.

---

#### **Bottom Margin**

The bottom margin is the amount of white space between the last Sideways printed line at the bottom of your spreadsheet and the left edge of the paper.

The amount of white space available for printing is determined by subtracting the top and bottom margins from the horizontal form size. The program will automatically compute the number of lines that will fit on each page and display this number on the right side of your screen.

For example, let's say your horizontal form size is set for 8 inches (usually 80 lines across), and you want a 1-inch top margin (10 lines) and a 1-inch bottom margin (10 lines). The computer would subtract the two margins (20 lines) from the total lines (80), giving you 60 lines to print across the page.

## **Printout Style Options**

### **Double Strike**

When the cursor is in this field, press the **SPACE BAR** to turn on this feature, or press it again to turn it off. If you choose to use the "Double strike" option, the printer will print over each of your characters a second time, giving you a darker type face for your spreadsheet. (This option is not available on the Commodore 1525, MPS-801, or MPS-803 printers.)

### **Character Font**

Use the **SPACE BAR** to choose one of several settings for this option, ranging from Tiny to Extra Large. These settings refer to the size of the characters in your spreadsheet. To the right of this option on your screen, you will see numbers which represent the dimensions of the "dot matrix", the number of dots that fit vertically and the number that fit horizontally in each character of the font you selected.

### Character Spacing

This option represents the distance between successive characters. You can squeeze characters together, or spread them apart, by changing the value for this option. The number of characters per inch is displayed to the right of “Character spacing”.

### Line Spacing

This option represents the distance between successive lines of print. You can squeeze lines together, or spread them apart, by changing the value for this option. The number of lines per inch is displayed to the right of “Line spacing”.

---

**NOTE:** When you change character fonts, your settings for character and line spacing will revert automatically to those associated with the new font. You may, however, select a different setting for “Character spacing” and “Line spacing” for each “Character font”.

---

### Starting Page

Use this option to skip over the initial pages of a file you have selected to print. Just enter the page number at which you want to start printing.

### Saving Your Settings on Disk

After you have selected all of your options, you can save your settings on disk. Place your data disk in the disk drive, remove the write-protect tab, and press **CTRL S**. The option settings will be saved in a file called SWOPTIONS. To load the settings back into Sideways, simply press **CTRL L**.

If you save your option settings on the SWIFTCALC program disk instead of your data disk, these settings will load into your computer automatically every time you load Sideways. Remember to remove the write-protect tab before saving your options, and replace the tab afterwards.

If you have one standard group of option settings that you use most of the time, it makes sense to save them on your SWIFTCALC disk. If you have different option settings for different print files, you might want to save each of the various settings on a different disk, and use **CTRL L** to load each group separately.

## Selecting a File to Print

To print a file, move the cursor to the "Print File" field, and type in the name of the file you want to print. Then press **RETURN**.

If you are using the program for the first time, you may want to print our sample file. To do so, place the SWIFTCALC program disk in the disk drive and enter "SAMPLE.PRF" in the "Print File" field.

To stop the printing process at any time, hold down **P** until the printer finishes its line. It will then stop printing and do a form feed.

After your file has been printed, you may either change your option settings, enter a new file name for printing, or exit the program by pressing **CTRL E**.

### Wild Cards

If you don't remember the name of the file you want to print, you can examine the file names on your disk by using a "wild card" in each file name you enter. The wild card is an asterisk (\*) symbol which stands for any sequence of characters in the corresponding position of the file name.

For example, P\*W would stand for any file name starting with P and ending with W. After entering the file name with the wild card in it, do not press **RETURN**. Instead, press the right cursor key (→) to display, one by one, all text files matching your entry. When the file that you want appears, press **RETURN** to print it.

Here are some examples of wild cards:

- \* All files
- \*.PRF All files ending in ".PRF"
- W\* All files whose first character is "W"

### Using a Dual Drive

If you have a dual drive, you may select a file in drive 0 or drive 1 by entering the characters 0: or 1: before entering the file name.

For example, to print the BUDGET.PRF file, which might be on a disk in drive 1, you would enter

1:BUDGET.PRF

and press **RETURN**. If you don't specify a drive, the computer will assume drive 0.

---

NOTE: Sideways does not work with two 1541 disk drives.

---

---

NOTE: The Sideways program on your program disk will only print files that were created with SWIFTCALC.

---

To return to the computer's operating system, press **F7**, and you will be able to load another program. To work with SWIFTCALC again, load the program using the instructions in Chapter 2 of this manual.

## ■ The DISK COMMANDS Pull-Down Menu

### Saving a File

Use this option to store your entire spreadsheet on your data disk. Each spreadsheet is stored on your disk as a separate file. When you select the "Save File" option on the DISK COMMANDS pull-down menu, you will see the prompt FILE NAME?. Enter a name for the spreadsheet and press **RETURN**. The spreadsheet that is currently in the computer's memory will be saved on your data disk, along with the colours, formats, and cell widths in that spreadsheet. Make sure that your data disk is in the disk drive.

You will be notified by a message in the prompt area if the save was successful. You will also be notified if the computer encounters a problem in saving a document.

---

**WARNING!** To guard against losing your data due to equipment or disk problems, make sure that you save your spreadsheet onto your SWIFTCALC data disk at least every 30 minutes. If your system does experience a shutdown, you will lose only 30 minutes' work.

---

### **Loading a File**

Use this option to recall a spreadsheet from your SWIFTCALC data disk. When you select the "Load File" option, you will be asked if you want to abandon the spreadsheet you are currently working on. If so, press **Y**, and you will see the prompt FILE NAME?. Enter the name of the file that you wish to work with and press **RETURN**. The file you requested will be loaded from the disk in your disk drive. You will be notified by a message in the prompt area if the computer has a problem finding the file you requested.

---

**NOTE:** When you load a spreadsheet, the spreadsheet currently in your computer will be erased, so make sure that you have saved it on your data disk before loading the new document.

---

### **Viewing the Disk Directory**

Use this option to view a list of files on your data disk. This comes in handy when you are trying to find a specific document. To view the directory of a disk, select this option on the DISK COMMANDS pull-down menu. The names of the files on your disk will be displayed on your screen.

With SWIFTCALC, you can load a document from your directory into the computer. Just use the up and down cursor keys to select a file listed in the directory on your display. When you press a cursor key, the highlight on the directory will move from file to file and the entire directory will scroll on your screen. Stop the highlight over a file you want to work with. Then press **RETURN**, and the file will be loaded into your computer.

### **Erasing a Spreadsheet File**

To erase obsolete spreadsheet files from your SWIFTCALC data disk, select this option on the DISK COMMANDS pull-down menu and enter the name of the file you wish to erase. Press **RETURN** and the file will be erased.

### **Renaming a Spreadsheet File**

To change the name of a file stored on disk, select the "Rename File" option on the DISK COMMANDS pull-down menu. Enter the current name of the file. Make sure that the disk containing this file is in your drive. Next you will see the prompt **NEW FILE NAME?**. Enter the new name for your file, and the computer will rename that file as you requested.

### **Assigning File Names to Your Spreadsheets**

SWIFTCALC offers you an option to assign file names to your spreadsheets while you are working on them. This name will appear at the bottom right of your screen in the FILE NAME box, where you can refer to it as you are working. When you save the spreadsheet on disk, you can keep this file name, or you can assign a new one.

To assign a working file name to your spreadsheet, select the "Assign File Name" menu item on the DISK COMMANDS pull-down menu. In response to the prompt ENTER FILE NAME?, enter a name for your spreadsheet (up to 14 characters).

### **DOS Commands**

Use this option to access the commands used by your computer's disk operating system. These options include the Scratch command (used to erase a file from your disk), the Validate command (used to "clean up" a disk after scratching a file), the New command (used to format a disk before storing information on it), and the Diskcopy command (used to copy a disk). See your disk drive manual or contact your disk drive manufacturer for information on the available commands.

When you select this option on the DISK COMMANDS pull-down menu, you will be asked to enter the command you want to use. Do so, and follow the prompts to execute this command.

---

NOTE: Use the NEW command to format data disks for use with this program. The format for this command is N0: followed by a name for your disk (such as WORK) and a two-digit identification code of your choice. For example: N0: work, 1a. See your disk drive manual for more information.

---

### **■ The QUIT Pull-Down Menu**

---

WARNING: The following options will erase the information that is currently in the computer's memory. Make sure that you save all important information onto your SWIFTCALC data disk.

---

## **Resetting SWIFTCALC 128**

Use this option to clear the computer's memory so that you can begin a new spreadsheet. In response to the warning prompt, press **Y** if you want to erase the spreadsheet currently in the computer (make sure that you have saved it on your data disk). The computer will clear the screen, and you will be able to enter new spreadsheet information.

## **Returning to the System**

To return to your computer's operating system, select "Return to System" on the QUIT pull-down menu. Then select one of the following ways to return to the system:

- Replace the program disk in your disk drive with a data disk or a program disk that is not self-booting. If the computer doesn't find a self-booting program on a disk in the drive, it returns you to the operating system.

OR

- Turn off your disk drive after selecting "Return to System". If the disk drive is not present, the computer will return to the operating system.

---

**NOTE: DO NOT** leave your disk drive empty after selecting "Return to System". If your disk drive is on but you have not placed a disk inside, the drive will grind as the computer looks for a disk there. This may eventually harm your drive.

---

To load another program after you have finished using SWIFTCALC, place a self-booting program disk, such as Timeworks' WORD WRITER 128 or DATA MANAGER 128, in your disk drive. The program will load into the computer.

### ■ The Quick Commands

For your convenience, SWIFTCALC 128 offers you a process for calling up several menu items without having to access the pull-down menus. You can use one of these “quick commands” by pressing the **⌘** key and the first letter of the command you want to use. Listed below are the quick commands and their corresponding keys.

- ⌘ F** Format
- ⌘ M** Move
- ⌘ C** Copy
- ⌘ D** Delete a Block
- ⌘ P** Print
- ⌘ S** Save File
- ⌘ L** Load File
- ⌘ V** View Directory
- ⌘ Q** Return to System

Each of these commands is discussed earlier in this chapter. One final quick command is the “Create Temporary File” command. If you are entering information and need to leave the computer for a few minutes, you can save your text in a temporary file on your disk by pressing the **⌘** and **T** keys. This file is given the name “Temp” on your disk. Each time you use this command, the computer will overwrite the current “Temp” file, so be sure you save all text you want to keep using the “Save File” option.

- Exponentiation
- The Minimum Value of a Range
- The Maximum Value of a Range
- The Average Value of a Range
- The Sum of a Range
- The Value Count of a Range
- The Absolute Value of a Cell
- The Integer Value of a Cell
- Converting a Percentage to a Decimal Number
- Financial Analysis Functions
  - The Present Value of a Pound
  - The Future Value of a Pound
  - The Present Value of an Annuity
  - The Future Value of an Annuity
- If . . . Then and Other Logical Statements
- The RANGE Function
- Trigonometric and Logarithmic Functions

In this section we will discuss the mathematical functions available to you for use in your formulae. We will use the spreadsheet below for all of the examples that follow. Using the instructions for data entry in Chapter 2 of this manual, enter the labels and values shown below into the SWIFTCALC spreadsheet on your screen.

Sample Spreadsheet

	a	b	c	d	e
1		column b	column c	column d	column e
2	row 2	4.50	33.00	10.00	1234.00
3	row 3	3.40	22.00	20.00	1345.00
4	row 4	123.40	44.00	30.00	1023.00
5	row 5	1.34	-12.00	40.00	1672.00
6	row 6	2.00	4.00	50.00	1112.00
7	row 7	3.00	5.00	60.00	2345.00
8	row 8				

Fig. 22

## ■ Exponentiation

This is a powerful function that lets you compute square roots, squares, cube roots, and other exponential calculations. An example of an exponential calculation would be  $4^2 = 16$  or  $3^3 = 27$ .

To tell the computer that you want to perform an exponential calculation, press the **=** key. To enter  $4^2$ , type in  $4 \uparrow 2$  at the top right hand side of your keyboard, and the number 16 will appear in the cell in which your cursor is located.

To find the square root of a value, you must use .5 in your formula. For example, to find the square root of 4, press the **=** key and enter  $4 \uparrow .5$ . The answer is 2.

To find the cube root of a value, you must use .3333 in your formula. For example, to find the cube root of 27, press the **=** key and enter the formula  $27 \uparrow .3333$ . The answer is 3.

You can also use cell values in your formula. To find the square of the value in cell b2 of our sample spreadsheet, press the **=** key and enter  $b2 \uparrow 2$ . The answer is 20.25. Try this using other values in the sample spreadsheet.

### **■ The Minimum Value of a Range**

---

**NOTE:** Throughout this discussion of mathematical functions, you will see the abbreviations LOC1 and LOC2. The term LOC stands for “locations”, and these abbreviations represent the beginning cell location and the ending cell location in your range. LOC1 and LOC2 must always denote cells in the same row or column.

---

The MIN function will help you find the minimum value within a range of values in a group of cells. This function saves you time, because you do not have to move the cursor to each and every cell in the range to find its minimum value. SWIFTCALC does it for you. The format you must use for this function is `MIN(LOC1:LOC2)`.

To enter the formula to find the minimum value of a range, press **=** and then enter MIN. Then enter a bracket and the address of the first cell in the range that you want the computer to check. Enter a colon (:) and the address of the cell at the end of your range. (The colon is used to separate the two cell addresses.) Then enter a second bracket. Your formula might look like this:

MIN(a5:a25)

(It doesn't matter if you enter MIN in capital or lower-case letters.) When you enter this formula, the computer will check through the range you have specified, including cells a5 and a25.

Let's look at the MIN function using our sample spreadsheet. Try entering the following formulae in blank cells in column f in the sample spreadsheet using the above instructions. (Remember to press the **=** key before entering these formulae.)

MIN(b2:b7)

MIN(b5:e5)

The minimum values for these ranges are 1.34 and -12.00, respectively.

Now for a more difficult example. Perhaps you want to find the minimum value in an irregular-shaped block of cells. This block consists of cells b5 through b7, c2 through c7, d2 through d7, and e2 through e4. To do this, first place the cursor in cell f2 (a blank cell) and enter the formula

MIN(b5:b7)

The value 1.34 will appear in that cell. Now move the cursor to cell f3 and enter the formula

`MIN(c2:c7)`

The value -12.00 will appear in that cell. Now move the cursor to cell f4 and enter the formula

`MIN(d2:d7)`

The value 10.00 will appear in that cell. Move the cursor to cell f5 and enter the formula

`MIN(e2:e4)`

The value 1023.00 will appear in that cell. Now move the cursor to cell f6 and enter the formula

`MIN(f2:f5)`

The value -12.00 will appear in this cell. This is the minimum value in the entire irregular-shaped range. This is a relatively simple process in which you break a large job down into several smaller jobs.

### ■ The Maximum Value of a Range

Use this function to find the largest value in a range of cells. The format for this function is `MAX(LOC1:LOC2)`. For `LOC1` and `LOC2`, you must enter the addresses of the first cell and the last cell in the range that you want to work with.

Let's look at the MAX functions using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the **=** key before entering these formulae.)

MAX(b2:b7)

MAX(b5:e5)

The maximum values for these ranges are 123.40 and 1672.00, respectively.

To find the maximum value in an irregular-shaped block, or range of cells, see pages 107-8. You can adapt the procedure shown at the end of that section to find the maximum value in an irregular-shaped block.

## ■ The Average Value of a Range

Use this function to find the average of the values in a range of cells. The average is defined as the sum of the values divided by the number of values. The format used for this function is **AVG(LOC1:LOC2)**.

Let's look at the AVG function using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the **=** key before entering these formulae.)

AVG(b2:b7)

In this example, the computer adds all of the values in cells b2 through b7 and then divides that sum, 137.64, by the number of values in the range (6). The average of the values is 22.94.

AVG(b5:e5)

Using the same process as in the above example, the computer arrives at an average of 425.34.

To find the average value in an irregular-shaped block, or range of cells, pages 107-8. You can adapt the procedure shown at the end of that section to find the average value in an irregular-shaped block.

### ■ The Sum of a Range

Use this function to find the sum of the values in a range. The format for this function is `SUM(LOC1:LOC2)`.

Let's look at the `SUM` function using our sample spreadsheet. Try entering the formulae shown below in blank cells in the sample spreadsheet. (Remember to press the `=` key before entering these formulae.)

`SUM(b2:b7)`

`SUM(b5:e5)`

The sums of the values in these ranges are 137.64 and 1701.34, respectively.

To find the sum of the values in an irregular-shaped block, or range of cells, pages 107-8. You can adapt the procedure shown at the end of that section to find the sum of the values in an irregular-shaped block.

## ■ The Value Count of a Range

Use this function to find the number, or count, of values within a range of cells. For example, the count of values in the range (b2:e2) is 4, because there are 4 values in that range of cells. (The CNT function does not count blank cells or cells that contain labels.) The format used for this function is `CNT(LOC1:LOC2)`.

Let's look at the CNT function using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the **=** key before entering these formulae.)

`CNT(b1:b7)`

There are 6 values in this range, so the count is 6.00.

`CNT(a5:e5)`

There are 4 values in this range, so the count is 4.00.

To find the count of the values in an irregular-shaped block, or range of cells, see pages 107-8. You can adapt the procedure shown at the end of that section to find the sum of the values in an irregular-shaped block.

## ■ The Absolute Value of a Cell

Use this function to find the absolute value of a number in your spreadsheet. The absolute value of a number is its pure value without regard to negative or positive signs. For example, the absolute value of  $-5$  is 5, and the absolute value of  $+5$  is also 5. You might use this function if you wanted to know the difference between two numbers but it didn't matter to you if the result was either negative or positive.

The format for this function is **ABS(#EXP#)**. In this format (and in several others in this manual), the characters **#EXP#** stand for the word “expression”. An expression is a value, cell address, or formula that you fill into the format. Use whatever values or formulae you like in this format – they don’t have to be from your spreadsheet.

Let’s look at the ABS function using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the **⏏** key before entering these formulae.)

**ABS(c5)**

In this example, the number in cell c5 is  $-12.00$ , but the absolute value is  $12.00$ .

**ABS(b5)**

The value in cell b5 is  $1.34$ , a positive number, and its absolute value is also  $1.34$ .

**ABS(5-7)**

This example contains an equation,  $5-7$ . The answer to this problem is  $-2.00$ , but the absolute value of this number is  $2.00$ .

**ABS(c6-c7)**

This example also contains an equation. When you replace the cell addresses with their corresponding numbers, the equation reads  $4.00-5.00$ . The answer to this problem is  $-1.00$ , and the absolute value of that number is  $1.00$ .

## ■ The Integer Value of a Cell

Use this function to find the integer value of an expression in your formula. An integer is a whole number. Decimal portions and fractions are not whole numbers, and therefore not integers. When the computer gives you the integer value of a number, it eliminates any digits to the right of the decimal point. (This function does not round off numbers.)

The format for this function is `INT(#EXP#)`. Let's look at the `INT` function using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the **=** key before entering these formulae.)

`INT(3.9)`

In this example, the integer value of 3.9 is 3.00, as the computer would disregard any numbers to the right of the decimal.

`INT(b5)`

The number in cell b5 is 1.34, and its integer value is 1.00.

`INT(c5)`

The number in cell c5 is -12.00, and the integer value of this number is the same.

`INT(b4 + b5)`

This example contains an equation. When you replace the cell addresses with their corresponding numbers, the equation reads  $123.40 + 1.34$ , or 124.74. The integer value of this number is 124.00, because the computer disregards numbers to the right of the decimal.

## ■ Converting a Percentage to a Decimal Number

The percent function allows you to convert an expression in your formula from a percentage figure to a decimal number. To do this, the computer divides the expression by 100. This function will make it easier for you to work with numbers in your spreadsheet when they are all in decimal form.

The format for this function is `PCT(#EXP#)`. Let's look at the PCT function using our sample spreadsheet. Try entering the formulae shown below in a blank cell in the sample spreadsheet. (Remember to press the `=` key before entering these formulae.)

`PCT(47.2)`

When the computer divides this value (which can also be read as 47.2%) by 100, the resulting answer is .47 (or .472 if your cell is formatted for more than 2 decimal places).

`PCT(c2)`

The value in cell c2 is 33.00 or 33%. When this value is divided by 100, the answer is .33.

`PCT(c2)*e2`

In this equation, you want the computer to convert the value in cell c2 to a decimal figure and multiply it times the value in cell e2. As we know from the above example, the decimal figure for the value in cell c2 is .33. Multiply this figure by the value in cell e2 (1234.00), and the result is 407.22, a number that is 33% of 1234.00.

PCT(10)\*e2

In the above example, 10% converts to .10. Multiply this number by the value in cell e2 (1234.00), and your result is 123.40 or 10% of 1234.00.

## ■ Financial Analysis Functions

SWIFTCALC features four functions that will aid you in working with your financial data: The Present Value of a Pound (PVP), and Future Value of a Pound (FVP), the Present Value of an Annuity (PVA), and the Future Value of an Annuity (FVA). These functions will help you examine the long-term consequences of your investment opportunities.

The formats for each of these functions include three variables:

- A** stands for a monetary amount in pounds
- I** stands for the interest rate in decimal form (10% = .10)
- N** stands for the number of time periods that amount is invested (for example, 36 months, 20 years, etc.)

You can replace these variables in your formula with values from your spreadsheet or values that are not from your spreadsheet. You can also use cell addresses to represent a value in your formula. For example, if cell c5 holds the amount in pounds that you want to use for variable A in your formula, you can enter c5 in your formula.

---

NOTE: For a complete discussion of present and future value analysis, consult a book that covers these subjects in greater detail.

---

## **The Present Value of a Pound**

This function can be used to find the present value of an amount in pounds that you will receive at some point in the future. It will help you decide on the financial wisdom of the investment.

The format for this function is  $PVP(A,I,N)$ . (See above for an explanation of each of these variables.) Let's look at the PVP function using our sample spreadsheet (Fig. 22).

Example:

The company you work for has decided to give you a bonus for your hard work. You have been offered two options for payment of the bonus.

Option 1:

At the end of each of the next three years, you would receive cash payments as follows: £3,000 after the first year; £4,000 after the second year; and £5,000 after the third year.

Option 2:

You would receive a one-time cash payment of £10,000 now.

Assume: 1) an annual interest rate of 10%, and  
2) income taxes are not taken into consideration.

To make an effective decision, you need to know the present value of the total amounts that will be paid out to you over the three-year period.

First you must enter the following amounts in blank cells in your spreadsheet.

cell f1: 3000

cell f2: 4000

cell f3: 5000

Now enter the following formula in cell f4:

$PVP(f1, .10, 1) + PVP(f2, .10, 2) + PVP(f3, .10, 3)$

f1, f2, and f3 are cell addresses

.10 is the rate of interest

1, 2, and 3 are the number of years

Press **RETURN**, and the answer to this formula will appear in cell f4.

**Solution:** The present value of the amounts paid out over three years is £9,789.63. Since this amount is less than £10,000, you should opt for the one-time £10,000 cash payment.

## **The Future Value of a Pound**

The future value of a pound amount is equal to the principal, or invested amount, plus the interest that this amount will earn during the investment period.

The format for this function is  $FVP(A,I,N)$ . Let's look at the  $FVP$  function using our sample spreadsheet (Fig. 22).

Example 1:

You have an opportunity to invest £2,500 of your money at a rate of 10%, compounded annually, for 15 years. This function would help you find the cash value of that £2,500 at the end of that time.

Enter the following formula for this option in a blank cell of your spreadsheet:

$FVP(2500, .10, 15)$

Then press **RETURN**. The answer will appear in that cell of your spreadsheet. The future value of £2,500 invested at 10% interest for 15 years would be £10,443.12.

Example 2:

Here we want to know the future value of the pound amount in cell e7 (2345), which we want to invest at an interest rate of 10% for one year.

$FVP(e7, .10, 1)$

Then press **RETURN** and the answer to this formula will appear in that cell of your spreadsheet. The future value of £2,345 at the end of 1 year would be £2,579.50.

### **The Present Value of an Annuity**

This function will help you determine the present value of an annuity. An annuity is an amount of money paid to an investor at regular intervals over a period of time, starting at some date in the future.

The format for this function is  $PVA(A,I,N)$ . Let's look at the PVA function using our sample spreadsheet (Fig. 22).

Example:

The company you work for has decided to give you a bonus for your hard work. You have been offered two options for payment of the bonus:

Option 1:

You would receive a fixed cash payment of £4,100 at the end of each of the next three years.

---

NOTE: The Present Value of an Annuity deals with fixed amounts, while the Present Value of a Pound deals with variable amounts.

---

Option 2:

You would receive a one-time cash payment of £10,000 now.

Assume: 1) an annual interest rate of 10%, and  
2) income taxes are not taken into consideration.

To make an effective decision, you need to know the present value of the amounts that will be paid out to you over the three-year period.

First you must enter the following amount in a blank cell in your spreadsheet.

cell g1: 4100

Now enter the following formula in cell g2:

PVA(g1, .10, 3)

Press **RETURN**, and the answer to this formula will appear in cell g2.

**Solution:** The present value of the amounts paid out over three years is £10,196.09. Since this amount is more than £10,000, you should opt for the amounts paid out over the next three years.

## The Future Value of an Annuity

This function helps you find the future value of an annuity, an amount of money you will receive at regular intervals over a period of time starting at some date in the future.

The format for this function is FVA(A,I,N). Let's look at the FVA function using our sample spreadsheet (Fig. 22).

**Example:**

You decide to invest £2,000 each year in a Building Society account, which is invested at an annual interest rate of 10%. What will be the future value of this account at the end of 10 years? 15 years? 20 years?

Enter the first formula for this problem in a cell of your spreadsheet:

FVA(2000, .10, 10)

Then press **RETURN**, and the answer will appear in that cell of your spreadsheet. The future value of your investment would be £31,874.85. To find out the future value of this investment after 15 years, just replace the 10 in the formula with 15. The computer will recalculate the formula and tell you that the future value of that 15-year investment would be £63,544.96. Now try entering 20 for 20 years. The future value of that investment would be £114,550.00.

## ■ If . . . Then and Other Logical Statements

SWIFTCALC allows you to perform tests on your spreadsheet data using special formats to create what are called logical statements. These statements ask the computer to calculate data that you specify, to make a decision about that data for you, and then take a course of action with your data. You enter these statements into your cells just as you would enter any other formula. As you enter them, you also enter the data you want to test. This data could be cell addresses or values from your spreadsheet, or it could be other values you select which do not appear in your spreadsheet. Let's take a look at each of these statements and some examples for using them.

### The If...Then Statement

In plain English, the If...Then statement says, "If expression 1 is true, then expression 2 applies." This statement asks SWIFTCALC to read the expressions in the statement and, in effect, make a decision for you and take some sort of action with your data. The format for this statement is:

If (#EXP#) Then (#EXP#)

Just as in some of SWIFTCALC's other mathematical functions, the characters #EXP# stand for the word "expression". An expression is a value, cell address, or formula that you fill into the format. You can use whatever values or formulae you like in this format – they don't have to be from your spreadsheet.

---

**NOTE:** When entering an If . . . Then statement into the computer, be sure to place a space after If and before the expression, another space after the expression and before Then, and another space after Then.

---

There are several logical symbols you can use in the "If" part of the statement to ask the computer to test your data.

< Less than

> More than

= Equal to

<> Not equal to

<= Less than or equal to

>= More than or equal to

Now let's look at a practical use for this statement.

Example:

Let's say your company policy states that if a customer's order totals less than £1,000, he will be charged 5% for carriage. Let's assume you are using cell d22 to hold the total order amount. To perform this calculation, press **=** and enter the following logical statement in cell d24 (or any empty cell) in your spreadsheet:

If d22<1000 Then d22\*.05

This statement says, in effect, "If the value in cell d22 is less than £1,000, then multiply the value in cell d22 by 5% (.05)." When you enter this statement, the computer looks in cell d22, which contains the total order amount. If that value is less than £1,000, the computer multiplies the total order amount by 5% and place the result in cell d24, where you entered this statement. The result in cell d24 is the cost of carriage charged to this customer.

Enter some different amounts in cell d22 to represent the total order amount, and watch cell d24 for your results.

## **If...Then...Else Statements**

You can also apply the logical statement If...Then...Else to your data. In English, this statement reads "If expression 1 is true, then expression 2 applies, but if expression 1 is false, expression 3 applies." The If...Then...Else statement asks the computer to take the logical test on your data one step further.

Example:

Let's take the same example we used for the If...Then statement. Your company also decides to apply a lower carriage charge to orders over £1,000. If the order is under £1,000, you will still charge 5%, but if the order is over £1,000, you will only charge 3% for carriage. Your logical statement would look like this:

```
If d22<1000 Then d22*.05 Else d22*.03
```

---

NOTE: When entering an If...Then...Else statement, be sure to place a space after If and before the expression. You must also place a space before and after Then and before and after Else.

---

Now the computer will check the total order amount in cell d22. If this amount is under £1,000, the computer will multiply the amount by 5%. If the amount is £1,000 or more, the computer will multiply the amount by 3%. In either case, the result will appear in the cell where you entered the If...Then...Else statement. This amount represents the customer's total carriage charges.

### Using the STOP Command with Logical Statements

The last two logical statements you can use are If...Then STOP and If...Then...Else STOP, which are simply variations of the two statements we have already looked at.

The first statement, If...Then STOP, reads "If expression 1 is true, then stop calculating." The second statement, If...Then...Else STOP, reads "If expression 1 is true, then expression 2 applies, but if expression 1 is false, then stop calculating."

Both of these statements are useful when used with the RANGE function, which is discussed in the following section of this manual. For further applications of the RANGE statement and the STOP command, see Chapter 6 of this manual.

## ■ The RANGE Function

One of the most powerful features of SWIFTCALC is the RANGE function. This function allows your computer to test a range, or series, of values for “what if” calculations without requiring you to enter each new value.

The power of the RANGE function lies in the fact that you can use any range of values you specify in a formula anywhere in your spreadsheet. All you have to do is enter your RANGE statement in one cell and enter your formula in another. (Your formula must, of course, contain the cell address of the cell that holds your RANGE statement.)

Like the other functions in SWIFTCALC, the RANGE function has a specific format you must use, as shown below:

RANGE(A,B,C)

A = The beginning value of the range

B = The ending value of the range

C = The value for each step, or increment, in the range

Using this format, you can tell the computer exactly which values you want to insert into your formula.

**NOTE:** Before entering a RANGE statement, it is a good idea to turn off the “Automatic Calculation” feature. If you do not turn off this feature, the computer will begin calculating your spreadsheet and displaying results as soon as you enter the RANGE statement. If you turn off this feature, you can activate the calculation process manually at the press of a key.

To turn off the “Automatic Calculation” feature, press the **C** and **F5** keys. Then enter your RANGE statement. To begin computing your range, press **F5** (this turns on the “Execute Calculations” feature).

When you are finished viewing range calculations, press **C** **F5** again if you would like to turn the “Automatic Calculation” feature back on.

---

This feature can save you valuable data entry time. For a practical application of the RANGE function, see the example in Chapter 6. Then experiment with the RANGE function until you feel comfortable with it.

## ■ Trigonometric and Logarithmic Functions

SWIFTCALC contains a number of trigonometric functions. We recommend that you do not attempt to use these functions unless you have had some instruction in trigonometry or you have consulted a good textbook in this subject. These functions are:

SIN(#EXP#)	Sine
COS(#EXP#)	Cosine
TAN(#EXP#)	Tangent
ATN(#EXP#)	ArcTangent

In these functions, the characters #EXP# stand for the radian measure or the cell address that contains that measure. If your measure is expressed in degrees, not radians, you can convert the measure to radians using the following formula:

$$\text{Degrees} * .01745 = \text{Radians}$$

SWIFTCALC also contains two logarithmic functions, which are used to find the natural exponent and the natural logarithm of a value:

EXP(#EXP#)	Natural Exponent
LOG(#EXP#)	Natural Logarithm

Again, we stress that to use these functions to their maximum potential, you must be familiar with the concepts of trigonometry and logarithms. Consult a mathematics textbook for this information.

---

NOTE: If you use a trigonometric or logarithmic function in a spreadsheet, you will not be able to load that spreadsheet into an older version of SWIFTCALC 128.

---

- Steps for Performing an Analysis
- Examples for Using SWIFTCALC 128
  - A Detailed Home Budget
  - A Trip Cost Comparison
  - Creating Financial Models and  
Performing Financial Analyses
  - Using the RANGE Function

## ■ Steps for Performing A Financial Analysis

SWIFTCALC is an extremely versatile program which can be used to do a variety of financial analyses. (Don't let the phrase "financial analysis" intimidate you. Your home budget is an example of a simple financial analysis.)

There are a few steps you must take when you want to do an analysis using SWIFTCALC. These steps are:

1. Determine the type of analysis you want to do.
2. Gather the pertinent information you will need to design the spreadsheet.
3. Load your SWIFTCALC program using the instructions in Chapter 2 of this manual. When the spreadsheet window appears on your screen, enter the row and column headings that will define your spreadsheet.
4. Next, move the cursor to the cells that will contain your formulae. Enter your formulae using the guidelines in Chapter 2 of this manual.
5. After you have defined your spreadsheet, save it onto a data disk for safekeeping.
6. Now begin entering values into your spreadsheet. As you enter your values, the results of your calculations will appear automatically on your display.
7. When you obtain the results that you want to keep, you can either save the spreadsheet onto your data disk or print it on paper.

## ■ Examples for Using SWIFTCALC 128

To help you get a better idea of SWIFTCALC's potential, this section discusses four different applications for SWIFTCALC. The format and operation of each of these examples are not intended to be as important as the techniques themselves, which you must use to set up your spreadsheets.

You will find sample values for five examples on your SWIFTCALC program disk under the file names "bud", "trip", "fin1", "fin2", and "range". Before attempting to construct one of these spreadsheets yourself, we suggest you load these sample spreadsheets into SWIFTCALC. For example, to work with our budget spreadsheet, load the file called "bud", using the instructions in Chapter 4 of this manual. Then print this sample spreadsheet on your printer. Clear your screen, and then use a printout or the illustration in the manual as your guideline as you follow our step-by-step instructions for constructing these spreadsheets yourself.

### **A Detailed Home Budget**

This example will cover a budget spreadsheet that will help you keep track of your expenses for each month. You will be able to enter budgeted and actual amounts, and SWIFTCALC will compute the differences and sum up your total expenses. To view the budget file, load the "bud" file into the computer.

Figure 23 shows the entire "bud" spreadsheet. Refer to this often as you follow these instructions to build this sample spreadsheet.

Fig. 23

MONTH: JANUARY 1988						
CATEGORIES	BUDGET	ACTUAL	DIFF	% DIFF	% TOT BUD	% TOT ACT
<b>INCOME:</b>						
Salary	1675.00	1866.00	191.00	111.40	93.06	95.06
Dividends	125.00	97.00	-28.00	77.60	6.94	4.94
<b>Total Income</b>	<b>1800.00</b>	<b>1963.00</b>	<b>163.00</b>	<b>109.06</b>	<b>100.00</b>	<b>100.00</b>
<b>EXPENSES:</b>						
Mortgage Pmt	500.00	500.00	0.00	100.00	28.25	25.72
Gas & Electricity	100.00	90.00	-10.00	90.00	5.65	4.63
Car Pmt	200.00	200.00	0.00	100.00	11.30	10.29
Groceries	100.00	130.00	30.00	130.00	5.65	6.69
Car/Trans	50.00	40.00	-10.00	80.00	2.82	2.06
Maintenance	50.00	0.00	-50.00	0.00	2.82	0.00
Med/Dent	100.00	50.00	-50.00	50.00	5.65	2.57
Clothing	150.00	230.00	80.00	153.33	8.47	11.83
Education	20.00	24.00	4.00	120.00	1.13	1.23
Recreation	100.00	80.00	-20.00	80.00	5.65	4.12
Savings	100.00	300.00	200.00	300.00	5.65	15.43
Visa/Access	300.00	300.00	0.00	100.00	16.95	15.43
Other 1	0.00	0.00	0.00	<ERROR>	0.00	0.00
Other 2	0.00	0.00	0.00	<ERROR>	0.00	0.00
Other 3	0.00	0.00	0.00	<ERROR>	0.00	0.00
<b>Total Expenses</b>	<b>1770.00</b>	<b>1944.00</b>	<b>174.00</b>	<b>109.83</b>	<b>100.00</b>	<b>100.00</b>
<b>Net Income (Loss)</b>	<b>30.00</b>	<b>19.00</b>	<b>-11.00</b>	<b>63.33</b>	<b>1.69</b>	<b>.98</b>

Now clear your display using the “Reset SWIFTCALC” menu item on the QUIT pull-down menu and follow this step-by-step procedure to set up the budget spreadsheet.

## Entering Your Row and Column Headings

First you want to enter your row headings in column a, but this column isn't wide enough for your headings. You will have to adjust the column width to 20 characters. To do so, select the “Width” menu item on the FUNCTIONS pull-down menu. A window will appear on your screen. Move the highlight in this window to “Cell Width”, and enter 20 to widen column a to 20 characters.

Now you must specify which cells you want to widen. To do so, press **F3** (while the Width window is still on your screen). Now move the cursor to cell a1 and press **F7** twice. Column a will be set to 20 characters wide.

It's time to enter the dotted lines in the spreadsheet. While the cursor is in cell a1, press the **■** key. Then press the **■** key, and keep pressing until the dotted lines are entered in cells a1, b1, c1, d1, e1, f1, and g1. Because you are entering a label, the cursor will not stop when you reach the end of a cell. If the label, which in this case is a dotted line, is too big for a cell, the cursor will move into the next cell and allow you to keep entering your label.

Now you must enter the dotted lines in rows 2, 4, 6, 11, 13, 32, 34, 36, and 37. The “Copy” menu item on the FUNCTIONS pull-down menu offers you an easy way to perform this task. First, use your cursor keys to select this menu item. To specify what cell or cells you want to copy, move the cursor to cell a1 and press the **F7** key. Then move the cursor to cell g1 and press **F7** again.

You now need to tell the computer where you want to copy the dotted line. Now move the cursor to cell a2 and press **F7**, and then move the cursor to cell g2 and press **F7**. The dotted line will then be copied into the cells you have indicated. Now use the “Copy” menu item to copy the dotted lines to the other eight rows. Whenever you see the prompt RELATIVE OR FIXED?, press **F** for fixed.

---

NOTE: You don't have to call up the menu headings each time you want to use the “Copy” option. If you have just used “Copy”, you can recall that menu item by pressing **C** and **F1** and following the prompts on your screen. (**C** and **F1** will only recall the most recently used menu item.)

---

Lastly, you must enter all column and row headings in the spreadsheet. If you want to centre the headings in row 5 (Budget, Actual, Diff, %Diff, %Tot Bud, and %Tot Act), select the “Format” menu item on the FUNCTIONS pull-down menu. When the Format window appears on your screen, set the “Centre Text” option at Y for yes, and press **F3** to specify the block to centre. Then move the cursor to cell b5 and press **F7**, and move to cell g5 and press **F7**. Now when you enter text in these cells, the text will be centred.

Follow Figure 23 or your printout and enter the column and row headings in the spreadsheet.

## Entering Your Formulae for the Budget, Actual, and Difference Columns

Now it's time to enter your formulae.

1. First, move the cursor to cell b12, which will hold the formula for "Total Income" in the Budget column. This is the sum of the values in cell b9, Salary, and cell b10, Dividends. Press the **=** key and enter

b9 + b10

Next you must copy this formula to cells c12 and d12. To do this, select the "Copy" menu item on the FUNCTIONS pull-down menu. Then move the cursor to cell b12 and press the **F7** key twice to tell the computer which cell you want to copy. Now you must specify where you want this formula copied. Move the cursor to cell c12 and press **F7**, and then move the cursor to cell d12 and press **F7** again.

When you see the prompt RELATIVE OR FIXED? (R/F), press **R** for both variables, because you want the computer to rewrite the formula in each cell using adjusted cell addresses. For example, the formula in cell c12 should be c9 + c10, and the formula in cell d12 should be d9 + d10. Your formula will now be copied to cells c12 and d12.

2. Now move the cursor to cell b33 to enter the formula for "Total Expenses" in the Budget column. This is the sum of the values in cells b17 to b31. Press **=** and enter

SUM(b17:b31)

Next, use the “Copy” menu item to copy this formula to cells c33 and d33. (For a quick review of this function, see step 1 in this example.) When you see the prompt RELATIVE OR FIXED? (R/F), press **F2** for both variables. Your formula will now be copied to cells c33 and d33.

3. Move the cursor to cell d9 to enter the formula for the difference between your budgeted salary amount (column b) and your actual salary amount (column c). Press the **=** key and enter

c9-b9

Next copy this formula to cell d10 (to give you the difference between your budgeted dividends amount and your actual dividends amount). When you see the prompt RELATIVE OR FIXED? (R/F), press **F2** for both variables. Your formula will now be copied to cell d10.

To find the difference between your budgeted and actual amounts for all the categories in the spreadsheet, you must copy this formula to cells d17 to d31. Use the “Copy” menu item to execute this copy task.

4. Move the cursor to cell b35 to enter the formula for “Net Income or Loss”. This is the difference between your income and expenses. Press the **=** key, and enter

b12-b33

Now copy this formula to cells c35 and d35. When you see the prompt RELATIVE OR FIXED? (R/F), press **F4** for both variables. Your formula will now be copied to cells c35 and d35.

### Entering The Formulae for the %DIFF Column

Now it's time to enter your formula for the percentage difference between your budgeted and actual amounts in column e. Move the cursor to cell e9 and press the **=** key. Enter the formula

$(c9/b9)*100$

Cell c9 holds the actual amount for the category in row 9. Cell b9 holds the budgeted amount for the month. 100 is the number needed to convert the result of the first part of the formula into a percentage. This percentage amount will tell you how far over or under budget you are. A 100% figure means you have met your budget exactly. An amount over 100% means you have exceeded your budget. An amount below 100% means you have spent less than you budgeted.

---

**NOTE:** Until you enter a value in cell b9, you will see an error message in cell e9. This is because the formula asks the computer to divide by 0 (the current value in b9), which is mathematically illegal. The error message will be corrected after you enter a value other than 0 in cell b9.

---

To find the percentage difference of budgeted and actual amounts in all of your categories in the spreadsheet, you must copy this formula to cells e10, e12, e17 to e31, e33, and e35. Use the "Copy" menu item to copy this formula.

In response to the RELATIVE OR FIXED? prompt, press **F4** for both variables.

## Entering Formulae for the %TOT BUD Column

Next you must enter your formula for the percentage of total budget. This figure will tell you what percentage of your total budgeted amount your category amount represents. Move the cursor to cell f9 and press the  key. Enter the formula

$(b9/b12)*100$

Cell b9 holds the budgeted income amount for the category in row 9, Salary. Cell b12 holds the total budgeted salary amount for the month. 100 is the number needed to convert the result of the first part of the formula into a percentage. This result of this formula tells you what percentage your budgeted monthly salary represents of your total budgeted income.

Now use the “Copy” menu item to copy this formula to cells f10 and f12. In response to the RELATIVE OR FIXED? prompt, cell b9 is a relative variable and cell b12 is a fixed variable.

Next you must enter the formulae that will find the percentage of total budget for each of the expenses in the spreadsheet. Place the cursor in cell f17 and press the  key. Enter

$(b17/b33)*100$

Cell b17 holds the budgeted expense amount for the category in row 17. Cell b33 holds the total budgeted amount for the month. 100 is the number needed to convert the result of the first part of the formula into a percentage. This percentage amount will tell you what part of the total amount this category represents.

Now use the “Copy” menu item to copy this formula to cells f18 to f31, f33, and f35. In response to the RELATIVE OR FIXED? prompt, press  for b17, and press  for b33.

## Entering Formulae for the %TOT ACT Column

The amounts in the %TOT ACT column tell you what percentage of your total actual amount a category amount represents. To enter this formula, move the cursor to cell g9 and press the **=** key. Enter the formula

$(c9/c12)*100$

Cell c9 holds the actual income amount for the category in row 9, Salary. Cell c12 holds the total actual salary amount for the month. 100 is the number needed to convert the result of the first part of the formula into a percentage. The result of this formula tells you what percentage your actual monthly salary represents of your total actual income.

Now use the “Copy” menu item to copy this formula to cells g10 and g12. In response to the RELATIVE OR FIXED? prompt, cell c9 is a relative variable and cell c12 is a fixed variable.

Now you must enter the formulae that will find the percentage of total actual amounts for each of the expenses in the spreadsheet. Place the cursor in cell g17 and press the **=** key. Enter

$(c17/c33)*100$

Cell c17 holds the actual expense amount for the category in row 17. Cell b33 holds the total actual amount for the month. 100 is the number needed to convert the result of the first part of the formula into a percentage. This percentage amount will tell you what part of the total amount this category represents.

Now use the “Copy” menu item to copy this formula to cells g18 to g31, g33, and g35. In response to the RELATIVE OR FIXED? prompt, press  for c17 and  for c33.

Now that you have entered all of your formulae into the spreadsheet, you can begin entering values. (See Figure 23 for our finished spreadsheet.)

### **Entering Your own Values into the Spreadsheet**

Now you are ready to use this budget spreadsheet. Enter values that pertain to your own expenses for any given month. In column b, devise your own budget amounts for each of these categories. Then use your chequebook or a collection of receipts to give you the amounts for your actual expenses. If you don't have an amount for a category, enter a 0. As you enter your information for each category, your formulae will be calculated automatically.

---

NOTE: When entering these values, make sure you don't enter values into cells that now contain formulae or you might erase those formulae. Watch the CELL CONTENTS area to determine those cells that contain formulae. You can protect your cell information by “locking” it in. See Chapter 3 for information on locking cells.

---

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NOTE: In Figure 23 you will see that some cells contain # signs. This indicates that the formula in that cell produced an error condition when the computer performed the calculation. In this case, the error was caused by division by zero, which is mathematically illegal. (This occurred because the values in the budget column are zero.) To correct the error condition, enter a new value in the cell that caused the condition in your formula.

---

Now let's look at a comparison of costs for several different holidays.

### **A Trip Cost Comparison**

Let's assume that you are considering four alternative holidays, and you would like to use some type of organized format to help you view the costs of each trip. The trip cost comparison spreadsheet is on your program disk under the name "trip".

Figure 24 shows the entire "trip" spreadsheet. Refer to this often as you follow these instructions to build this sample spreadsheet.

Fig. 24

OPTION NO.	1	2	3	4
DESTINATION	WALES	C. CLUB	HONG KONG	INDIA
PREF. RATING	2	10	8	7
NO. OF DAYS	5	7	15	10
NO. OF PEOPLE	2	2	2	2
NO. OF MILES	400	0	0	0
PETROL COST	24	0	0	0
CAR RENTAL	0	0	0	400
AIRFARE/PER	0	0	800	700
AIRFARE TOTAL	0	0	1600	1400
LODG/DAY/PER	30	150	85	65
LODGING TOTAL	300	2100	2550	1300
MEAL/DAY/PER	30	0	30	30
MEALS TOTAL	300	0	900	600
SIGHTSEEING	150	0	400	300
EXTRAS & ENT	50	200	200	100
RESERVE	100	300	500	300
<b>TOTAL</b>	<b>924</b>	<b>2600</b>	<b>6150</b>	<b>4400</b>
COST/DAY	185	371	410	440
COST/PERSON	462	1300	3075	2200
COST/DAY/PER	92	186	205	220

## Entering Your Row and Column Headings

First you want to enter your row headings in column a, but this column isn't wide enough for your headings. You will have to adjust the column width to 20 characters. To do so, select the "Width" menu item on the FUNCTIONS pull-down menu. A window with several options will appear on your screen. Move the highlight in this window to "Cell Width", and enter 20 to widen column a to 20 characters.

Now you must specify which cells you want to widen. To do so, press **F3** (while the Width window is still on your screen). Now move the cursor to cell a1 and press **F7** twice. Column a will be set to 20 characters wide.

It's time to enter the dotted lines in the spreadsheet. While the cursor is in cell a1, press the **⏏** key. Then press the **⏏** key, and keep pressing until the dotted lines are entered in cells a1, b1, c1, d1, and e1. Because you are entering a label, the cursor will not stop when you reach the end of a cell. If the label, which in this case is a dotted line, is too big for a cell, the cursor will move into the next cell and allow you to keep entering your label.

Now you must enter the dotted lines in rows 2, 4, 21, 26, and 27. The "Copy" menu item on the FUNCTIONS pull-down menu offers you an easy way to perform this task. First, use your cursor keys to select this menu item. To specify what cell or cells you want to copy, move the cursor to cell a1 and press **F7**. Then move the cursor to cell e1 and press **F7** again.

You now need to tell the computer where you want to copy the dotted line. Now move the cursor to cell a2 and press **F7**, and then move the cursor to cell e2 and press **F7**. The dotted line will then be copied into the cells you have indicated. When you see the prompt RELATIVE OR FIXED?, press **F** for fixed. Now use the “Copy” menu item to copy the dotted lines to the other eight rows.

Lastly, follow Figure 24 or your printout and enter all column and row headings in the spreadsheet.

---

**NOTE:** Make sure you press the **■** key before entering the numbers used as headings in cells b3 through e3, or these numbers will be displayed as values with decimal places. If you want to centre these numbers, select the “Format” option on the FUNCTIONS pull-down menu. When the Format window appears on your screen, set the “Centre Text” option at Y for yes and then press **F3** to specify the block to center. Move the cursor to cell b3 and press **F7** and then move the cursor to cell e3 and press **F7** again. The numbers in these cells will then be centred.

---

### **Entering the Formula for Petrol Cost**

To enter the formula that will compute your petrol cost based on the number of miles you will be travelling, move to cell b10. Press the **■** key and enter

$(b9/20)*1.2$

Cell b9 contains the number of miles for the trip in column b. We are assuming petrol consumption of 28 miles to the gallon, and we are assuming that petrol costs £1.68 a gallon.

To find the petrol cost for each of the other trips, you must use the “Copy” menu item to copy this formula to cells c10, d10, and e10. When you see the prompt RELATIVE OR FIXED? (R/F), press  $\boxed{F}$ . Your formula will now be copied to cells c10, d10, and e10.

### **Entering the Formula for Total Airfare**

To enter the formula that will calculate your airfare cost based on the number of people travelling and the price per person, move to cell b13. Press the  $\boxed{=}$  key and enter

b8\*b12

Cell b8 contains the number of people taking the trip and cell b12 contains the cost of airfare per person.

To find the airfare cost for each of the other trips, copy this formula to cells c13, d13, and e13 using the “Copy” menu item on the FUNCTIONS pull-down menu. When you see the prompt RELATIVE OR FIXED? (R/F), press  $\boxed{F}$  for both variables, because you want the computer to rewrite the formula in each cell using adjusted cell addresses. Your formula will now be copied to cells c13, d13, and e13.

### **Entering the Formula for Total Lodging**

To enter the formula that will calculate your total lodging cost based on the number of people travelling and the price per person, move to cell b15. Press the  $\boxed{=}$  key and enter

b7\*b8\*b14

Cell b7 contains the number of days for the trip. Cell b8 contains the number of people taking the trip, and cell b14 holds the cost of lodging per person per day.

To find the total lodging cost for each of the other trips, copy this formula to cells c15, d15, and e15 using the “Copy” menu item on the FUNCTIONS pull-down menu. When you see the prompt RELATIVE OR FIXED? (R/F), press  $\square$  for all of the variables. Your formula will now be copied to cells c15, d15, and e15.

### **Entering the Formula for Total Meal Cost**

To enter the formula that will calculate your total meal cost based on the number of people travelling, and the price per person per day, move to cell b17. Press the  $\square$  key and enter

$b7*b8*b16$

Cell b7 contains the number of days for the trip. Cell b8 contains the number of people on the trip, and cell b16 holds the cost of meals per person per day.

To find the total meal cost for each of the other trips, you must copy this formula to cells c17, d17, and e17. Use the “Copy” menu item to perform this task. When you see the prompt RELATIVE OR FIXED? (R/F), press  $\square$  for all of the variables. Your formula will now be copied to cells c17, d17, and e17.

### **Entering the Formula for Total Trip Cost**

To enter the formula for total trip cost, move the cursor to cell b22 and press the  $\square$  key. Enter

$b10 + b11 + b13 + b15 + b17 + b18 + b19 + b20$

The values in these cells make up the costs of the trip.

To find the total trip cost for each of the other trips, you must copy this formula to cells c22, d22, and e22. Use the “Copy” menu item to perform this task. When you see the prompt RELATIVE OR FIXED? (R/F), press **F4** for each cell notation in your formula. Your formula will now be copied to cells c22, d22, and e22.

### **Entering Formulae for the Cost per Day, the Cost per Person, and the Cost per Day per Person**

Now we will enter formulae in cells b23, b24, and b25 which will help us compare the daily costs of each trip. In cell b23, we will enter a formula to find the cost per day for the first trip. Move to cell b23, press **F2**, and enter

b22/b7

Cell b22 holds the total cost of the trip and cell b7 contains the number of days for the trip.

In cell b24, you must enter a formula to find the cost per person for each trip. Move to cell b24, press **F2**, and enter

b22/b8

Cell b22 contains the total cost of the trip, and cell b8 holds the number of people travelling.

In cell b25, you must enter a formula to determine the daily cost for each person travelling. Move to cell b25, press **F2**, and enter

b23/b8

Cell b23 contains the cost per day for the trip, and cell b8 contains the number of people travelling.

Copy each of these formulae in the cells in columns c, d, and e using the “Copy” menu item. Each time you see the prompt RELATIVE OR FIXED? (R/F), press **F2** for the variables in all three formulae.

Now that you have entered all of your formulae into the spreadsheet, you can begin entering values. (See Figure 24 for our finished spreadsheet.)

### **Entering Your own Values into the Spreadsheet**

Now you are ready to use this trip cost spreadsheet. Enter values for four possible holidays. If a category does not pertain to a specific trip, enter 0 for that cell (for example, some trips may not require airfare). As you enter your information for each category, your formulae will be computed automatically.

When entering these values, make sure you don't enter values into cells that now contain formulae or you might erase those formulae. Watch the CELL CONTENTS area to determine those cells that contain formulae.

Now let's look at some financial modelling applications for your spreadsheets.

## **Creating Financial Models and Performing Financial Analyses**

Example 1:

You would like to determine how much money you would accumulate if you invested £2,000 in a Building Society account at the beginning of each year for 20 years. Various interest rates, compounded annually, could be applied to your invested amount over the 20-year period. To answer this question, try constructing the financial analysis spreadsheet model which you will find on your SWIFTCALC disk under the file name “fin1”.

Figure 25 shows the entire “fin1” spreadsheet. Refer to this often as you follow these instructions to build this sample spreadsheet.

Sample Spreadsheets:  
Using SWIFTCALC on an Everyday Basis :6

YEAR	AMOUNT INVESTED	CUMULATIVE BALANCE	INTEREST RATE
1	£2000.00	£2240.00	.12
2	£2000.00	£4748.80	.12
3	£2000.00	£7558.66	.12
4	£2000.00	£10705.69	.12
5	£2000.00	£14230.38	.12
6	£2000.00	£18178.02	.12
7	£2000.00	£22599.39	.12
8	£2000.00	£27551.31	.12
9	£2000.00	£33097.47	.12
10	£2000.00	£39309.17	.12
11	£2000.00	£46266.27	.12
12	£2000.00	£54058.22	.12
13	£2000.00	£62785.20	.12
14	£2000.00	£72559.43	.12
15	£2000.00	£83506.56	.12
16	£2000.00	£95767.35	.12
17	£2000.00	£109499.43	.12
18	£2000.00	£124879.36	.12
19	£2000.00	£142104.88	.12
20	£2000.00	£161397.47	.12
<b>TOTAL</b>	<b>£40000.00</b>	<b>£161397.47</b>	<b>.12</b>

Fig. 25

## Entering Your Row and Column Headings

First you want to enter your row headings in column a. When you enter the numbers in column a, enter a few spaces before each to centre them. Now press **█** and enter the number 1 in cell a6 and press **RETURN**. You will need to enter consecutive numbers in other cells in column a. To save you time, you can use the “Quick Entry” feature, accessed through the **F7** key. After you enter the number 1 as a label in cell a6, press **F7**, and move the cursor to cell a7. The number 2 will appear in that cell. Continue moving the cursor down column a until you reach column a25. After the number is entered in that cell, move the cursor to the right to turn off the “Quick Entry” feature.

As you will see from looking at Figure 25, column b as it appears on your screen isn’t wide enough for the heading you need to enter there. To adjust the column width to 10 characters, use the “Width” option on the **FUNCTIONS** pull-down menu, or use the **SHIFT INST/DEL** keys to widen the column to 10 characters. Then repeat this procedure to widen column c to 11 characters.

Now follow Figure 25 and enter all of the labels in the spreadsheet. For rows with dotted lines, press the **█** key, and then press the **█** key. When you have entered the entire dotted line for row 1, use the “Copy” menu item to copy the dotted lines to rows 2, 5, 26, 28, and 29.

To centre the column headings in rows 3 and 4, select the “Format” menu item on the **FUNCTIONS** pull-down menu. Then set the “Centre Text” option at Y for yes and press **F3**. Move the cursor to cell a3 and press **F7**, and then move the cursor to cell d4 and press **F7**. Any text you enter in these cells will be centred. To display commas and pound signs with your values, return to the Format window and select Y for these two options. Then use the **F7** key to specify the block from cell b6 to c26 for these options.

---

## Entering the Formulae for This Financial Analysis

Although this spreadsheet may appear complex, it contains only three different types of formulae: the Future Value of a Pound formula, the SUM formula, and the AVG formula.

1. To enter the first formula in your spreadsheet, move the cursor to cell c6. Press **=** and enter

FVP(b6,d6,1)

The result of this formula will be your cumulative balance after the first year of investment. Cell b6 contains the amount that has been invested. Cell d6 contains the interest rate for the year, and the number 1 stands for the number of years the money has been invested.

2. Now move your cursor to cell c7 to enter the formula for the cumulative balance after the second year. Press **=** and enter

FVP(c6 + b7,d7,1)

The amounts in cells c6 and b7 equal the amount that has been invested by the end of the second year (the cumulative balance at the end of of the first year plus the amount invested in the second year). Cell d7 holds the interest rate for the year. The number 1 indicates that the amount has been invested for one year.

To find the cumulative balance at the end of each of the 20 years, copy this formula to cells c8 to c25 using the “Copy” menu item on the FUNCTIONS pull-down menu. When you see the prompt RELATIVE OR FIXED? (R/F), press **F4** for all the cell notations in the formula. Your formula will now be copied to cells c8 to c25.

3. Next, move your cursor to cell b27 and enter the formula for the total amount invested. Press **=** and enter

SUM(b6:b25)

This formula will total all the money you have invested over the 20-year period.

4. Now move your cursor to cell c27 and enter the formula for the total amount you will have in your account at the end of the 20-year period. Press **=** and enter

c25

This formula, which is actually only a cell address, just repeats the amount from cell c25, the total amount invested.

5. Move your cursor to cell d27 to enter the formula that will calculate the average interest rate you received over the 20-year period. Press **=** and enter

AVG(d6:d25)

The result of this formula will be the average interest rate applied to your investment over the 20-year period.

---

NOTE: Until you enter values in column b, you will see an error message in cell d27. This is because the formula asks the computer to divide by 0 (the current values in column b), which is mathematically illegal. The error condition will be corrected after you enter a value other than 0 in cell b9.

---

Now that you have entered the formulae into the spreadsheet, you can begin entering your values. (See Figure 25 for our finished spreadsheet.)

## Entering Your own Values into the Spreadsheet

Now you are ready to use this financial analysis spreadsheet. Enter amounts and interest rates that pertain to your own investment program. As you enter your information for each year, your formulae will be computed automatically.

When you enter values into the “Amount Invested” column, you may want to enter the same value in each cell in the column (as we did in Fig. 25). Then you can see the effects of investing the same amount each year. There is a quick way to enter the same value in each cell of the column.

First, move the cursor to cell b6 and enter an amount. Now move to cell b7, press **F2**, and enter the formula

b6

This formula, which is actually only a cell address, tells the computer to repeat the amount in cell b6, the amount invested. You can use the “Copy” menu item to duplicate this formula in all cells from b8 to b25. When you see the prompt RELATIVE OR FIXED? press **F** for fixed. When your spreadsheet is computed, the computer will use the same value for all cells from b6 to b25.

---

**NOTE:** When entering these values, make sure you don't enter values into cells that now contain formulae or you might erase those formulae. Watch the CELL CONTENTS area to determine those cells that contain formulae.

---

Now let's go a little further!

Example 2:

Let's say you want to perform the same financial analysis as the first financial modelling example above, but you want to include certain known expenses that you will be paying out of your account from time to time. You want to see the effects of these withdrawals on your savings schedule. To do so, try using the sample financial analysis spreadsheet model which you will find on your SWIFTCALC program disk under the file name "fin2".

---

NOTE: The "fin2" spreadsheet builds on your work with the "fin1" model, so you will save yourself some time by just saving the "fin1" spreadsheet, which contains your own values, on disk. You can then re-load it into the computer when you are ready to work with "fin2". You can also load the "fin1" spreadsheet with the sample values into the computer from your SWIFTCALC program disk and use it as a basis for working with "fin2".

---

Figure 26 shows the entire "fin2" spreadsheet. Refer to this often as you follow these instructions to build this sample spreadsheet.

MONTH: JANUARY 1988

Fig. 26

YEAR	AMOUNT INVESTED	AMOUNT WITHDRAWN	CUMULATIVE BALANCE	INTEREST RATE	REMARKS
1	£2000.00		£2240.00	.12	
2	£2000.00		£4748.80	.12	
3	£2000.00		£7558.66	.12	
4	£2000.00		£10705.69	.12	
5	£2000.00		£14230.38	.12	
6	£2000.00		£18178.02	.12	
7	£2000.00		£22599.39	.12	
8	£2000.00	£3000.00	£24191.31	.12	College Tuition
9	£2000.00	£3500.00	£25414.27	.12	College Tuition
10	£2000.00	£4000.00	£26223.98	.12	College Tuition
11	£2000.00	£4500.00	£26570.86	.12	College Tuition
12	£2000.00		£31999.36	.12	
13	£2000.00		£38079.29	.12	
14	£2000.00		£44888.80	.12	
15	£2000.00		£52515.46	.12	
16	£2000.00		£61057.31	.12	
17	£2000.00	£10000.00	£59424.19	.12	Mortgage Retirement
18	£2000.00		£68795.09	.12	
19	£2000.00		£79290.50	.12	
20	£2000.00		£91045.37	.12	
<b>TOTAL</b>	<b>£40000.00</b>	<b>£25000.00</b>	<b>£91045.37</b>	<b>.12</b>	

## **Inserting a Column into Your Spreadsheet**

Now you must set up a column for withdrawals that will allow you to record and track the removal of money from your account. Move the cursor to cell c1 and press **⌘I**. In response to the prompt INSERT A ROW OR COLUMN? (R/C), press **⌘C** to insert a column. A new column will be inserted into your spreadsheet and your current columns (including all existing cell contents) will be moved over one column. In this case, everything in column c will be moved to a corresponding location in column d and column d to e, while column c will now be blank. All of the formulae that were entered previously in the spreadsheet will be updated to reflect this change, and the move will not affect your numerical results.

## **Entering Your New Column Headings and Dotted Lines**

You will now need to enter new column headings for columns c and f and extend the dotted lines in these columns. First use the “Copy” menu item to copy the dotted lines in columns c and f in rows 1, 2, 5, 26, 28, and 29.

To enter your new column headings, move your cursor to cell c3 and enter the heading Amount. Then move to cell c4 and enter Withdrawn. Lastly, move to cell f4 and enter the heading Remarks (you may want to use the “Format” menu item to centre this heading as the others are centred).

## Entering Your New Formulae

1. Now you must enter a formula that will give you your cumulative balance at the end of each year less any amount you withdrew during that year. To enter this formula, move the cursor to cell d6 and press **F2**. The formula that is currently in this cell will appear at the bottom of your screen. Use the text editing keys (**SPACE BAR**, backspace key, and cursor keys) to edit that formula to look like this:

FVP(b6-c6,e6,1)

Press **RETURN** when you have finished editing the formula.

Cell b6 contains the amount that has been invested. Cell c6 contains the amount withdrawn during the year. Cell e6 holds the interest rate for the year, and the number 1 represents the number of years that the money has been invested.

2. Now move your cursor to cell d7 to edit the formula for the cumulative balance after the second year less any withdrawn amount. Press **F2**. The formula that is currently in this cell will appear at the bottom of your screen. Use the text editing keys (**SPACE BAR**, backspace key, and cursor keys) to edit that formula to look like this:

FVP(d6 + b7-c7,e7,1)

Press **RETURN** when you have finished editing the formula.

The amounts in cells d6 and b7 equal the amount that has been invested by the end of the second year (the cumulative balance at the end of of the first year plus the amount invested in the second year). Cell c7 holds the amount withdrawn over the year, and cell e7 holds the interest rate for the year. The number 1 indicates that the amount has been invested for one year.

To find the cumulative balance at the end of each of the 20 years, less any withdrawn amount, you must copy this formula to cells d8 to d25. When you see the prompt RELATIVE OR FIXED? (R/F), press **F** for all the cells in the formula. Your formula will now be copied to cells d8 to d25.

3. To find the total of the "Amount Withdrawn" column, move the cursor to cell c27, press **⌘**, and enter

SUM(c6:c25)

## **Entering Your own Values into the Spreadsheet**

Now you can begin entering your own values into the spreadsheet. Using SWIFTCALC, you will be able to quickly and easily substitute different values for annual amounts invested, interest rates, or withdrawals. Whenever you enter a new value into SWIFTCALC, the spreadsheet will be updated automatically.

## **Using the RANGE Function**

---

NOTE: The "range" spreadsheet builds on your work with the "fin2" model, so you will save yourself some time by just saving the "fin2" spreadsheet, which contains your own values, on disk. You can then re-load it into the computer when you are ready to work with "range". You can also load the "fin2" spreadsheet with the sample values into the computer from your SWIFTCALC program disk and use it as a basis for working with "range".

---

One of the most powerful features of SWIFTCALC is the RANGE function. This function allows your computer to test a series of values for “what if” calculations without requiring you to enter each value.

For example, using the “fin2” model you have just worked with (Fig. 26), you know that the cumulative balance in your account, if you invest £2,000 per year for 20 years, is £91,045 (after all withdrawals). But let’s say that you want to accumulate £300,000 at the end of 20 years. How much must you invest each year?

We’ll help you answer this question with the help of the RANGE function and a modified version of the “fin2” spreadsheet, which is on your program disk under the file name “range”.

6: Sample Spreadsheets:  
Using SWIFTCALC on an Everyday Basis

YEAR	AMOUNT INVESTED	AMOUNT WITHDRAWN	CUMULATIVE BALANCE	INTEREST RATE	REMARKS
1	£6,000.00		£6,600.00	.10	
2	£6,000.00		£13,860.00	.10	
3	£6,000.00		£21,846.00	.10	
4	£6,000.00		£30,630.60	.10	
5	£6,000.00		£40,293.66	.10	
6	£6,000.00		£50,923.03	.10	
7	£6,000.00		£62,615.33	.10	
8	£6,000.00	£3,000.00	£72,176.86	.10	
9	£6,000.00	£3,500.00	£82,144.55	.10	
10	£6,000.00	£4,000.00	£92,559.00	.10	
11	£6,000.00	£4,500.00	£103,464.90	.10	
12	£6,000.00		£120,411.39	.10	
13	£6,000.00		£139,052.53	.10	
14	£6,000.00		£159,557.79	.10	
15	£6,000.00		£182,113.56	.10	
16	£6,000.00		£206,924.92	.10	
17	£6,000.00	£10,000.00	£223,217.41	.10	
18	£6,000.00		£252,139.15	.10	
19	£6,000.00		£283,953.07	.10	
20	£6,000.00		£318,948.38	.10	
	£120,000.00	£25,000.00	£318,948.38	.10	
			£0.00		

Fig. 27

## Entering the RANGE Statement

For this example, you need to modify two cells in the “fin2” spreadsheet, cell b6 and cell d30. First, move the cursor to cell b6 to enter a RANGE statement.

---

NOTE: Before entering a RANGE statement, it is a good idea to turn off the “Automatic Calculation” feature. If you do not turn off “Automatic Calculation”, the computer will begin calculating your spreadsheet and displaying results automatically. If you turn off this feature, you can activate the calculation process manually at the press of a key.

To turn off the “Automatic Calculation” feature, press the **C** and **FS** keys. Then enter your RANGE statement into the spreadsheet. To begin calculating, press **FS** to activate the “Execute Calculations” feature.

---

Now press the **=** key and enter:

RANGE(1000,10000,500)

---

**NOTE:** We want each cell in the “Amount Invested” column (where cell b6 is located) to contain this RANGE statement. When you constructed the “fin1” spreadsheet, we advised you to enter the cell address b6 in each of the cells from b7 to b25. This ensures that whatever value or formula you enter in cell b6 will also appear in the other cells in that column. If you have not already set up your financial model spreadsheet in this manner, follow these steps:

First, move to cell b7, press **=**, and enter the formula

b6

This formula, which is actually only a cell address, tells the computer to repeat the amount in cell b6, the amount invested. You can use the “Copy” menu item to duplicate this formula in all cells from b8 to b25. When you see the prompt **RELATIVE OR FIXED?**, press **F** for fixed. When your spreadsheet is calculated, the computer will use the same value in all cells from b6 to b25.

---

The RANGE function will generate new values for the “Amount Invested” column from £1,000 to £10,000 in increments of £500. It will do this automatically if the “Automatic Calculation” feature is on, or, if you have turned it off, the calculations will begin after you press **F5**.

Remember that the formula in each cell from b7 to b25 is simply the cell address b6, meaning these cells will automatically refer to the RANGE statement in cell b6.

## Using the STOP Command

Now let's further assume that you only want to generate a cumulative balance of £300,000 at the end of 20 years. You are not interested in balances higher than that amount. To save you time, you can use the If . . . Then STOP statement to stop the calculation of the spreadsheet at that amount.

To enter the STOP statement, move the cursor to cell d31 and press the **≡** key. Then enter

```
If d27 >= 300000 Then STOP
```

In English, this statement reads, "When the value in cell d27 is equal to 300,000, stop calculating." Now when you press **F5** to calculate your spreadsheet, the computer will stop calculating when the value in cell d27 reaches £300,000, your required level.

If you need to refer to any of the functions as you enter information, call up the Help windows on your screen (see Chapter 2 of this manual).

**7**  
**Interfacing**  
**SWIFTCALC 128**  
**with DATA**  
**MANAGER 128**  
**and WORD**  
**WRITER 128**

## ■ Interfacing with DATA MANAGER 128

One of SWIFTCALC 128's most powerful features is its ability to interface with Timeworks' DATA MANAGER 128 data base program. This interface capability allows you to transfer information from DATA MANAGER into spreadsheets produced with SWIFTCALC, thereby eliminating data entry errors.

Since SWIFTCALC and DATA MANAGER do not use the file structure, you need to convert your DATA MANAGER data into a format that SWIFTCALC can read. See your DATA MANAGER manual for information on creating DM/SWIFTCALC files.

After you have created your DM/SWIFTCALC file with your data base information, you can load that file into a SWIFTCALC spreadsheet. You can then insert your DATA MANAGER information anywhere you'd like in your spreadsheet. To load your DM/SWIFTCALC file into SWIFTCALC, select the "Interface" menu item on the DISK COMMANDS pull-down menu in SWIFTCALC. When the Interface window appears, select the "Load DM/SWIFTCALC File" option. Enter the name of the DM/SWIFTCALC file you want to load, including any extensions such as ".PRF".

Next you will be asked to specify the location in your spreadsheet where you want to insert your DATA MANAGER information. Move the cursor to the cell in the top left hand corner of the block that will contain this information, and press **F7**. You will then be asked if this information will be inserted in a column or a row. Press **C** if you want your DM information to appear in a column of your spreadsheet, or press **R** if you want it to appear in a row. Your DATA MANAGER file will then be loaded into your computer and placed exactly where you indicated in your spreadsheet.

## ■ Interfacing with WORD WRITER 128

SWIFTCALC 128 offers you the opportunity to merge spreadsheets that you create with SWIFTCALC with documents that you produce with the WORD WRITER 128 word processing program. With this feature, you can create customized reports using information from both programs.

Before you can begin this process, you must store your spreadsheet on a data disk for later use with the WORD WRITER program. (This spreadsheet is then called your WORD WRITER file.) Your spreadsheet is saved as ASCII text characters, which WORD WRITER is able to read. Follow these steps to create a WORD WRITER file:

1. Select the “Interface” menu item on the DISK COMMANDS pull-down menu. A window containing two options will appear on your screen.
2. Use the up and down cursor keys to select “Save WORD WRITER File”.
3. Next you need to specify the block of cells you want to save for later use in WORD WRITER. To save your entire spreadsheet to use in WORD WRITER, press **F3**.

To specify a block of cells, press **F3**. Then move the cursor to the cell in the top left hand corner of the block you want to save and press **F7**. Move the cursor to the cell in the bottom right hand corner of the block and press **F7** again. (If you are saving one cell, move the cursor to that cell and press **F7** twice.)

---

**NOTE:** You will not be able to load this file back into SWIFTCALC if you save it using this option. You will only be able to load the file into a WORD WRITER document. If you also want to use this file in SWIFTCALC, you must save it on your SWIFTCALC data disk using the "Save" menu item on the DISK COMMANDS pull-down menu. See Chapter 4 for information on saving a file for use in SWIFTCALC.

---

4. Lastly, you will be asked to insert your WORD WRITER data disk in the disk drive and enter a file name for your WORD WRITER file containing your spreadsheet information. Do so, and press **RETURN**. Your file will be saved on your WORD WRITER disk.

To merge your WORD WRITER file, which contains your spreadsheet information, with your WORD WRITER document, follow these steps:

- Load WORD WRITER using the instruction in your manual.
- Insert the WORD WRITER data disk which contains your spreadsheet into your disk drive. Then, load this file (with the spreadsheet) into the computer.
- Now you are ready to add text to your spreadsheet using your word processor. Follow your WORD WRITER manual for instructions on merging documents or entering new text.



## ■ Troubleshooting

PROBLEM	PROBABLE REMEDY
PROGRAM WILL NOT LOAD	<ol style="list-style-type: none"> <li>1. Turn off computer and try again.</li> <li>2. Check computer connection.</li> <li>3. Make sure PROGRAM DISK, not data disk, is in disk drive.</li> </ol>
GRAPHIC CHARACTERS APPEAR ON THE SCREEN AFTER LOADING	Check to see that you are using an RGBI connection with your monitor.
DISK READ OR WRITE ERROR	<ol style="list-style-type: none"> <li>1. Insert correct disk into drive.</li> <li>2. Use a better quality disk for data.</li> <li>3. Replace data disk with previous backup.</li> <li>4. Remove write protection tab from data disk.</li> <li>5. Make sure you are using a formatted data disk.</li> </ol>
SCREEN BLANKS OUT, PROGRAM LOST (due to power fluctuations)	Restart all devices and reload program.
DATA WILL NOT SAVE	Use a new formatted data disk.

---

**SIDWAYS WILL NOT  
PRINT ON YOUR PRINTER**

1. Use the Install program, which is on your SWIFTCALC 128 program disk, to configure Sideways to work with your printer.
2. Read the following section, "If Sideways Won't Work with Your Printer."

---

**OTHER PROBLEMS**

Call Timeworks,  
0628-74678

## ■ **If Sideways Won't Work with Your Printer**

1. If data is not getting to the printer:

If, when you try to print, the message "Printer not ready" appears, despite the fact that the printer is on-line and the cable is plugged in; or if the message "Hold down P to stop printing" appears, but the printer does nothing; it is likely that when you installed Sideways you specified either the wrong interface or the wrong device number. To correct this problem, return to the Installation program to enter new installation settings.

2. If the printout consists entirely of normally orientated (non-sideways) characters:

Most likely, your interface is not set for the "Transparent" mode. To set the interface correctly, see your interface manual or the "Installation Guide" which is included with this insert.

It's also possible that your printer does not have graphics, which is necessary for printing sideways. Most printers come with graphics capability, but for some, this option must be purchased. It is also possible that you specified the wrong printer when you installed Sideways.

To correct this problem, return to the Installation program to enter new installation settings.

3. If the printout is a mixture of sideways characters and normally orientated characters, or if the sideways characters are misregistered:

There could be various explanations. The cable to the printer may be loose or faulty. If you are using an external printer buffer, try removing it from the circuit and see if the problem persists. It is also possible that you specified the wrong interface or device number when you installed Sideways.

If you have a printer which is not manufactured by Epson, but is supposed to use the same control codes as Epson printers, this may be the culprit. Many such "lookalikes" operate just like an Epson and won't cause any problems. Others have slight differences and may not operate properly. Besides the standard Epson installation options, we've also provided "lookalike" installation options which use somewhat different techniques to operate the printer. Try re-installing Sideways using these alternatives.

It is also possible that your printer is set up for 7 data bits, but Sideways may be sending 8. Go back to the Installation program and specify 7 data bits.

## ■ Error Messages

ERROR MESSAGES	ACTION TO TAKE
UNRESOLVED FORMULA	<p>Rewrite formula. Make sure that:</p> <ol style="list-style-type: none"><li>1. You do not use the address of the cell that contains the formula in the formula itself. For example, you cannot use d8 in a formula in cell d8.</li><li>2. You do not refer to a cell that refers to the cell where the cursor is currently located. For example, you can't write a formula in cell b2 that uses cell c4, and then write a formula in c4 that uses b2.</li></ol>
DEFINED BLOCK CONTAINS LOCKED CELLS – DELETE THEM? (Y/N)	<p>Press Y to delete the locked cells that prevent your moving or copying cells.</p> <p>Press N if you do not want to delete the locked cells. Then specify a new location for your move or copy.</p>
FORMULA TOO COMPLEX	<p>Re-enter formula without spaces between: values, cell addresses, and operation signs.</p>

A Beeping Sound or A  
Flashing Display When You  
Are Moving or Copying Cells

Try your move or copy again.  
Make sure that:

1. Your new location for these cells does not run off the edge of spreadsheet.
2. Your new location does not intersect the block you want to move or copy.

## ■ Pre-Call Checklist

### Before You Call...

1. Have you investigated your manual and the Update file on your program disk thoroughly (Troubleshooting, Facts at Your Fingertips, and the Index) for the answer to your question?
2. Has the problem ever appeared before? What procedure did you use to produce the problem, and can you reproduce the situation repeatedly? Have you tried reproducing the problem with hardware other than your own?
3. Are you using any additional equipment with your system, such as a keypad, modem, or fast loading devices? If so, disconnect the additional hardware and try to repeat the problem. If not, did you change your hardware or software configurations before you first experienced the problem?
4. If the problem is related to printing, have you checked your printer manual or contacted your printer manufacturer for the answer? Have you read your interface manual or contacted your interface manufacturer?
5. Have you returned your Registration Card to Timeworks?

### **If You Call...**

1. Which Timeworks product are you calling about, and what is the version number? (For example, SWIFTCALC version 2.0) You will find the version number when you view the directory of your program disk.
2. What system are you using? (For example, Commodore 128.)
3. Have your user's manual with you when you call, and keep your manual and any other pertinent materials by the phone in case we need to call you back.
4. To save valuable time, state your problem or question as *concisely* as possible.

### **If You Write . . .**

Include a phone number where you can be reached during the day.

**9**  
**Facts at Your**  
**Fingertips**

---

### Adjusting Cell Width (Chapter 4)

1. Select “Width” on the FUNCTIONS pull-down menu.
2. When the “Width” window appears, enter your selections for any or all of the options.
3. Designate the cells to be formatted according to your width specifications.

---

### The Automatic Cursor Advance (Chapter 3)

1. Press **C** and **F7**.
2. The cursor will automatically move to the right each time you press **RETURN**. To move in a different direction, simply press the cursor key that corresponds to that direction.
3. To turn off this feature, press **C** **F7** again.

---

### Changing Display Colours (Chapter 2)

- CTRL B** Background colour of the display  
**CTRL C** Character colour of the display

---

### Commands (Chapter 3)

<b>CTRL</b>	Shifts display to left
<b>CTRL</b>	Shifts display to right
<b>F1</b>	Insert a row or column
<b>F2</b>	Edit cell information
<b>F3</b>	Delete a row or column
<b>F4</b>	Delete cell information
<b>C</b> <b>F5</b>	Automatic Calculations on or off
<b>F5</b>	Execute Calculations
<b>F6</b>	The Goto command
<b>F7</b>	The Quick Entry key
<b>F8</b>	Freeze cell
<b>C</b> <b>F1</b>	Recalls the previously used menu item
<b>C</b> <b>F3</b>	Lock/unlock cell
<b>C</b> <b>F7</b>	Automatic cursor advance

---

### Copying Cell Information (Chapter 4)

#### A Single Cell:

1. Select the "Copy" option on the FUNCTIONS pull-down menu.
2. Place the cursor in the cell you want to copy and press **F7** twice.
3. Designate the new location for this cell information.
4. If you are copying a label, number, or formula that does not use cell addresses, your copy will take place. If you are copying a formula with cell addresses, you will be asked to designate each address as fixed or relative.

### A Block of Cells:

1. Select the “Copy” option on the FUNCTIONS pull-down menu.
2. Designate the block you want to copy.
3. Designate the new location for the block.
4. Specify the copied information as either fixed or relative.

### Remember:

- Designate a new location that does not overlap the block you want to copy.
- Make sure your the new location you indicate is entirely contained within the spreadsheet.

---

## Cursor Movement Keys (Chapter 2)

- ← Moves the cursor one space to the left
- Moves the cursor one space to the right
- ↑ Moves the cursor up one space
- ↓ Moves the cursor down one space
- TAB** Tab key – moves the cursor one tab stop to the right
- SHIFT TAB** Moves the cursor one tab stop to the left
- CLR/HOME** Moves the cursor to cell a1
- SHIFT CLR/HOME** Moves the cursor to the cell that is furthest down and to the right in the spreadsheet
- G**
- CLR/HOME** Moves the cursor to the top of the display
- F6** The Goto command – moves the cursor to any cell you specify

---

### Deleting Information in a Cell (Chapter 3)

1. Move the cursor to the desired cell.
2. Press **F4**.

---

### Deleting a Row or Column (Chapter 3)

1. Move the cursor to the row or column you want to delete.
2. Press **F3**.
3. In response to prompt, press **R** for row or **C** for column.

---

### Editing Information in a Cell (Chapter 3)

1. Move the cursor to the cell you want to edit.
2. Press **F2**.
3. Use the text editing keys to modify the information in the cell.

---

### Entering Information in SWIFTCALC (Chapter 2)

Labels:

1. To enter text, simply type in characters and press **RETURN**.
2. To enter symbols as labels, press the inverted commas key (**''**) first. Then type in characters and press **RETURN**.

**Values:**

Type in a number or symbol, and press **RETURN**. You can enter up to 17 characters in a cell.

**Remember:**

- If you have formatted a cell for pound signs and commas, your value may become too large to be displayed in the cell. You will only see a row of number symbols (#) in the cell, but the complete value will be displayed in the CELL CONTENTS area.
- You can widen your cells so they will display larger values. Review the techniques for widening cells in the first section of this reference guide, "Adjusting Cell Width."

**Formulae:**

1. Press the **=** key.
2. Enter your formulae and press **RETURN**.

**Remember:**

- Your formulae can be up to 240 characters long.
  - You can use addition (+), subtraction (-), multiplication (\*), division (/), and exponentiation ( $\uparrow$ ).
  - The computer calculates exponential operations first, division and multiplication second, and addition and subtraction last.
  - If you use brackets in a formula, always use a pair.
  - Never use the cell address where you are entering the formula in the formula itself.
-

- Try to limit forward references in your spreadsheets.

---

### Formatting a Cell (Chapter 4)

1. Select “Format” on the FUNCTIONS pull-down menu.
2. When the Format window appears, enter your selections for any or all of the options.
3. Specify which cells are to be formatted.
4. Your new format will be applied to the cell(s) you specified.

---

### Freezing a Row or Column (Chapter 3)

1. Move the cursor to a cell in the row or column you want to freeze.
2. Press **F8**.
3. In response to the prompt, press **R** for row or **C** for column.
4. To turn off this feature, press **F8** again.

---

### The Goto Command (Chapter 3)

1. Press **F6**.
2. In response to the prompt, enter the address of the cell to which you want to move.
3. The cursor will move to the cell you specified.

---

### Inserting a Row or Column (Chapter 3)

1. Move the cursor to new row or column location.
2. Press **F1**.
3. In response to prompt, press **R** for row or **C** for column.

---

### Loading a Spreadsheet File From Your Data Disk (Chapter 4)

1. Place your SWIFTCALC data disk in the disk drive.
2. Enter the name of the spreadsheet file you want to load, and press **RETURN**.
3. Your spreadsheet file will be loaded into the computer.

---

### Locking and Unlocking Cells (Chapter 3)

1. Move the cursor to the cell you want to lock.
2. Press **C** and **F3**.
3. You will see an asterisk (\*) in the status area.
4. To unlock the cell, move the cursor to that cell and press **C** **F3** again.

---

**Mathematical Functions (Chapter 5)**

Functions	Format
The Minimum Value of a Range	MIN(LOC1:LOC2)
The Maximum Value of a Range	MAX(LOC1:LOC2)
The Average Value of a Range	AVG(LOC1:LOC2)
The Sum of a Range	SUM(LOC1:LOC2)
The Value Count of a Range	CNT(LOC1:LOC2)
The Absolute Value of a Cell	ABS(#EXP#)
The Integer Value of a Cell	INT(#EXP#)
Converting a Percentage to a Decimal Number	PCT(#EXP#)

**Financial Analysis Functions**

A = Amount in Pounds	
I = Interest Rate (10% = .10)	
N = Number of Periods	
The Present Value of a Pound	PVP (A,I,N)
The Future Value of a Pound	FVP (A,I,N)
The Present Value of an Annuity	PVA (A,I,N)
The Future Value of an Annuity	FVA (A,I,N)

**The Range Function**

RANGE (A,B,C)
A = Beginning of Range
B = End of Range
C = Steps Within Range

Logical Symbols

- < Less than
- > More than
- = Equal to
- < > Not equal to
- < = Less than or equal to
- > = More than or equal to

Logical Statements

- IF (#EXP#) THEN (#EXP#)
- IF (#EXP#) THEN (#EXP#) ELSE (#EXP#)
- IF (#EXP#) THEN STOP
- IF (#EXP#) THEN (#EXP#) ELSE STOP

Trigonometric Functions

- Sine SIN(#EXP#)
- Cosine COS(#EXP#)
- Tangent TAN(#EXP#)
- ArcTangent ATN(#EXP#)

Logarithmic Functions

- Natural Exponent EXP(#EXP#)
- Natural Logarithm LOG(#EXP#)

---

**Mathematical Symbols Used in Formulae (Chapter 2)**

- + Addition
- Subtraction
- \* Multiplication
- / Division
- ↑ Exponentiation
- () Brackets

---

### Moving Cell Information (Chapter 4)

1. Select the "Move" option on the FUNCTIONS pull-down menu.
2. Designate the cell or block to be moved.
3. Specify the new location for the information.
4. The cell(s) you specified will be moved to the new location.

Remember:

- Designate a new location that does not overlap the block you want to move.
- Make sure the new location you indicate is entirely contained within the spreadsheet.

---

### Printing Spreadsheets Using Sideways (Chapter 4)

1. Select "Create Sideways File" on the PRINT pull-down menu.
2. Designate the cells to be saved as a Sideways file.
3. Place your SWIFTCALC data disk in the drive, and enter a name for your Sideways file.
4. If necessary, use the Install program (on your SWIFTCALC program disk) to configure your printer to run with Sideways.
5. Load Sideways into your computer from your SWIFTCALC program disk.
6. Enter selections for any or all of the print options.

7. Enter the name of your Sideways file. Your printer should begin printing the file.

---

### **Printing Spreadsheets Using SWIFTCALC (Chapter 4)**

1. Select "Print Spreadsheet" on the PRINT pull-down menu.
2. When Print window appears, enter your selection for any or all of the print options.
3. Designate which cells are to be printed, and the printer will begin printing the cells you specified.

---

### **The Quick Entry Key (Chapter 3)**

1. Move the cursor to the cell which will hold the first entry.
2. Type in your first entry (do not press **RETURN**).
3. Press **F7**.
4. Move the cursor to an adjoining cell in any direction. The computer will make your second entry for you. Continue moving through your cells until all your entries have been made.

---

### Saving a Spreadsheet File on Your Data Disk (Chapter 4)

1. Place your SWIFTCALC data disk in the disk drive.
2. Enter a name for your spreadsheet file, and press **RETURN**.
3. Your spreadsheet file will be saved on your data disk.

---

### Sorting Spreadsheet Information (Chapter 4)

1. Designate the block of cells that contain the information you want to sort.
2. Press **R** to sort by row or **C** to sort by column.
3. Press **A** to sort in ascending order or **D** to sort in descending order.
4. If this is a single-level sort, the sort will take place. If you are sorting by more than one row or column, designate the order for the sort, and the sort will take place.



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Number Inside Manual

## Overview:

The power of SWIFTCALC 128 lies in its ability to apply mathematical functions and algebraic formulae to any spreadsheet-type analysis, such as budgeting, financial planning or cost estimating. Because SWIFTCALC 128 automatically calculates these formulae for you, you can produce complicated "what if?" reports at the press of a key and make further modifications quickly and effortlessly.

## At A Glance:

- A program which can be used by itself (stand alone) or interfaced with Timeworks' DATA MANAGER 128 and WORD WRITER 128 software programs. Enables you to produce customized reports and incorporate information generated from all three systems directly into documents created with the WORD WRITER 128, or into spreadsheets produced by SWIFTCALC 128.
- Super graphics: Graphically displays and prints out numerical information using: pie charts; vertical bar charts; scatter diagrams; line graphs and three-dimensional staggered bar charts.
- The SIDEWAYS option permits printing all of your columns vertically on one, continuous sheet, by automatically rotating your spreadsheet 90 degrees as it prints out.
- Pull-down menu technology that places all program commands directly onto your computer display, making it easy to computerize and store numerical information.
- 250 rows and 250 columns provide 62,500 cells (locations) in which to place information.
- Performs mathematical functions. Allows the use of minimum and maximum values, averages, sums, integers, absolute values, and exponential notation. Also performs trigonometric and logarithmic functions, i.e., sine, cosine, tangent, arctangent, natural exponent, and natural logarithms.
- Performs financial analysis functions. Calculates the present and future value of the pound and the present and future value of constant amounts (annuities).
- HELP! screens: These scrolling displays list all of SWIFTCALC 128's available functions. No need to refer to your user's manual each time you need to apply a mathematical function.
- Sample Spreadsheets illustrate budgeting, trip planning, and financial analysis. Sample spreadsheets help you become familiar with SWIFTCALC 128 and the program commands.
- Full Prompting. Thoughtful, easily understood instructions from your computer display screen are complemented by a manual written in easy-to-understand English.

## Special Features:

<b>QUICK ENTRY</b>	Automatically inserts column and row headings which use days, months, or sequential numbering.	<b>SWIFTSORT</b>	Sorts information in your spreadsheet in ascending or descending order. Rearrange your spreadsheet data at the press of a key.
<b>SEARCH &amp; REPLACE</b>	Locates information within your spreadsheet and automatically replaces data – at your command.	<b>BROWSE MODE</b>	Allows you to view your entire spreadsheet while entering formulae, and allows quick entry of cell addresses.
<b>INSERT DELETE (Erase)</b>	Inserts or deletes rows or columns – at the press of a key.	<b>"FREEZE" MODE</b>	Rows and columns can be "frozen" on your screen while you move around the spreadsheet.
<b>FORMATTING</b>	Choice of five formats: Decimal (up to 9 places); Graphics; Exponential Notation; £ Sign and Commas.	<b>DISK CATALOGUING</b>	Displays the file names of your stored documents and loads them directly into your computer.
<b>AUTOMATIC CURSOR</b>	Automatically moves the cursor in any direction you specify, after each data entry.	<b>"LOCKING" ABILITY</b>	Protects cell contents from accidental erasure or overwriting.
<b>SWIFTKEY</b>	Converts multi-key commands to just one keystroke.	<b>SWIFTDOS</b>	Allows you to access <i>all</i> of the Commodore disk operating commands, while your spreadsheet remains in the computer.

---

## Sideways Installation Guide for Commodore 64 and 128 Computers

- Selecting an Interface
- Selecting a Printer
- Selecting the Number of Data Bits
- Selecting a Device Number
- Spreadsheet Programs that are Compatible with Sideways

### ■ Selecting an Interface

The printer interfaces that are supported by Sideways are listed below:

Company	Model	Switch Settings and Special Information
Any	RS232	Select RS232 on the Interface menu. Consult your interface manual for selections for the Baud, Parity, Stopbits, and 3line-Xline sub-menus. You will find the Word Length option on the main menu. Consult your interface manual for a word length setting.
Any	Centronics Direct Connect	Simply select the Centronics option on the Interface menu.
Cardco	All	For all models, select Cardco on the Interface menu. For the PS model only, set switch 2 at the closed position.
Easy Print	All	Switch 3 ON; switches 1, 2, and 4 OFF.



---

Grappler	CD	Switches 1 and 2 OFF; switches 3, 4, and 5 ON; switches 6, 7, and 8 must be set for your printer (see your interface manual).
Micro World	MW 302	Switches 1, 2, and 4 OFF; switch 3 ON.
	MW 302C	Same as above
	Micrografix MW 350	Switches 1, 2, and 3 set for the printer you are using (see your interface manual); switches 4 and 5 ON; switch 6 OFF.
Turbo Print	GTC	Switch 1 ON; switches 2, 3, and 4 must be set for your printer (see your interface manual).
	GC	Same as the GTC.
	C	Switches 5 and 6 ON.
Tymac	Connection	Switches 1 and 2 in lower right face of interface (under paper) must be closed.
U Print	All	Most models need no special instruction. Early models may need an upgrade from the manufacturer before they will work with Sideways.
Xetec		Select "Other Interface" on the Install menu.
	GTI	Switches 1, 2, and 3 OFF; switches A, B, and C must be set for your printer (see your interface manual).
	JR	Switches 2, 3, and 4 ON; switch 8 OFF.
	SuperGraphics	Switches 3 and 4 ON; switch 8 OFF; and the secondary address must be set at 1 (see your interface manual for information on secondary addresses).

If your interface is not listed here, select "Other Interface" on the Interface menu and follow the prompts to install Sideways with your

---

interface. Only interfaces that plug into the disk drive will work with Sideways, and you must set your interface dip switches for transparent mode, no line feed, and a device number of 4. See your interface manual for the correct switch settings for these options.

## ■ **Selecting a Printer**

The Install program's printer selection menu will allow you to select one of the following printers:

Commodore 1525, MPS-801, MPS-803	C. Itoh Prowriter (8510/1550)
Commodore 1526, MPS-802	NEC 8023
Gemini 10X/15X, SG Series	Mannesmann Tally Printer
Epson Printers	Texas Instruments Printer
IDS Prism, Micro-prism, 460, or 560	Hewlett Packard Thinkjet
Okidata Printer	Apple Dot Matrix Printer

If you are using a Star 10C printer, select the "Commodore 1525" option on the printer selection menu.

Your printer must have dot-addressable graphics capability in order to work with Sideways. Most of the printers listed above have this capability as a standard feature. If you have one of the following printers, see your dealer about the graphics option:

Epson MX-80 – "Grafrax" option (standard on recent models)

Okidata Microline 82/83 – "Okigraph" option

IDS/Dataproducts printers – "Dot Plot" option

If you are using an Apple Dot Matrix Printer, C. Itoh Prowriter, or NEC 8023, switch 1-7 must be CLOSED.

If you are using an IDS/Dataproducts printer, set switch 7 on Function Select DIP S4 ON.

If you are using an Okidata 84, note that Sideways only works with the "Step 2" version of this printer. If you have an older model, you can get an upgrade kit from Okidata.

---

You may be using a printer that is software-compatible with Epson printers (we call these “Epson lookalikes”.) In most cases, these printers will work perfectly when installed as an Epson. However, if your printer does not work, try the “Epson compatible” option which we have provided in the Epson printer menu item.

## ■ **Selecting the Number of Data Bits**

Sideways will send data to your printer as a series of “bytes”, each of which is 8 “bits” long. However, if your printer can only receive 7 data bits, you must specify 7 in the installation program.

Certain printers have DIP switch settings which either enable or disable the 8th bit. You should normally set these DIP switches to enable the 8th bit; however, if you disable the 8th bit in your printer, you must also select 7 data bits when installing Sideways.

## ■ **Selecting a Device Number**

When you install Sideways, you must indicate a device number for your printer. Most use the number 4, and this is the default setting for this option. However, if you have previously changed your printer to device number 5, use the installation program to specify 5.

## ■ **Spreadsheet Programs That are Compatible with the Sideways Stand-Alone Program**

Sideways is compatible with:

Better Working Spreadsheet	Practicalc
Calc Now	Practicalc II
Cal-Kit	Syncalc
Creative Calc	Trio
Microsoft Multiplan	

Sideways also works with any C-64 or 128 spreadsheet program that can create text file information (ASCII) on a disk or that interfaces with a Sideways-compatible word processor.

## SERIAL PRINTING METHODS (U.K.)

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After loading your program, you will see two introductory screens. Please read these screens and press **RETURN**, you will be asked to specify a printing method: Commodore serial, RS232 serial, or centronics parallel. Consult your printer and interface manuals for help in selecting one of these options. Here are some general guidelines:

1. Select "Commodore Serial" if:
  - You are using a Commodore printer that does not require an interface and your printer is connected to the serial port on the disk drive, or
  - You are using a parallel printer with an interface that plugs into the serial port on the disk drive.
2. Select "RS232 Serial" if you are using an RS232-type printer and interface, and your interface is connected to the user port on your computer.
3. Select "Centronics Parallel" if you are using a parallel printer with a cable, not an interface, which connects your printer to the user port of your computer.

If you select 1 or 3, you will move directly to the program's pull-down menus.

If you select 2, "RS232 Serial", a window of options will appear on your display. Next to each option is a group of choices. Notice that one choice in each line is marked by an asterisk. These are the default settings. Your printer and interface should work with these settings, so try using them before making changes. Just press **Esc** to exit to the program.

If you experience difficulty printing, re-boot the program and return to this window to make changes. Consult your printer and interface manuals for the proper setting for each option. To change a setting, use the cursor keys to move to your selection, and press **RETURN**. An asterisk will appear next to your choice. When you have finished selecting settings, save them on the program disk by removing the write-protect tab. Then place the program disk in your drive and press **F3**. The computer will save the settings on the program disk. When the computer has finished, be certain that you replace the write-protect tab on the disk. Your selections will be loaded into the computer each time you load the program.

Later when you use the print options, you will need to enter other information as you are prompted. For Normal enter ASCII?, press **Y**; for Linefeed?, consult your printer manual. You will not need to enter a secondary address (the 4,4,? option).

---

*NOTE FOR DATA MANAGER USERS: If you are using an RS232-type printer and interface, do not attempt to load and print the Update file until you have loaded the program and modified the settings in the RS232 window.*

---