The HP·97 Calculator... It's programmable. It's portable. From Hewlett-Packard



Look inside this booklet for a brief demonstration.

TURN IT ON TRY IT OUT



Hewlett-Packard invites you to enter the world of programmable calculators—to try out the HP-97 Fully Programmable Printing Calculator, a major step forward in the field of programmable calculators for office, home, or field use. The HP-97 uses the Hewlett-Packard RPN (Reverse Polish Notation) logic system, the most efficient system available on a personal calculator for slicing through complicated mathematical expressions.

Let's try a few problems on the HP-97 and see how easy it is to use.

First, set the switches on the front panel as shown here:

- 1. Slide the ON-OFF switch to OFF OFF TO A , then to ON OFF TO N .
- 2. PRGM-RUN switch to RUN PRGM
- 3. Print Mode switch to TRACE MAN

The important rule to remember when using a Hewlett-Packard scientific calculator is that the operation is performed when the function key is pressed. You won't find an equals key on a Hewlett-Packard scientific calculator—because you don't need one.

Performing One-Number Functions

Many scientific functions, like squaring a number or computing its sine, operate on a single number—the one in the display. To perform a one-number function, simply key in the number and press the appropriate function key.

To select the function on the face of a key, of course, you simply press the key. To select the function printed in gold below the key, first press the gold **1** key, then press the function key.

Now try these examples:

Step	Press	Display	Printout
 Compute sine of 43° Find the square 	43 SIN	0.68	47 00 CIN
of 144. 3. Compute the	144 x²	20736.00	0.58 *** 144.88 X2
square root of 103. 4. Print result to	103 🗷	10.15	20736.00 *** 103.00 JX 10.15 ***
10 significant digits.	DSP 8	10.14889157	DSP8 10.14889157 ***

Performing Two-Number Functions

Two-number functions are those which, like adding or multiplying, must have two numbers in the calculator before they can be executed. To perform a two-number function:

- a. Key in the first number.
- b. Press ENTER to separate the first number from the second.
- c. Key in a second number.
- d. Press the function key.

Try these examples:

Step	Press	Display	Printout
1. Set display to 2 decimal places.	DSP 2		
2. Perform 12 + 3.	12 ENTER +	12.00	DSP2
	3 🖶	15.00	10.15 *** 12.00 ENTA
3. Perform 13 + 3.	13 ENTER+	13.00	3.00 +
	3 🖶	4.33	15.00 *** 13.00 ENTA
4. Perform 45⁵. (That is, raise the number 45 to the 5th	45 ENTERA	45.00	3.00 ÷ 4.33 *‡‡ 45.00 ENT↑ 5.00 Y× 184528125.0 ***
power.)	45 ENIEND	184528125 0	
	5 Y^	104520125.0	

PROGRAMMING—THE HP-97 REMEMBERS KEYS

The most noteworthy feature of the HP-97 is its ability to be programmed—to "remember" a series of up to 224 separate operations, and to execute those operations in order at the press of a single key. Programming gives you speed, accuracy, and versatility in long calculations, or in applications where you must perform the same keystrokes over and over.

Because the HP-97 simply remembers keys that you press from the keyboard, you don't have to use arcane programming languages, punched cards, or discs. Everything you need for complete operation of your HP-97 is included with your calculator.



Now let's examine a simple problem to see how easy programming your HP-97 can be, and how programming can help you.

Manual Problem Solving

Suppose you wanted to find the area of a circle with a radius of 5 meters. You could key in the radius and, employing the formula $A = \pi r^2$, use the calculator to solve for the area.



Step

Press

Display

Printout

- 1. Set the Print Mode switch to NORM.
- 2. Key in radius.
- 3. Square radius.
- 4. Summon pi.
- 5. Multiply.
- 6. Print the answer in square meters.

TRACE			
5	5.		
X ²	25.00	5.00	×2
f 	3.14		r i X
×	78.54	78.54	***
PRINTX	78.54		

Programmed Problem Solving

Suppose, now, that you wished to find the areas of several circles, each with a different radius. You could go through the procedure above, keying in a different radius and pressing all the keys to calculate area each time. Or you could write a *program* that would perform the entire procedure at the press of a single key.



To key in the program, set the PRGM-RUN switch to PRGM. When the switch is in this position, the keys you press are not executed, but instead are remembered by the calculator. (In PRGM mode, the display gives you information that is useful in editing programs, but which you can ignore at this time.)

> SAVING A PROGRAM FOREVER

The program is now recorded upon the card, and also remains in the calculator. To see how you can reload a program into the calculator from a card:

3. Press **1** CLPRGM. This clears (erases) the program from program memory in the calculator for this illustraton.

4. Switch to RUN mode PRGM RUN.

5. As before, insert the magnetic card into the front slot of the calculator. If you insert the wrong side of the card, the HP-97 will prompt you to insert the correct side by displaying Crd.

6. To verify that the program has been reloaded and operates correctly, calculate the area of a circle with a radius of 5:

Press 5 A

Display	
78.54	

Fintout	
5.00 GSBA 78.54 ***	

See how easy it is? And this card that you have recorded can be used to load the program into *any* HP-97 Programmable Printing Calculator or, for that matter, into any HP-67 Programmable Pocket Calculator.



Hewlett-Packard has developed dozens of programs for the HP-97 and the HP-67, in the areas of engineering, statistics, finance, medicine, mathematics, and others. Ask a salesperson for the detailed list of these programs, which are available on factoryprerecorded cards together with detailed instruction books.

NUMBERS... STORE THEM RECALL THEM RECORD THEM ON CARDS

Just as you can store programs in the HP-97, and permanently on magnetic cards, so you can store numbers in the 26 addressable storage registers in the calculator. You can also store numbers from these registers on magnetic cards. These numbers might be the constants you use in a problem, results from a calculation, or other data that you want to save.



Let's store some numbers in the storage registers, then record them on a card and recall them.

First, store Avogadro's number (6.02 x 10^{23}) in storage register R₃ in the calculator. Then store the number of persons carried daily by the Japanese National Railway (16,495,000) in storage register R_c

	ler age regiet	e		
St	ep	Press	Display	Printout
1. 2.	Key in the first number. Store it in	6.02 EEX 23	6.02 23	
3.	register R₃. Key in the second	STO 3	6.02000000 23	C 82122 CTO7
	number.	16495000	16495000.	16495000.00 STOC
4. -	register R _C .	STO C	16495000.00	RCL3 RCLC
5.	number.	RCL 3	6.02000000 23	
6.	Recall the second number.	RCL C	16495000.00	

7. Now record the information contained in the storage registers on a magnetic card. When you set the calculator to record data, the HP-97 will prompt you to insert a card with a display of Crd

Step	Press	Display	Printout
Set the calculator to record data.	f W/DATA	Crd	HOTA

Pass one side of the magnetic card, face up, through the card reader. When the card exits, your data is recorded upon the card.

To prove that the card now contains your data, first clear the storage registers in the calculator and reload the data from the card. Then recall the data into the display.

Step	Press	Display	Printout
1. Clear the primary storage registers and the display in the calculator.	e 1 CL REG CL X	0.00	CLRS
2. Prove that the			CLX
registers are	RCL 3	0.00	RCL3
now cleared.	RCL C	0.00	KCLC

3. Now reload the data from the card into the storage registers by passing the same side of the card through the card reader. The "smart" card reader in the calculator automatically recognizes whether the card contains data or a program and places the information directly in the HP97.

4. Prove that your data has been reloaded into the HP-97.

en O	RCL 3	6.02000000 23	RCL3
•	RCL C	16495000.00	ROLC

You can see how easy it is to store data in the storage registers, and to record it on magnetic cards. And you will find that the HP-97 is amazingly versatile—you can record a short program (less than 113 steps) on one side of the card, and record data on the other. Or you can record data or a longer program on both sides of the card. Whether you're loading data or a program back into the HP-97 from a card, the "smart" card reader always knows what you're loading, and places it accordingly in the calculator.

And remember: The magnetic cards you record on the HP-97 can be used to load programs or data into *any* HP-97 Programmable Printing Calculator—or into any HP-67 Programmable Pocket Calculator.

HP-97 FEATURES

Besides the unparalled combination of RPN and four-register automatic memory stack given you by Hewlett-Packard, HP-97 features include the following:

Magnetic cards that record data or programs—permanently.



224 steps of program

26 data storage registers.



Fully merged prefix and function keys that mean more programming per step.

SST

f DEL

BST

memory.	





Easy-to-use editing features for correcting and modifying programs.





DSZ I

20 easily-accessed labels.



10 decision-making functions for your programs.



FREE

Each HP-97 Calculator comes complete with all the following accessories:

HP-97 Owner's Handbook and Programming Guide

Whether a novice or an "old pro", you can learn to program the HP-97 using this comprehensive, succinct text. Contains hundreds of interesting examples and problems to help you.

Rechargeable Battery Pack

These powerful nickelcadmium batteries give your HP-97 complete portability, so you can operate your calculator anywhere.

AC Adapter/Recharger

Lets you operate your HP-97 from ordinary house current while simultaneously charging the batteries.







Carrying Case

The elegant design of this attractive, simulated-leather case belies its field-tested toughness.



Standard Pac

Contains card holder, head cleaning card diagnostic program card, 24 blank magnetic cards for your own programs, and 14 prerecorded program cards. With a detailed instruction book that allows you to instantly "customize" your HP-97 for a variety of uses, including:



Moon Rocket Lander.

Turns your HP-97 into an exciting action game.

• Annuities and Com - pound Amounts.

Transforms the HP-97 into a financial

calculator for home or office use.

- Calculus and Roots of f(x). Four routines for numerical analysis.
- And 11 more useful and interesting programs.

Paper Rolls

Each HP-97 comes complete with two rolls of special thermal paper for the quiet printer in your calculator.

Programming Pad

Contains 40 worksheets to help you develop programs for your HP-97.

OTHER ACCESSORIES

Look at these optional accessories you can get to enhance the value and usability of your HP-97 Programmable Calculator:

Application Pacs

Each application pac contains a detailed instruction manual, a program card holder, and 20 or more prerecorded cards to transform your HP-97 into a specialized calculator in seconds. You can choose from among Pacs in the fields of mathematics, statistics, electrical engineering, mechanical engineering, business decisions, and more. Ask a salesperson for a complete list.



Security Cable

A tough, 6-foot long steel cable that safeguards your HP-97 by locking it to a desk or work surface. Attractive vinyl covering prevents scarring of furniture.

Reserve Power Pack

Attaches to the calculator's AC adapter/ recharger to keep an extra battery pack freshly charged and ready for use. Comes complete with extra battery pack.



Paper Rolls

Each package gives you six rolls of special Hewlett-Packard thermal paper for your quiet HP-97 printer.



Blank Magnetic Cards, Program Card Holders, Multiple Card Packs

Available in varying quantities.



HP Key Notes

All HP-67/97 owners receive HP Key Notes, a periodic newsletter with news, features, programming tips, and unique and special program applications.



Programming Pads are also available as optional accessories.

Hewlett-Packard also maintains a User's Library of contributed programs to which you can belong. The HP-67/97 User's Library contains hundreds of programs in many disciplines, each one increasing the versatility and usefulness of your HP-97.

THE INTANGIBLES

In this brief demonstration you have seen how easy it is to use the HP-97 Calculator—you've even written a program for it. If you want to investigate some of the other features of the calculator, ask a salesperson for a copy of the *HP-97 Owner's Handbook and Programming Guide,* which gives the operation of every key on the keyboard, then takes you step-by-step from simple to complicated programming techniques.

But when you purchase a calculating instrument from Hewlett-Packard, your investment yields much more than the functions you see on the keyboard. It yields intangibles—those hard-to-measure features that show up after you've used a calculator a hundred, a thousand, a million times. Things like Hewlett-Packard "human engineering" smooth, effortless operation, pleasant, neutral coloring, a quiet thermal printer. Things like traditional HP quality, from a company that has been designing fine measuring instruments for over 35 years.

Intangible, too, are the benefits in speed, accuracy, and efficiency that you will realize with a Hewlett-Packard calculator, whether in the laboratory, office, or home.

No matter what your profession, the HP-97 has a solution for you.

