

The Students'  
Choice...

The Professionals'  
Choice...

The Logical  
Choice.

HEWLETT  PACKARD

**Corvallis Division**  
1000 N.E. Circle Boulevard  
Corvallis, Oregon 97330

**In European Areas ...**  
7 rue du Bois-du-Lan  
CH-1217 Meyrin 2, (Geneva)  
Switzerland

**In Canada ...**  
6877 Goreway Drive  
Mississauga, Ontario L4V-1M8  
Canada

**In Other Countries ...**  
3200 Hillview Avenue  
Palo Alto, California 94304, U.S.A.



# What Features... What Functions... What Model?

Bewilderment. That may be just what you feel when it comes time to make your personal calculator choice. And for good reason. Externally they all look good, but what's inside?

Your decision should be based on facts. Because selecting a personal handheld calculator today requires careful consideration. You should weigh your alternatives carefully and choose the calculator based on your problem-solving needs.

Hewlett-Packard would like to help you in your selection, because even with today's lower prices, a sophisticated pocket calculator can represent a significant investment.

You need confidence in your choice. Confidence stemming from knowing that the calculator you buy is the logical choice for your needs.

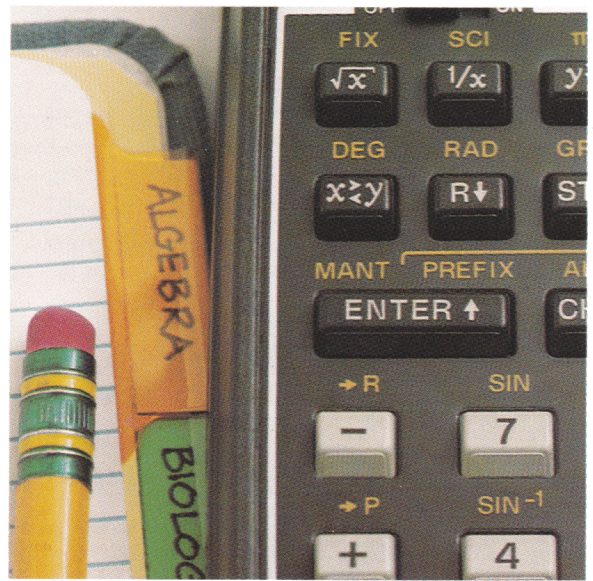
## Dispelling A Myth

It's no secret. Over the years since Hewlett-Packard introduced the first handheld scientific calculator, HP's RPN logic system has achieved universal acceptance for being the most powerful and efficient logic system for solving complex problems. We think that's great. But unfortunately some people have been left with the notion that RPN itself is complex. Pure myth. Using RPN is easy. In fact, it attains its power and efficiency because it is such a fundamental way of solving problems. All kinds of problems.

**"RPN logic is without equal in the world of portable calculators."**

**HP Owner\***

Problems are worked in exactly the same way in which you are used to working them; that is, first writing down the numbers, then performing the operation. Now, what could be simpler? The kid next door can probably do it.



**"For more than two years I have been writing a number of programs using RPN logic . . . students should not be discouraged by this system."**

**13-year-old HP Owner\***

To prove it to yourself, consider how you would add two numbers, say 3 and 4.

1. write down the first number      3
2. write down the second number      3  
    under the first                      4  
                                                  -      3
3. add                                              +4  
                                                       7

If you examine this problem, you'll notice that you first write down both numbers and then you add. In effect, you did the following sequence, reading from left to right:

3      4      +

This form of writing the numbers first, followed by the operation (+) to be performed, is called Reverse Polish Notation. Developed in 1951 by Polish Mathematician Jan Lukasiewicz, this special logic notation permits faster and more logical solutions of math problems. This notation has evolved into a logic system that has been used by many computer designers. Hewlett-Packard uses RPN logic for its advanced personal calculators. It's the most logical method for your problem-solving needs. Now, consider how you would solve the same problem on a Hewlett-Packard calculator with RPN:

1. Key in the first number                      3
2. Press **ENTER** to separate                      **ENTER**  
    the first number from the second

\*Excerpts of unsolicited letters from HP owners. Copy on file, Hewlett-Packard, Corvallis Division.

3. Key in the second number                      4
4. Add                                                      +

The result, 7, immediately appears in the display when you press the +. Now compare this sequence, again reading from left to right:

3      **ENTER**      4      +

With the sequence used to solve the problem longhand:

3      4      +

The only new element is the **ENTER** used to separate the two numbers in sequence. The **ENTER** key is used only for separating the first from the second number in any operation requiring entry of two numbers. That's the only rule you ever have to remember about the **ENTER** key.

So RPN is really just the way you've always solved problems. The **ENTER** key simply lets you separate two numbers entered in sequence.

Even as you get into more complicated problems, RPN works in the same simple way. To add and subtract a series of numbers such as  $16 + 30 - 11 + 17 - 14$  you proceed one step at a time:

Press	Display
16 <b>ENTER</b>	16.00
30 +	46.00 (16+30)
11 -	35.00 (16+30-11)
17 +	52.00 (16+30-11+17)
14 -	38.00 (16+30-11+17-14)

You only press **ENTER** when putting two numbers into the calculator so it was only needed to separate 16 from 30. From there on, you just key in the number and press + or -. The answer immediately appears in the display. These intermediate answers or subtotals let you "follow" the calculation procedure. This makes it easy to catch errors and adds to your confidence in the final answer.

Notice that in the above example, you never work with more than two numbers at a time, usually an intermediate result automatically held by the calculator and the next number you key in. In this way, RPN cuts problems down to size. Why? Because RPN is the best way to consistently manipulate numbers inside a calculator. In every case there is a direct one-to-one correlation with the keyed function. What occurs in the display is totally and logically predictable. This becomes even more apparent in more complex calculations like this:

$$5 \times \left[ \frac{(3 \div 4) + (4 \times 3)}{(3 \times .213)} \right]$$

Again, using RPN you solve this problem just as you would by hand. Furthermore, each time you press a function key, what you see in the display is always predictable and consistent with the step you just performed. No penciling. No mystery. Just straightforward consistency. Try it for yourself. First solve for the intermediate result  $3 \div 4$ :

Press	Display
3 <b>ENTER</b>	3.00
4 $\div$	0.75 (3 $\div$ 4)

The calculator will automatically remember this intermediate result while you continue. Now, solve for  $(4 \times 3)$  and add to the first intermediate result:

continue with  $(4 \times 3)$ :

Press	Display
4 <b>ENTER</b>	4.00
3 $\times$	12.00 (4 $\times$ 3)
+	12.75 (3 $\div$ 4) + (4 $\times$ 3)

and then  $(3 \times .213)$

Press	Display
3 <b>ENTER</b>	3.00
.213 $\times$	0.64 (3 $\times$ .213)
$\div$	19.95 (3 $\div$ 4) + (4 $\times$ 3)
	(3 $\times$ .213)

finally multiply by 5:

Press	Display
5 $\times$	99.77 $5 \times \left[ \frac{(3 \div 4) + (4 \times 3)}{(3 \times .213)} \right]$

Always working with only two numbers at a time, letting the calculator hold all intermediate results automatically, even complicated calculations are easy with RPN.

What does this mean? Well, there's a real benefit to you here. Since you solve problems longhand using RPN, it's a very familiar method to you - it parallels the thought process you go through in solving problems longhand.

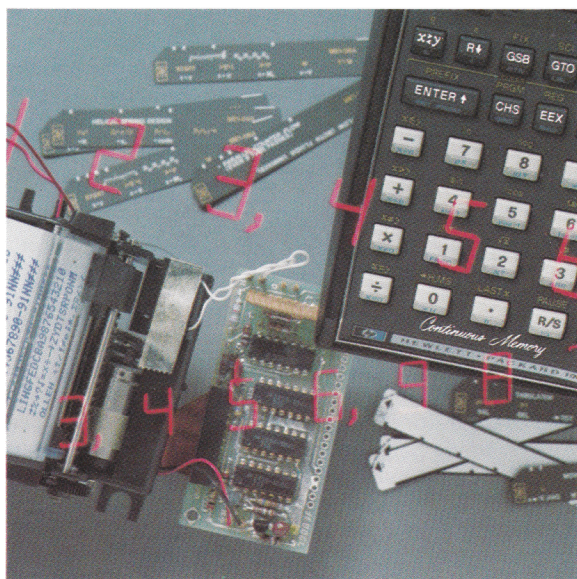
That's what was meant earlier by a "simple, fundamental" way to solve problems.

The advantages of RPN become even more important when you work with more complicated problems:

- You never have to work with more than one function at a time.
- Pressing a function key immediately executes the function.
- Intermediate results appear as they are calculated.
- You can calculate in the same order you do with pencil and paper.

RPN means confidence. Confidence in the answers you get and confidence in the method you used to get them. The Confidence of *computer logic*.





## Designed To Be Used

Hewlett-Packard designs calculators for use by human beings. Sounds reasonable enough, but in reality it's no simple task. At HP, "total design engineering" is not an afterthought.

---

**"... the quality of HP calculators is legendary — but only after owning one do I fully appreciate your company's design and production effort.**

**HP Owner\***

---

HP's handheld models fit your hand comfortably. There's no twist or play in the case. When you press a key, you'll notice a quiet, positive click. This "positive tactile feedback" lets you know that the calculator has executed your keystroke; thereby eliminating the need to continually monitor the display.

---

**"I've owned an HP-35 for nearly 5½ years. During that time I've seen many other brands of calculators come and go. My HP-35 just keeps on 'clicking'."**

**Engineer\***

---

The size and shape of the keys let you easily read the symbols on them. The spacing minimizes the chance of pressing more than one key at a time —

a distinct possibility on a small keyboard with many keys.

The battery compartment door is designed to open easily (but not accidentally), without using a coin or key. No nicks. No damage. Just human engineering. In addition, low-level battery indicators are used on even our least expensive models; because we know that an unexpected power loss can be a very trying experience.

The total design element along with the RPN logic system engineered into every Hewlett-Packard calculator means that whether you're balancing your checkbook, or solving a complex problem, HP is the logical choice.

## Performance Plus

Every Hewlett-Packard calculator is designed to resist the hard knocks of a cruel world. We know that not everyone takes good care of their calculators—and accidents do happen. Should misfortune strike, you'll need a calculator that can take it. And bounce back. A surprising attention to detail prepares an HP calculator for a long life of hard work and hard knocks.




---

**"My HP-45 was involved in a fire up in the Yukon Territory. After breaking open the case, burned beyond recognition, I found everything to be working in a satisfactory manner."**

**HP Owner\***

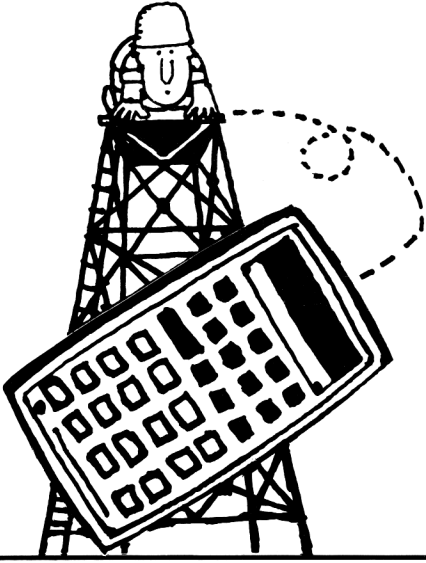
---

To help absorb the impact of hard knocks, our calculators are constructed of acrylonitrile butadiene styrene plastic (ABS), a very tough ter-polymer. Football helmet tough.



## General Purpose

Almost any of the four-function calculators available today will do an adequate job of addition, subtraction, multiplication and division. However, for professional people who frequently perform arithmetical computations, the ideal handheld calculator is one that will provide all the features of standard desktop office machines. The HP-10 performs instant quotations, commissions, dividends, percentages for taxes, and more. The buffered keyboard, add mode, fixed and floating notation, and print separator add up to making the HP-10 the most powerful machine in its class. If you require a printed record of your calculations and the dependability of high-quality engineering and construction, you should take a close look at this calculator.



**"While designing a set of tower stairs from the top of a 40' scaffolding, I felt something slide out of my shirt pocket. I looked down to see my HP-35 hit the concrete floor and come out of the case in several pieces. I climbed down, picked up the pieces, and put them back in the warped case. When I put the battery and all back in the case I turned on the switch to find, to my surprise, it worked."**

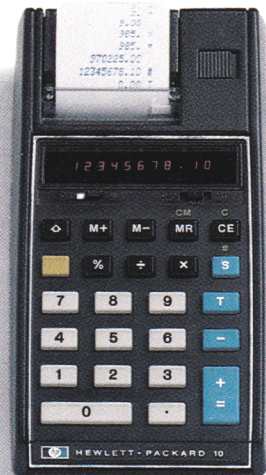
**Engineer\***

Even the effects of accidental coffee spills and other similar hazards are considered in the design of all HP calculators. A moisture-proof plastic film under the keyboard protects the calculator's internal circuitry.

But there's more. Much more. Before HP calculators go out into the cold, cruel world they are tested. Tested. And tested. The products are submitted to severe environmental testing – testing more severe than your calculator will realistically ever be subjected to. But just in case... tests are conducted in dropping, heat, and salt spray. Susceptibility to static discharge and radiation. And still more. Tests are made to measure the effect of electro-magnetic interference on the calculator and its electro-magnetic interference on other devices. And this is only a partial list!

To maintain maximum reliability in our calculators, all of the parts and subassemblies pass through "Incoming Quality Assurance". Inspections. More testing. All to ensure that quality is built-in rather than added on.

Because quality isn't an easily acquired characteristic, Hewlett-Packard takes no short cuts in any phase of the development of personal calculators.



HP-10

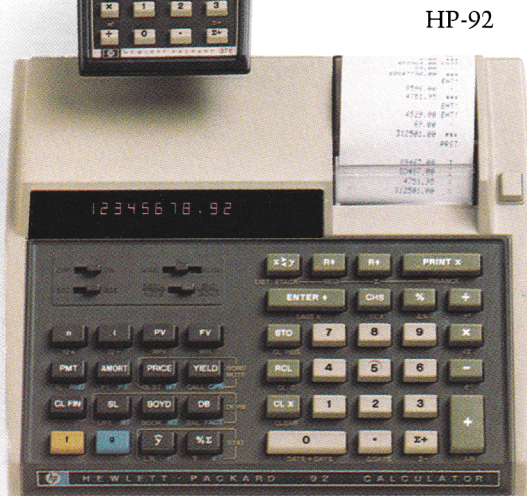


# Preprogrammed Financial

Many business people are significantly extending their professional capabilities by switching from simple four-function calculators to advanced calculators. The preprogrammed calculator is an ideal step up, even for people whose skills in math and statistics are rusty or altogether lacking. With a few simple keystrokes, the preprogrammed calculator provides fast and accurate solutions to a wide range of financial and statistical problems, many involving complex computations. If you are interested in the advantages of a preprogrammed financial calculator, take a look at these two instruments. The HP-92 and HP-37E are designed to help you pick the right investment. Every time.



HP-37E

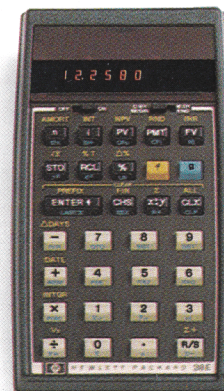


HP-92

# Keystroke Programmable Financial

The financial keystroke programmable is ideal for managers, financial analysts and consultants because it offers two basic methods of problem solving. Most everyday time and money problems can be solved using the wide variety of built-in functions. For more complex and repetitive financial computations keystroke programming is particularly helpful. With keystroke programming you can save hours of time wasted in long, tedious calculation. And once a program is written into the calculator, there is no possibility of human error. The HP-38E provides capabilities that are invaluable for the business manager and business student alike. If keystroke programming sounds logical for you, pick up the new HP-38E. You'll be glad you did.

HP-38E





# Preprogrammed Scientific

A preprogrammed calculator is the first advanced instrument many engineers and scientists use, and it is ideal for those whose work does not often require complex or repetitive computations. It is also often an ideal choice for engineering students who want to shorten the time required for problem solving. Trigonometric, exponential and math functions. Metric conversions. And more. If you are interested in a preprogrammed scientific, consider the new HP-31E or HP-32E. Experience the HP difference.

HP-31E



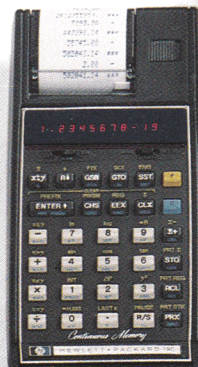
HP-32E



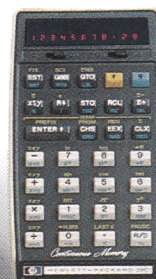
# Keystroke Programmable Scientific

The keystroke programmable is invaluable for those who frequently deal with complex or repetitive scientific computations. A keystroke programmable can solve these problems automatically when it is programmed to do so. Then, all you have to do is key in your data and let the calculator run the entire computation. For those who use a few programs frequently, the Continuous Memory feature may be especially useful. This feature makes it possible to retain programs and data even with the calculator switched off. If keystroke programming sounds logical for you, try these keystroke programmables. They are designed to help you solve today's sophisticated scientific and engineering problems — quickly, easily, and accurately.

HP-19C



HP-29C



HP-33E





# Fully- Programmable Scientific & Financial

The fully-programmable is the most powerful, flexible and comprehensive of all advanced calculators. Complex programs can be stored permanently on small magnetic cards and used in the calculator over and over again. Pre-recorded program cards are available for a number of areas such as business, math, statistics, medicine, physical science, life science and many others. If you are looking for a calculator that will provide you with maximum capability and exceptional programming power, pick up the HP-67 or HP-97. They're alone in their class.



HP-67



HP-97



## Don't Worry, It's A Hewlett-Packard

Reassurance. It's what you get when you own an HP calculator. Hewlett-Packard provides a full range of service and support to every HP calculator customer. When you need help, you're not alone.

Should your calculator need service or repair, you'll be in good hands. HP's service and repair facilities reflect the highest level of customer support. You deserve nothing less.

---

**"Your policy of continued service has made me a lifetime customer."**

**University Student\***

---

And as your problem-solving capabilities grow, HP grows with you. A full line of software support is designed to help you increase your problem-solving potential. Application Pacs. Solutions Books. And more. It's all a part of Hewlett-Packard's continual support effort. Chances are, HP already has the answers you're looking for.

To complement the software, HP manufactures a complete line of accessories. From battery packs to blank program cards, HP has the materials for your need.

When you consider the facts, consider HP. And no matter which HP calculator you select, you can be assured that it is the finest in its class ... the Hewlett-Packard standard of quality permits nothing less. Because when it comes to engineering personal calculators – HEWLETT-PACKARD IS WITHOUT EQUAL.