

INTRODUCING  
A NEW  
GENERATION OF  
BUSINESS  
CALCULATORS  
FROM  
HEWLETT-  
PACKARD.



Each business calculator in the new Hewlett-Packard Series E line gives you more functions and more ease-of-use features, at a lower price, than any comparable calculator we've ever offered. Whether you choose the HP-37E Business Management Calculator or the HP-38E Advanced Financial Calculator with Programmability you'll find these same great features:

**New simple and intuitive financial problem-solving system.**

A new exclusive straightforward system lets you describe any financial problem in terms of positive or negative cash flows—and then solve it with the press of a key. And you can key in the elements of a problem in any order.

**New easy-to-read display—plus commas.**



To help you read large numbers more easily, commas\* are automatically inserted, just as you would write them yourself. And the large, bright red digits are tilted forward for positive reading from any working angle.

**New convenient shape and size.**

Perfectly shaped to fit your hand, sized to easily fit your pocket, elegantly designed to be a handsome and prestigious addition to your desk.



\*Or points depending upon local convention.

**New exclusive self-check capability and error codes.**



An internal self-check routine is built right in. At the press of two keys, the calculator quickly checks all of its internal circuitry, then flashes — 8,8,8,8,8,8,8,8,8, to reassure you of correct operation.

Also, if you make a mistake in your calculations, special error codes show in the display to help you track it down.

And improved accuracy, previously found only in higher priced calculators, lets you proceed with greater confidence in any complex problem.

**New low price range.**

You get more functions and more ease-of-use features for your money than with any other calculator we've ever offered.

**And traditional Hewlett-Packard attention to detail.**



Pick up one of these fine Series E calculators and you immediately notice the quality *feel* for which Hewlett-Packard is famous. What you may not notice are the important details that make the power in your calculator more usable: the positive click-action keys; the helpful color-coding on the keyboard; the easier-to-use RPN logic system; the modular owner's handbooks that let you skip what you already know; and more.

These calculators have been designed—in every detail—to be the finest of their kind in the world. Pick up one today.

# THE HP-37E AND THE HP-38E PROVIDE THE BUSINESS FUNCTIONS YOU NEED AND TRADITIONAL HEWLETT- PACKARD QUALITY AT A LOWER COST.



Hewlett-Packard's new HP-37 is the basic calculator you need for answers to most business and financial problems such as pricing, compound interest, trend lines and many more. In the tradition of HP's successful finance and business management calculators, the HP-80 and HP-22, the amazing new HP-37 actually provides *more* calculating power and ease-of-use features—including expanded financial capabilities, valuable percent and statistical functions, and a new straightforward way of solving financial problems. The HP-37 is the ideal calculator for real estate brokers, bankers, accountants, students, or people in business and management.

### Simple, Complete Financial Functions.

While most financial calculators solve for the fourth variable given three, the new HP-37 can also solve directly for the fifth variable given four— $n$  (number of compounding periods),  $i$  (interest rate),  $PV$  (present value),  $FV$  (future value), and  $PMT$  (payment). You key the elements of the problem in any order—and if you want to change one of those elements, you can do it with a single keystroke. And ordinary or annuity due problems can also be directly calculated at the flip of a switch. The HP-37's ability to modify the variables in a problem continuously makes it ideal for those "what if?" situations so common in business.

### Easy-to-Use.

With the HP-37 you can state any financial problem in a simple, intuitive manner, so you don't have to remember hand-book instructions. Problems are entered in terms of cash flows using a unique *sign convention*. Cash outflows are negative and cash inflows are positive both when you enter data and when you display results. With this system you can easily find the yield of a loan with a balloon, the payment on a lease with a buy back option, and the price or yield of a discounted mortgage. Whether your profession calls the problem a mortgage with a balloon payment or a lease with a buy back (or residual), it's the same thing to the HP-37—and you can quickly solve it.

### Amortization Schedules.

Once the principal, periodic interest rate, and payment amount have been entered into the HP-37, you can calculate an amortization schedule for any number of time periods with a press of the AMORT key. You see the accumulated interest amount in the display, and only three more keystrokes show you the amount paid toward principal and the remaining balance.

### Retail-Style Percent Functions.

Whether you're solving for percent, percent change or percent of total, you'll appreciate the logical, consistent operation of the HP-37. You never need to remember formulas.

And the unique new PRICE function calculates the selling price if you know the cost and the margin.

### Seven User's Storage Registers.

Besides the five financial registers and the Hewlett-Packard four-register automatic memory stack, the HP-37 is equipped with seven other memories. You can use these storage registers individually for storing and recalling constants, answers, investment alternatives, any number you want to save during your calculations.

### Statistics at Your Fingertips.

For research, analysis, and the interpretation of data, the HP-37 is packed with useful statistical functions. The handy  $\Sigma+$  key automatically accumulates the values needed to calculate the means (arithmetic averages) and standard deviations for two different sets of data.

The HP-37 also provides a linear regression, or trend line, function and can compute correlation coefficient, a measure of goodness of fit of the trend line. These statistical features can help you analyze the past and predict the future.

### Versatile Mathematical Functions.

In addition to the usual arithmetic keys, you'll find on the HP-37 a host of mathematical functions useful in business and financial calculations:  $1/x$ ,  $\sqrt{x}$ ,  $y^x$ , as well as the factorial ( $n!$ ), natural logarithm (LN) and anti-log ( $e^x$ ).

### HP-37E Features Summary.

Financial Functions: Number of periods, Interest rate per period, Present value, Payment, Future value, Accumulated interest, Payment to principal, Remaining balance. Ordinary and Annuity due switch.

Percent Functions: Percent, Percent of total, Percent change, Price.

Mathematical Functions: Four arithmetic functions, Reciprocal, Square root, Exponentiation, Factorial, Natural logarithm and antilogarithm, Multiplication and Division by 12.

Statistical Functions: Two variable mean and standard deviation, Linear estimate and Correlation coefficient. Summations ( $n$ ,  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma y^2$ ,  $\Sigma xy$ ) and error correction.

Clearing Functions: Clear  $x$ , Clear finance, Clear all.

Control Functions: Enter,  $x-y$  exchange, Roll down, Change sign, Store and Recall, Shift key, On-off switch.

Display: 10 digits, Low-level battery detector.

Registers: 7 user's, 5 financial, 4 operational.

The HP-37E comes complete with:

- Your HP Financial Calculator, a 68-page introduction to financial concepts and problem solving.

- HP-37E Owner's Handbook, a comprehensive manual detailing the operation of every function of your HP-37.

- *Investment Analysis and Statistics Applications*, a valuable applications book for business professionals and students. (*Real Estate Applications and Lending, Savings and Leasing Applications* are also available as optional accessories, in English only.)

- AC adapter/recharger, lets you operate your HP-37 from AC house current while simultaneously charging its battery pack.

- Battery pack, rechargeable nickel-cadmium batteries that give you completely portable power for about three hours of continuous operation. (Installed in calculator before shipping.)

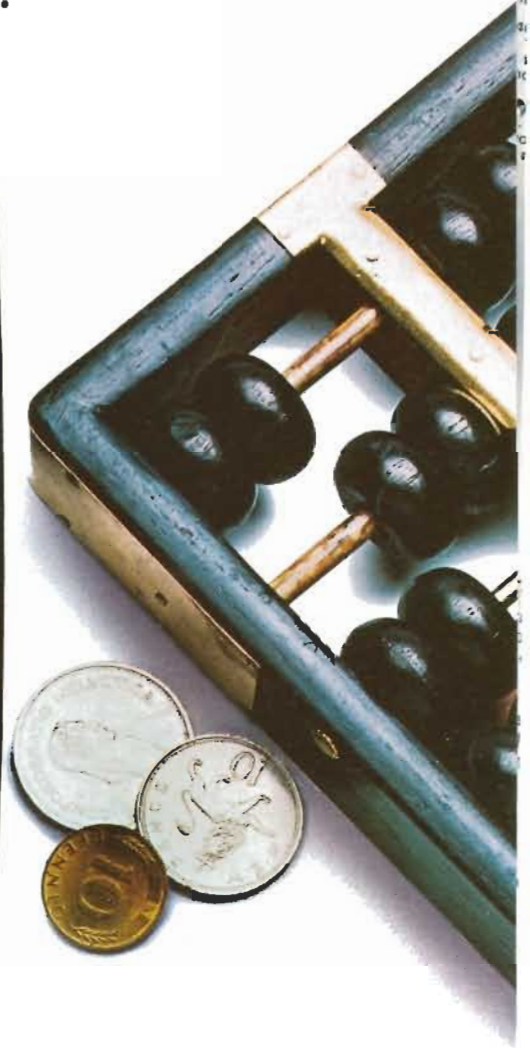
- Attractive carrying case, tough yet pliable, for protecting your HP-37.

See the back of this brochure for complete physical specifications and additional warranty and accessory information.

Coins are photographed separately to simulate typical appearance.

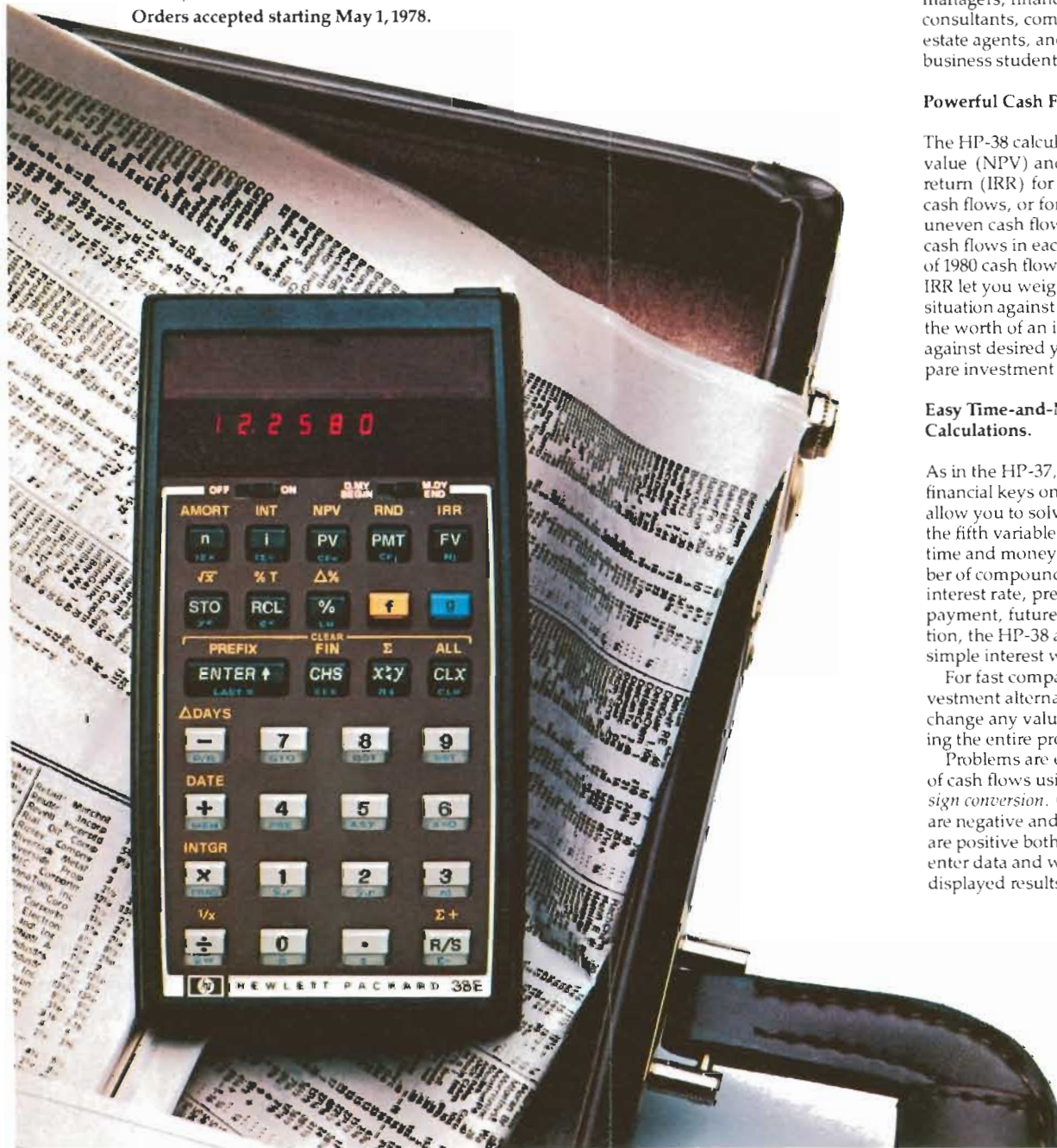
# THE HP-37E BUSINESS MANAGEMENT CALCULATOR.

Orders accepted starting July 1, 1978.



# THE HP-38E ADVANCED FINANCIAL CALCULATOR WITH PROGRAMMABILITY.

Orders accepted starting May 1, 1978.



The new HP-38 is a powerful financial calculator with a big plus—programming. Like no other calculator we've ever offered, the HP-38 combines an unparalleled array of financial functions with the ability to "remember" all the keystrokes in a calculation and to repeat them over and over again at the touch of a key. It provides capabilities that are invaluable to managers, financial analysts and consultants, commercial real-estate agents, and advanced business students.

## Powerful Cash Flow Analysis.

The HP-38 calculates net present value (NPV) and internal rate of return (IRR) for up to 20 uneven cash flows, or for 20 groups of uneven cash flows with up to 99 cash flows in each group (a total of 1980 cash flows). NPV and IRR let you weigh a leasing situation against buying, balance the worth of an investment against desired yield, or compare investment alternatives.

## Easy Time-and-Money Calculations.

As in the HP-37, the top-row financial keys on the HP-38 allow you to solve directly for the fifth variable given four in a time and money problem (number of compounding periods, interest rate, present value, payment, future value). In addition, the HP-38 also computes simple interest with the IN1 key.

For fast comparisons of investment alternatives, you can change any value without restating the entire problem.

Problems are entered in terms of cash flows using a unique *sign conversion*. Cash outflows are negative and cash inflows are positive both when you enter data and when you see displayed results.

And the AMORT function gives you an amortization schedule for any time period, with accumulated interest, amount paid toward principal, and remaining balance.

### Easy, Instant Programming

The HP-38 is so easy to use you'll be writing programs in minutes! A "program" is nothing more than a series of keystrokes you'd normally use to solve a problem or perform a calculation. But if you have first switched the calculator to Program mode with the P/R (Program/Run) key, it doesn't execute the keystrokes, but instead remembers them as you press them in order. You've written a program!

To run the program, just switch back to Run mode with the P/R key, key in your data, and press R/S (Run/Stop). Every time you press R/S, the HP-38 executes the entire sequence of keystrokes in seconds.

It's that easy! There are no "languages" to learn, no procedures to memorize. When you can add two numbers on the HP-38, you're ready to program it.

### Saves Valuable Time

By programming the HP-38, you can save hours of time wasted in long, tedious calculation—a long program of many keystrokes can be executed in a matter of seconds. And once that program is written into the calculator, there is no possibility of human error—the HP-38 executes the entire sequence the same way, every time.

### Double-Duty Memory.

The HP-38 makes the most efficient use of its memory space by sharing it between program memory and data memory. When the HP-38 is first turned on, it contains 8 lines of memory for your program and 20 addressable storage registers for data like numbers, constants, answers, etc.

But because memory is shared, as you write a program longer than 8 lines, memory is automatically converted from data storage to program memory (at a ratio of 1 to 7), until you've reached a maximum of 99 lines with 7 storage registers remaining inviolate. And remember, any keyboard operation occupies one line of program memory even though it may take one, two or three keystrokes to perform.

### Memory Map.

A quick press of MEM instantly shows you at any time how memory is allocated in the HP-38. For instance with a 99-line program loaded, MEM gives you a display like this:

P-99	r-07
Program	Data
Lines	Registers

### A Handy 2000-Year Calendar.

The built-in HP-38 calendar can easily calculate the actual number of days between two dates on a 360- or 365-day calendar basis, day of the week, or a future or past date for use in your financial transaction.

### Statistics at the Press of a Key.

Statistical features on the HP-38 include means and standard deviations of two sets of data, as well as linear estimate and correlation coefficient of y for a known x, and of x for a known y. Another valuable statistical function is  $\bar{x}_w$ , which enables you to quickly calculate a weighted average.

### Extra Programming Features.

The HP-38 also offers GTO for line addressing and two numeric tests ( $x \leq y$ ,  $x = 0$ ) for decision making within a program. In program mode the display shows you the line number and the code of the function stored in that line.

For quick and handy editing of your programs, you can single-step (SST) or back-step (BST) to any step in the program.

### A Full Range of Mathematical Capabilities.

Besides arithmetic, the HP-38 also computes square roots, exponentials, reciprocals, factorials, natural logarithms and antilogarithms all at the press of a key. The HP-38 also calculates percent, percent of total and percent change.

### HP-38E Features Summary.

Financial Functions: Number of periods, Interest rate per period, Present value, Payment, Future value. Accumulated interest, Payment to principal, Remaining balance. Ordinary and Annuity due switch. Simple interest. Net present value, Internal rate of return. Automatic entry for grouped or individual cash flows.

Percent Functions: Percent, Percent of total, Percent change.

Mathematical Functions: Four arithmetic functions, Reciprocal, Square root, Exponentiation, Natural logarithm and antilogarithm, Factorial, Multiplication and Division by 12.

Statistical Functions: Two variable mean and standard deviation. Weighted average. Linear estimate of x and y values, Correlation coefficient. Summations ( $n$ ,  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma y^2$ ,  $\Sigma xy$ ) and error correction.

Clearing Functions: Clear x, Clear all, Clear finance, Clear statistics, Clear prefix, Clear program.

Control Functions: Enter, x-y exchange, Roll down, Change sign. Store and Recall. Enter exponent. Round, Integer, Fractional. Two shift keys. On-off switch.

Programming Functions: Program/run, Go to, Tests ( $x \leq y$ ,  $x = 0$ ). Single-step, Back step. Pause, Run/stop. Memory map.

Calendar Functions: Date with day of week, Number of days, Date format switch (month-day-year or day-month-year).

Display: 10 digits, Low-level battery detector.

Registers: 20 user's, 5 financial, 4 operational, Last x register. 8 program lines (expandable to 99).

### The HP-38E Comes Complete with:

- *Your HP Financial Calculator*, a step-by-step 68 page guide to complete financial problem-solving with your new HP financial calculator.

- *HP-38E Owner's Handbook and Programming Guide*, a comprehensive manual detailing the operation of every function on your HP-38 and a guide to programming the HP-38.

- *HP-38E Quick Reference Card*.

- *Investment Analysis and Statistics Applications*, a valuable applications book for business professionals and students. (*Real Estate Applications and Lending, Savings and Leasing Applications* are also available as optional accessories, in English only.

- AC adapter/recharger, lets you operate your HP-38 from AC house current while simultaneously charging its battery pack.

- Battery pack, rechargeable nickel-cadmium batteries that give you completely portable power for about three hours of continuous operation. (Installed in calculator before shipping.)

- Attractive carrying case, tough yet pliable, for protecting your HP-38.

See the back of this brochure for complete physical specifications and additional warranty and accessory information.



### Compound Interest.

**The Problem.** Suppose you are planning to retire in 15 years and wish to deposit a sum now which will grow to \$10,000 at that time. If your retirement account can earn 6¼ % interest compounded annually, how much must you deposit today to reach that goal?

**The Solution.** Solutions to problems like this one are easy on the HP-37 and the HP-38. Using the straight forward *cash-flow sign-conversion*, money paid to you is seen as positive; money that you pay out is negative. So to solve this problem you'd simply enter the three variables you know and then press PV (present value) for the answer.

Keystrokes	Display
15 [n]	15.00
6.75 [i]	6.75
10000 [FV]	10,000.00
[PV]	-3,753.89

See how easy it is? Just a few keystrokes replace all those cumbersome interest tables and complicated forms.

**The Problem.** What principal must you invest if you can also make annual deposits of \$200 to the account?

**The Solution.** First, the payment switch is set to END, since payments are made at the end of the period. Then simply enter the new value and recalculate for present value.

Keystrokes	Display
200 [CHS] [PMT]	-200.00
[PV]	-1,903.19

You can see how quickly and accurately the HP-37 (and the HP-38) gives you time and money solutions. And, of course, if you know any three or four of the values in a compound interest problem, you can solve for any unknown with the press of a key.

### Discounted Cash Flow Analysis.

Both the HP-37 and the HP-38 perform two kinds of discounted cash flow analysis, NPV (net present value) and IRR (internal rate of return). *The HP-37E Owner's Handbook* gives you a simple "cookbook" set of keystrokes for finding NPV and instructions on how to apply the same technique to find IRR with a trial and error approach. On the HP-38, both these values are available at the press of a key, as shown here.

**The Problem.** You have an opportunity to purchase a piece of property for \$70,000. If the going rate of return on this type of investment is 13.75 %, and the after-tax cash flows are forecasted as shown below, should you purchase the property?

Year	Cash Flow (\$)
1	\$14,000
2	11,000
3	10,000
4	10,000
5	10,000
6	9,100
7	9,000
8	9,000
9	4,500
10	71,000

(property sold in 10th year)

**The Solution.** Simply enter the interest rate, the original price of the property as a negative cash flow, and the remaining positive cash flows. Then press NPV and see the answer 879.93 displayed. Since the net present value is positive the investment meets the profit objective of at least a 13.75 % minimum yield.

**The Problem.** What is the actual percentage yield on this investment?

**The Solution.** By pressing IRR you see displayed the actual percentage yield, 14.01.

### The Programmable HP-38 Gives You a New Dimension in Financial Computation.

Programmability in a pocket-sized business and financial calculator can help you in all your calculations from the simplest to the most complex. With programmability you can:

- Automate routine calculations, which normally involve only basic arithmetic, percent, and memories. Programming can free you from the drudgery of accounting and pricing tasks.
- Use the many applications programs right away, because they're all prewritten in HP financial applications books. Just pick up the book for your needs, and put the power of programming to work for you.
- Develop your own sophisticated programs using the advanced programming capabilities of the HP-38.

### A Simple Program.

Simple programs can be written on your HP-38 in a few moments, yet can save you hours of tedious calculation time.

**The Problem.** You manage a furniture store, a giant outlet with thousands of items of inventory. You wish to have a clearance sale, and you want to mark each item with a price of 25 % off the regular price (before taxes) plus 6 % sales tax. Three of the items are a \$1780 sofa set, a \$950 dinette set, and a \$1925 TV/Stereo Home Entertainment Center.

**The Solution.** You could, of course, compute the new price for each item by first calculating the discounted price and then adding 6 %. But the quickest way is to write a program to handle your calculations for you.

#### Keystrokes for the Program

25 [%]	} these keys subtract 25 % of the original price
[=]	
6 [%]	} these keys add 6 % sales tax
[+]	

These are the same keys you'd press to solve the problem from the keyboard—but in Program mode, they're not executed, but instead remembered by the HP-38.

To now figure the new discounted prices plus tax you just key in the old price and run the program by pressing R/S (Run/Stop).

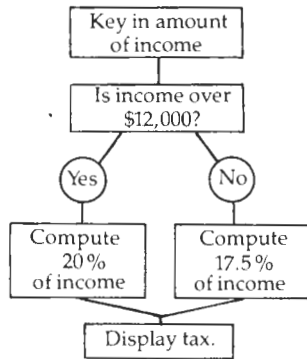
Keystrokes	Display
1780	1,780.
[R/S]	1,415.10
950	950.
[R/S]	755.25
1925	1,925.
[R/S]	1,530.38

### Decision-Making.

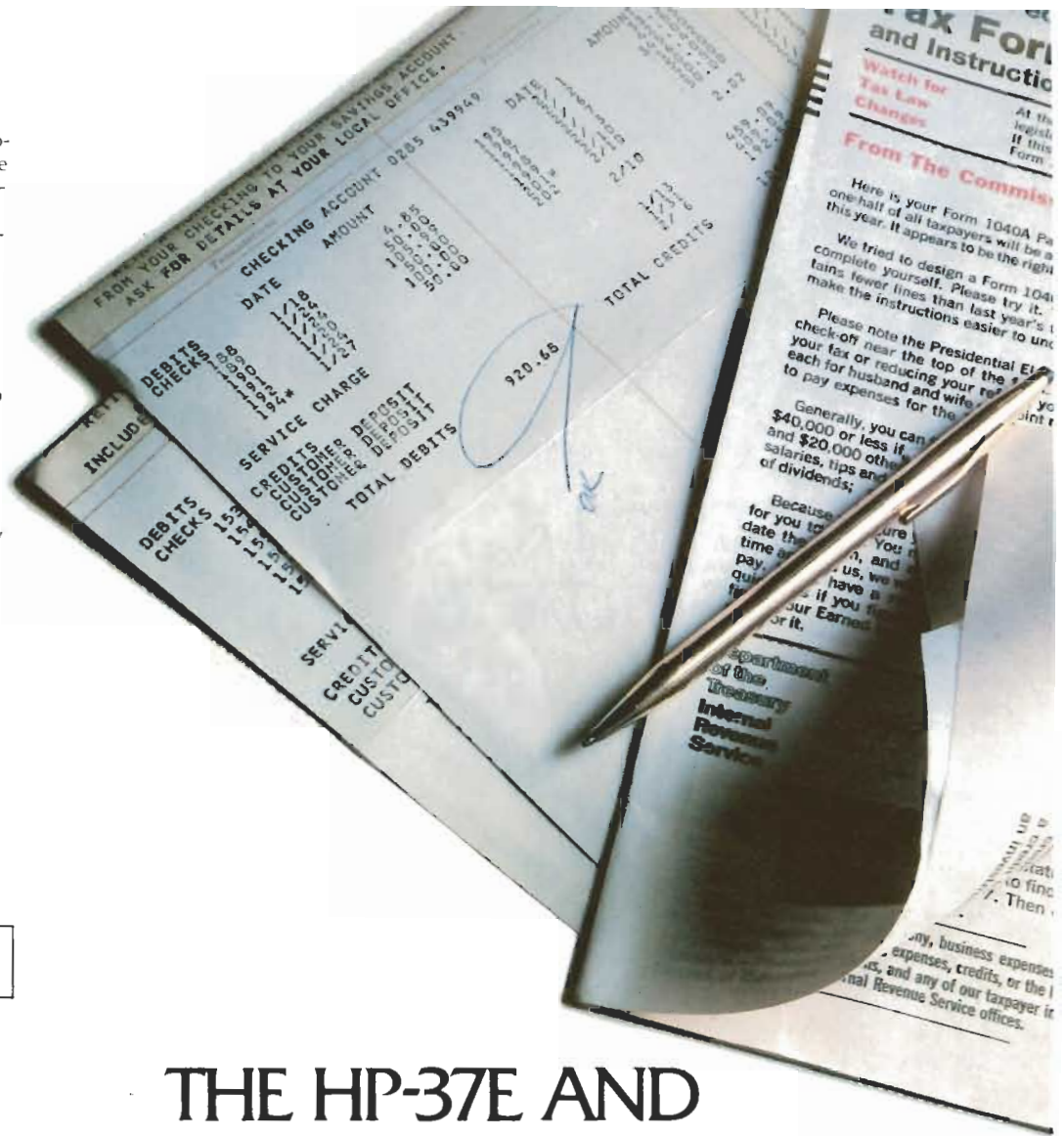
The HP-38 has many useful programming functions; among the most valuable are the conditionals, like  $x \leq y$ , which permit the calculator to actually make decisions in a program.

**The Problem.** An accountant is figuring withholding tax on the checks of a large group of employees. For those with incomes over \$12,000, he needs to take out 20%. For those with incomes of \$12,000 or less, he wants to subtract 17.5%.

**The Solution.** To solve this problem, the accountant merely writes a program that decides how much withholding tax to take out. First, he might draw a diagram like the one shown here to help him outline the decision-making process.



We won't show you the actual key strokes you'd need to load into the calculator to solve this problem, but you can be assured that even complicated decision-making programs like this one can be written into the HP-38—and executed in a matter of seconds.



# THE HP-37E AND THE HP-38E HANDLE YOUR CALCULATIONS WITH EASE.





#### HP-37E and HP-38E Calculator Specifications

Length: 140 mm (5.6 in.)    Width: 75 mm (3.0 in.)  
Height: 30 mm (1.2 in.)    Weight: 220 g (7.7 oz.)  
Recharger Weight: 170 g (6.0 oz.)  
Shipping Weight: 910 g (2.0 lb.)  
Operating Temperature: 0° to 45°C (32° to 113°F)  
Charging Temperature: 15° to 40°C (59° to 104°F)  
Storage Temperature: -40° to 55°C (-40° to 131°F)  
Recharger Power Requirements: 90 to 120 VAC, 50 to 60 Hz, or  
198-242 VAC, 50 to 60 Hz  
Battery: 2.5 VDC quick-charge nickel-cadmium battery.  
Charging Time: Calculator off, 5 to 9 hours. Calculator on,  
17 hours.  
Operating Time: typically 3 hours of continuous operation.

#### One Year Limited Warranty.\*

The HP-37E and HP-38E calculators and their accessories are warranted by Hewlett-Packard against defects in materials and workmanship for one year.

During the warranty period, we will repair or at our option replace an HP-37E or HP-38E that proves to be defective at no charge provided that you return the product, shipping prepaid, to the Hewlett-Packard Repair Center.

#### What Is Not Covered:

This warranty does not apply if the product has been damaged by accident or misuse, or as a result of service or modification by other than an authorized Hewlett-Packard Repair Center.

No other express warranty is given by Hewlett-Packard.

\*A copy of the complete warranty is available upon request from your dealer or by mail from Hewlett-Packard.

Hewlett-Packard reserves the right to make changes in materials, specifications or accessories without notice.

Hewlett-Packard Products are manufactured by Hewlett-Packard worldwide.



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