

# 1975-1976

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From time to time some manufacturers will come up with new models or improved models, eliminate some models or phase out some models, please call us or contact us when you have found out there are some new models on the market not listed in our catalogue, we will immediately keep you up to date with a supplemental list and we will keep you posted at all times at your request.

Also from time to time, some of the manufacturers may either increase or lower the price on calculators and or other equipment. If the manufacturer reduces the price, we at Olympic Sales Co. want you our good customers to benefit from the price reduction and we will deliver the units at the lower price, in the event the prices went up instead of down, we will charge to you the new higher price. If you feel the prices have changed on some models please contact us and we will mail to you at once a new supplemental price list which will be up to date.

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County Governments	State Governments	Dept. of the Air Force
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## TERMS AND CONDITIONS...

All sales are f.o.b. our warehouse in Los Angeles, California. All sales are final and subject to availability of goods. Prices can be changed without notice to any one either increase or decrease. Warranty periods are subject to the manufacturer's rules and regulations. Olympic Sales Co. does not guaranty any product under any circumstances, each product is fully guaranteed by each respective manufacturer. TERMS OF PAYMENT: Any firm listed and well rated with Dun and Bradstreet rating books will be placed on open account, net ten days. Any firm not rated with the Dun and Bradstreet rating books will be automatically placed on either payment in advance or payment on delivery, we prefer money order or cashiers or certified check, that will speed up the shipping, due to the fact that it takes 2 to 3 weeks for our bank to clear personal and commercial checks. WE WILL extend credit terms on open account net ten days to city municipalities, state, county, and federal government agencies, school districts, colleges, universities. Any employee of large firm can enclose a photostatic copy of his badge with his personal check either in advance or on delivery. Any other private person wishing to purchase from us should send with the order either a money order or cashiers check for \$25.00 on account, the balance on delivery in the form of a money order or cashiers check, this will speed the delivery of the unit as it will take an average of two to three weeks for a personal check to clear our bank. When placing your orders, please tell us if your firm is a subsidiary of another firm, it will help us clear the credit and speed up the shipment.

"IN GOD WE TRUST"  
THE OTHERS C.O.D.

## INDEX

MAKE and COMMODITY	PAGE	MAKE and COMMODITY	PAGE
<b>ACRO PRINT</b>		<b>ROCKWELL INTERNATIONAL</b>	
Electric Time Clocks Models 125 - 150 - 200 Top feed	103	Electronic calculators scientific, finance and printing	51 - 63
<b>ADMASTER</b>		<b>ROYAL</b>	
Electric Cash Register	99	Electric and Manual portable and compact typewriters (Centurion and Custom 3)	74 - 75
<b>APF</b>		<b>SHARP ELECTRONICS</b>	
Scientific hand held calculator	105	Electronic hand held calculators	36
<b>CALCONVERTER</b>		<b>SMITH CORONA</b>	
Small calculator's stand, practical	102	Electric Compact and Portable Typewriters, Manual portable typewriters. Models 7000, 2200, 1200, Classic 12, Electra, etc.	69 - 73
<b>CITIZEN</b>		<b>SONY</b>	
Electric adding machines—Manual and Electric Cash Registers	96 - 98	Televisions - Stereo - Tape Recorders Etc.	109 - 112
<b>CRAIG</b>		<b>TEXAS INSTRUMENTS</b>	
Dictating—Transcribing machine	108	Electronic calculators, scientific hand held and desk models SR50A and SR51A	27 - 39
<b>FRANZUS — TRANSFORMERS</b>		<b>UNITREX</b>	
Converter/Transformers. From 110 volts to 240 volts — 240 volts to 110 volts for foreign countries on Calculators and Appliances. Small	104	Mini Tape Recorder and dictating machine	107
<b>HEWLETT—PACKARD</b>		<b>VICTOR</b>	
The best line of electronic hand held calculators on the market today. Accurate-Dependable-Unique in their own class	2 - 23	Electric adders, electronic calculators and printers, cash registers	84 - 92
Programs for HP65	24 - 25	<b>DIGITAL WATCHES</b>	
Hewlett Packard Accessories	26	<b>CADRILLE—OPTEL</b>	
<b>HITACHI</b>		LED and LCD Men's and Ladies Watches	123 - 124
AC - DC Color Division for Trailers—Boats etc.	113	<b>FAIRCHILD</b>	
<b>IBM</b>		LED and LCD Men's and Ladies Watches	127
Electric Typewriters and Dictating machines	128	<b>LITRONIX</b>	
<b>LITRONIX</b>		LED Digital Watches	120
Electronic calculators, hand held, scientific and statistical	64 - 65	<b>MICROMA</b>	
<b>3M</b>		LCD Digital Watches	119
Dry Copiers, High Quality, no liquid or toner needed (051 - 157 - 257 )	66 - 68	<b>NOVUS</b>	
<b>NOVUS</b>		(National Semi Conductor) LED Watches	122
Electronic calculators. Tremendous new line of Programmable units	40 - 50	<b>TEXAS INSTRUMENTS</b>	
<b>OLIVETTI</b>		LED Digital Watches Men's and Ladies	125 - 126
Typewriters — Adders — Calculators — Electronic Printers	76 - 83	<b>UNITREX of America</b>	
<b>PANASONIC</b>		LED Digital Watches for Men and Ladies	121
Video Systems — Telvisions — Components	106	<b>WESTCLOX</b>	
<b>PAYMASTER</b>		LCD and LED Men's and Ladies Watches featured by Neil Armstrong the "First Man To Go To The Moon"	114 - 118
Checkwriters, full keyboard and regular	107	<b>SERVICE CENTERS</b>	
<b>PHONE MATE</b>		Service centers for all products	95
Automatic telephone answering systems	100 - 101		
<b>REMINGTON</b>			
Electric Adding Machines — Line A Time Copy Holders Electric Typewriters	93 - 94		

## OUR POLICY

- LARGE INVENTORY AT ALL TIMES
- VERY COMPETITIVE PRICES ● FAST & EFFICIENT SERVICE
- TOP QUALITY MERCHANDISE

Ask us for quantity discount. We will beat any price



# The Hewlett Packard

"The success and prosperity of our company will be assured only if we offer our customers superior products that fill real needs and provide lasting value, and are supported by a wide variety of useful services—both before and after the sale."

## —Statement of Corporate Objectives Hewlett-Packard

When William R. Hewlett and David Packard founded Hewlett-Packard in 1939, they offered only one product—an audio oscillator. But it was superior to all others available at the time. And their policy—of introducing only products that fill a need and provide lasting value—has continued for 36 years.

Today, Hewlett-Packard offers more than 3,000 different products, ranging from microscopic components to complete computer systems. The company is one of the world's leading designers and manufacturers of electronic, medical, analytical and computing instruments and systems.

The product line includes the atomic clocks used by most observatories in the world as a primary time standard; patient monitoring equipment and diagnostic instruments for the medical field; communications equipment; electronic surveying instruments, and analytical products such as gas chromatographs, spectrometers and instruments for precisely measuring pressure and temperature.

### Calculators are a major line

In the data processing field, Hewlett-Packard offers the most extensive range of computing alternatives for science and engineering. Beginning with mini-computers for science and engineering, HP went on to design and manufacture electronic, programmable desktop calculators; computer systems for business, industry and education; the first small-scale computer system with multi-programming and multi-lingual capabilities, and an extensive selection of peripherals (disc memories, plotters, etc.) and software.

Then HP utilized this knowledge and experience to introduce the first pocket-sized scientific calculator—the HP-35, which set the standard for all other brands and models. As you will see in this catalog, Hewlett-Packard now offers a complete line of scientific, engineering, business and multi-purpose pocket calculators designed for professional use. Their owners include Nobel laureates, astronauts, business

people, doctors, scientists and engineers in every field, educators and students—more than half a million persons throughout the world.

### R&D is extremely important

In order to carry out the company's program of providing innovative products, an unusually high percentage (approximately 7%) of annual sales revenue is invested into research and development.

More than 1,500 engineers and scientists work full time in R&D, developing original concepts and designing new and more advanced products. As a result of their efforts, fully one-half of HP's current business is represented by products that didn't exist a few years ago, including all the calculators in this catalog.

To manufacture, market and service Hewlett-Packard products, the company has grown into a multinational corporation with over 28,000 employees. HP has manufacturing facilities in the United States, Germany, Scotland, France, Japan, Malaysia and Singapore and 172 sales and service offices in 65 countries throughout the world.

## Hewlett-Packard is also...

Electronic instruments and systems for medicine.

Automated systems for testing and analyzing.

Programmable desktop systems for science, engineering, business.

Mini-computer systems for industry, and business.



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## at an uncompromising calculator.

When you claim to make uncompromising calculators, you'd better have good reasons. Here are ours:

- ① Every key on every HP calculator is checked at least twice. Our quality control people press them to make sure they *feel* right, then a machine exercises them to make sure they *function* right.
- ② Every key is double injection molded, so the symbol it carries won't wear off.
- ③ Every lettered key has a positive click action, so you know for sure the function has registered when you press one.
- ④ It's no accident that the OFF-ON switch operates as smoothly as it does. We greased it with silicon when we installed it. It's also no accident that it moves in a horizontal plane. That's to prevent it from moving when you put the calculator into its carrying case or your shirt pocket.
- ⑤ The numbers in the display are tipped forward, so you can view them clearly and without distortion at wide angles.
- ⑥ There's a moisture barrier under the keyboard to protect the calculator's innards from spilt coffee, tea, milk, what-have-you.
- ⑦ The rechargeable battery pack (included with all HP calculators) is a single unit, easy to replace.
- ⑧ There are no exposed wires, seams or electronic components in the battery compartment, just two contacts. This compartment is also sealed to protect the calculator's vital parts.

HEWLETT  PACKARD

- ⑨ The battery compartment door opens easily, without a prying coin or key, so there's no need to worry about nicks or, worse, damage that could make the door inoperable.
- ⑩ The recharger plug is recessed to ensure a positive connection; it's also designed so there's no way you can enter the wrong plug by mistake.
- ⑪ All critical internal connections are gold-plated.
- ⑫ The heavy gauge plastic case is designed to withstand a long tumble to a hard floor. Incredibly, one HP calculator once withstood a trip through a snow-blowing machine, thanks to this durable case.
- ⑬ HP calculators are designed as carefully as they're built. Each model meets the present and anticipated needs of a particular discipline. All offer an efficient RPN logic system with 4-Memory Stack and from one to 20 Addressable Storage Registers.

If you're impressed by our reasons, see our calculators. You have to feel a Hewlett-Packard calculator to believe it. Only when you challenge one with your problems will you appreciate why Nobel Prize winners, astronauts, conquerors of Everest, America's Cup navigators and over 500,000 other professionals own them.

If you're looking for an uncompromising calculator, one that will handle tomorrow's problems as well as today's, test ours. *Feel* them solve your problems. They're as professional as you are.

## These books give you ready-to-follow solutions for complicated problems...

### The HP-35 Math Pac

To help solve complex or lengthy problems on the HP-35, over 150 keystroke sequence routines in this 169-page manual cover: number theory and algebra, geometry, trigonometry, statistics, numerical methods, finance, exponentiations, conversions, week-day from date computations, and other calculations. It also shows how to use HP's RPN logic and memory system in more efficient ways. (These routines can also be used for the HP-21.)

00035-66001 ..... \$9.50

### HP-45 Applications

More than 200 keystroke sequence routines help you solve problems in mathematics, statistics, finance, engineering and navigation. This 218-page manual includes routines for: number theory, algebra, geometry, trigonometry, statistics, numerical

methods, finance (e.g., bonds, interest, depreciation, loan repayments) and more. The manual also shows how to use HP's RPN logic and memory system in more efficient ways.

00045-66001 ..... \$9.50

### HP-80 Real Estate Applications

This 101-page book offers dozens of keystroke sequence routines that benefit brokers, investors, appraisers, assessors, mortgage bankers, analysts and other decision makers in the real estate field.

The main applications are: appreciation and depreciation calculations; simple mortgages; mortgages with balloon payments, loans with a constant amount paid towards the principal; the price and yield of a mortgage; annuity due calculations; discounted cash flow analysis; linear

regression calculations; Canadian mortgages, and equity investment analysis.

00080-66006 ..... \$9.50

### HP-70 Real Estate Decisions

This 91-page HP-70 book has over 40 keystroke sequence solutions to real estate problems. You'll find problem-solving routines for: appreciation and depreciation calculations; simple mortgages; mortgages with balloon payments; the price and yield of a mortgage; annuity due calculations; loans with a constant amount paid toward the principal; Canadian mortgage calculations; discounted cash flow analysis, and equity investment analysis. The appendix covers: financing alternatives, rent or buy analysis, and worksheet ideas.

00070-66001 ..... \$9.50

### HP-55 Statistics Programs

This 130-page manual has nearly 60 keystroke sequence routines to help you program the HP-55 to solve classifications such as: probability, special functions, general statistics, distribution functions, curve fitting and test statistics. Routines include: probability of a repetition in a sample, gamma function, random number generator, moving average, standard errors for linear regression, normal distribution, multinomial distribution, exponential curve fit, analysis of variance and mean, standard deviation and standard error for grouped data.

00055-66002 ..... \$9.50

### HP-55 Mathematics Programs

This 178-page, HP-55 manual shows you how to write programs for solving problems in: complex variables, linear algebra, integration and interpolation, number theory and algebra, trigonometry and analytical geometry. Also included are programs for solving business math problems such as: compounded amount, direct reduction loan, sinking fund, depreciation schedules, discounted cash flow analysis, day of the week, and number of days between dates.

00055-66001 ..... \$9.50



## Calculator Buying Guide

How to select the calculator that's best for your type of problem-solving—today and tomorrow

Selecting the *right* pocket calculator can be a joy forever. Selecting the *wrong* one can waste your time and money . . . resulting in errors . . . and cause you aggravation and frustration.

That's why, before you select any pocket calculator, you should make sure it can solve *all* of your problems—the ones you face today and the ones you're likely to face tomorrow.

The calculator you select should have *all* of the capabilities you need—all the pre-programmed functions, memories and other features required to solve your specific problems quickly, easily, accurately and without confusion.

If the problems you face involve only addition, subtraction, multiplication and division, almost any well-made four-function calculator will suffice—providing it can handle the required number of digits. You may also want it to include "% " and constant keys.

But when your problems extend beyond basic arithmetic, then you need a *professional* pocket calculator—designed and manufactured for day-in, day-out professional use.

Professional calculators are designed with the specific capabilities required to quickly and easily solve problems intrinsic to a specific discipline or application. The nomenclature on the keys gives you a quick insight into the types of problems the calculator can help you solve. Broadly speaking, there are two main types of professional pocket calculators: *scientific* for the scientific and engineering disciplines and *business* for the broad business and more exacting financial disciplines.

### Scientific Pocket Calculators

A professional scientific calculator should be pre-programmed with all of the standard log and trig functions, so you don't have to refer to tables or interpolate from those tables. Just press the keys to get your answer—an answer far more accurate than any slide rule can give you. These "full scientific" calculators are also pre-programmed with exponential, square root and reciprocal functions.

For handling more advanced types of scientific, engineering, mathematical or statistical problems, you need an "advanced scientific" calculator. These have all the pre-programmed functions found in the full scientific machines, *plus* a variety of others, depending upon which model you select. These may include: mean, standard deviation, linear regression (trend line), and U.S./metric conversions.

Advanced models also offer more memory power . . . more sophisticated trig functions, such as rectangular coordinate/polar coordinate conversion . . . selectable modes (degrees, radians and, possibly grads) . . . conversion between

decimal angle and angle in degrees/minutes/seconds . . . and others.

This added capability facilitates the handling of complex problems and can drastically reduce the time and effort necessary to solve them. For example, polar/rectangular coordinate conversions let you add or subtract vector components in seconds, simply by pressing a few keys.

The most proficient type of professional scientific pocket calculators is the programmable. When solving complex, repetitive or iterative problems, programming can be invaluable. You enter your problem-solving sequence of keystrokes just once . . . then, with just one keystroke initiate the entire sequence—as often as you wish.

But whatever scientific calculator you choose, the *more* functions and features it has, the *more* capability it has to solve more types of problems—even the most complex—faster and easier, reducing the work you have to do. And the less chance for error. So compare functions and features carefully before you make your final selection.

### Business Pocket Calculators

Although a scientific calculator may be used for solving the more basic types of business problems, calculators especially designed for business and/or financial problems can soon pay for themselves in terms of time and effort saved—because they are pre-programmed to solve your business problems—giving you the exact answers you need *when* and *where* you need them.

Compared to the keyboard on an advanced scientific calculator, the one on a business pocket calculator may look positively barren. But appearances can be deceiving. With business calculators, it's not so much how *many* pre-programmed keys there are, but what you can *do* with the keys—the number of different types of problems you *can* solve with the calculator.

The relatively few keys on a business calculator can be used to solve *dozens* of different types of problems—everything from discounts and markups to figuring out interest rates, the remaining principal on a mortgage, the future value of an annuity, or depreciation.

In addition to business pocket calculators, there are also "advanced business" or "financial" calculators. These usually have all of the pre-programmed functions found in business calculators, but will also have more specialized capabilities to solve problems involving depreciation, statistics, bond prices and yields. And because the latter require a calendar, these types of calculators will have one "built-in."

For specialized business or financial problems, involving extended calculations or unique and complex formulas, a programmable calculator can be a tremendous time-saver. Since you enter your problem-solving sequence of keystrokes just once—and then with one keystroke start an entire sequence—you reduce your error ratio and as a result, have confidence in your answers.

Another point to consider when selecting a business calculator, is the basic financial concepts you work with daily as a decision maker handling business transactions. The calculator you select should help you in making your decisions, because you could very well make or save far more than the calculator costs, the very first time you use it. And this, according to a basic business concept, would be a very nice return on investment.

### Four features that can help make your problem-solving easier

Before you make your final selection of a pocket calculator, take a closer look at four features that can make your problem-solving easier and more reliable. These are programming, memory power, the logic system, and construction.

### Programmable Calculators

As stated previously, when solving very complex or repetitive or iterative problems with a pocket calculator, you have to press a lot of keys—sometimes the same keys over and over. To reduce the number of keystrokes, and keystroke errors, certain pocket calculators can be programmed—directed to initiate the desired keystrokes automatically. And that's just what a program is: a sequence of keystrokes, used to solve a problem or series of problems. Once a calculator is programmed, all you have to do is key in the data—the numbers for the specific problems you're solving—and press one key to run the entire program.

A pocket calculator may be either "programmable" or "fully programmable." A programmable machine can usually be programmed only by pressing the keys. (Then the program is temporarily stored in the program memory, where it remains until removed or changed by the calculator operator or until the calculator is turned off.)

With a fully programmable pocket calculator, that same program can also be permanently stored on an external device (such as magnetic cards) and re-entered in the program memory when needed.

Programming can be an extremely useful feature, saving time and energy and helping to avoid keystroke errors. Depending on the model, a programmable calculator may have provision for editing a program (adding, deleting or changing steps) and such computer-like operations as branching—choosing between two alternate steps depending upon the outcome of a relational test. A programmable calculator can actually make logical decisions *for* you.

So if you find yourself pressing dozens of keys to solve certain types of problems, give serious consideration to a calculator you can program.

For occasional programming, a "programmable" machine (i.e., one with temporary storage capability) should suffice. But if you *frequently* handle problems that can be programmed, consider a "fully programmable" calculator, and record your programs on program cards. You might even find your general applications already programmed for you.

### Memory Power

Every pocket calculator should have at least one addressable memory—to store constants or other numbers used more than once in a calculation. The more memories a calculator has, the less writing down of numbers that you have to do.

With certain calculators having addressable memories, you can do register arithmetic—you can directly add to, subtract from, divide into or multiply the contents of a register. This makes data manipulation exceptionally easy, even when working problems involving three simultaneous linear equations (or other 3 x 3 matrix inversions).

Besides addressable memories, certain pocket calculators have an automatic memory (also called an operational stack, a four-register stack, etc.). Entries and intermediate answers are stored automatically, then re-entered into the calculation at the appropriate time. Obviously, this eliminates the need for you to write down and re-enter numbers, which could lead to errors, and it speeds the work.

### Logic Systems

A logic system is the "language" you use to communicate with a calculator—the way in which you key in problems and the way the calculator is designed to handle the problems. One logic system may require you to restructure an equation to conform to the system; another may not.

The two most common types of logic systems used in professional pocket calculators are algebraic and "RPN computer logic." You may wish to check out both systems, and determine for yourself: which is the easiest to use (especially important when solving complex problems) . . . which is the least confusing (so you can have confidence in your answers) . . . and which is the best to use for solving the kinds of problems you face regularly.

### Construction Is Important

In addition to everything mentioned so far, you should also—before selecting a professional calculator—consider the quality . . . the physical construction of the calculator (is it rugged enough for daily use?) . . . the availability of accessories and applications books . . . and, of course, remember, a good value is a calculator that's capable of solving your problems today . . . and tomorrow.

With all this in mind, study the descriptions of each calculator, compare the models, and select the *one* machine that comes *closest* to filling your needs.

## The Hewlett-Packard

### MODEL

### SPECIFICATIONS

### RETAIL PRICES

### YOUR COST FROM US

HP 21	Scientific hand held, similar to the HP 35 plus the following features: Display Mode, Rectangular to Polar, Degree to Radian, Scientific Notations, 10 digits display (2 digit mantissa ten and floating), Incl. charger, batteries & instruc. manual	\$125.00	\$117.95
HP25	Hand Held programmable, revolutionary new calculator with keystroke programming 8 addressable memories, the new "Pause" key allows you to interrupt the program execution and display the contents of the X—register so you can review or write down an immediate answer, fantastic unit.	195.00	172.90
HP 55	The most sophisticated hand held programmable (after the HP 65) ever to surface 20 addressable data storage registers, 49 steps programming, 86 keyboard command "computer logic" system plus FOUR HP patented 4-register operational stack, Includes charger, batteries, instruction manual, case etc.	395.00	349.95
All Hewlett-Packard Calculators carry one year guaranty on all parts and labor when taken by the purchaser at the closest H-P service center and when treated under normal use by the user. All H-P calculators come with WORLDWIDE chargers 115 volts to 240 volts, manual, soft case. Math and Stat Pacs for H-P 55 \$9.50 each.			
HP 45	Scientific hand held, 10 digits, scientific notations, rectangular to polar, degree to radian, 2 digits exponent, 2 digit mantissa, 13 digit accuracy, TEN memories, the The Best Seller. Including charger 115-240 volts, batteries, leather case, etc.	245.00	219.95
HP 65	Scientific and Statistician, PROGRAMMABLE, 100 steps, the smaller hand held computer in the world, strip programming, unbelievable until you try it, the most tremendous unit on the market today, can be programmed for: Business and Finances, engineering, aviation, navigation, medicine, statistics, stress analysis, chemical engineering, mathematics, surveying, Includes 115-240 volts charger, batteries, manuals, case etc. . . . Standard Pac, quick reference guide, user library privileges. . . . Each additional programmable pac cost. . . .	795.00	699.50
HP 80	Hand held, Financial calculator, a most revolutionary device with 36 separate financial abilities, 200 year calendar, computes markups, profits, interest rate, taxes, rate of return on investments, sales forecast, depreciation, average, etc. . . . Incl. batteries, charger and Real Estate book, leather case.	295.00	259.95
HP 70	Hand held, business calculator, 10 digits with six registers, excellent for real estate, business and many other applications, includes batteries, charger, leather case, manuals.	165.00	147.90

HEWLETT PACKARD ACCESSORIES ON HAND MOST OF THE TIME. (LARGE INVENTORY) PLEASE CONTACT FOR AVAILABILITY

HP 65	PROGRAM PACS: Math one, Math two, Surveying, Medical one Stat one, EE one, Standard pac, Aviation, Navigation, Finance one, Chemical, Stress Analysis	45.00	42.75
Security Craddles	For HP 65 - HP 45 - HP 55 - HP 35 - HP 80 - HP 70 For HP 21	25.00 30.00	23.75 28.50
Due to a new packaging system, the Hewlett Packard Company will not furnish Safety Travel Cases with calculators any longer.			



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# Programmable Problem-Solving

—easy to learn...easy to use...  
and a tremendous time saver.  
Just press the keys

With the introduction of the HP-25—the lowest-priced Hewlett-Packard programmable pocket calculator—the speed and convenience of programming is now available to just about everyone who needs it. And if you deal with repetitive problems, you need it.

A program, in this case, is a sequence of keystrokes used to solve a problem. The HP-25 can retain and repeat a program up to 49 steps in length. So you don't have to press the same keys again and again when the same problem is worked with different data.

PRGM RUN

Simply set the HP-25 to PROGRAM mode by flipping a switch. Then press the keys you'd normally press to solve the problem. (But don't enter the data.) Your program is retained in the HP-25's program memory.

R/S

To solve the problem, switch to RUN mode and enter the data. Then press the "Run/Stop" key to run your program. Seconds later, your answer appears on the HP-25 display. To solve other problems using the same program, just enter the new data and press the "Run/Stop" key again.

Because your program does the calculation automatically—just sit back and watch it—there's less chance for error than if you had to repeat the keystroke sequence yourself step by step. Also, it takes but a fraction of the time.

Programming is easy with the HP-25. You don't have to learn "computer language." The keyboard controls are in plain English (abbreviations). Every step and function is clearly explained—with illustrated, step-by-step directions—in the HP-25 Owner's Handbook. To see just how easy it is to program the HP-25, review the example of a typical problem from the HP-25 Applications Programs Book in the box at right.

## The Hewlett-Packard HP-25

You can even program the HP-25 to do decision branching ...

Like a computer, the HP-25 can be programmed to make decisions, because it can do conditional branching.

You can program it to test the relationship between two values, by means of these tests:

$x < y$	$x \geq y$	$x \neq y$	$x = y$
$x < 0$	$x \geq 0$	$x \neq 0$	$x = 0$

Depending on the outcome of the tests, the HP-25 will automatically skip a step of the program ... or it will continue through the program in sequence.

Or, by means of the "Go TO" key, you can program the HP-25 to branch directly to a specified step, and then continue executing the program.

Both types of branching—conditional and direct—are useful in solving a variety of programming problems ... and make your work easier.

You can also program the HP-25 to PAUSE during the running of your program ...

PAUSE

Another new feature on the HP-25 is the "PAUSE" key. You can use it to momentarily interrupt (about one second per Pause command) the program execution and display the contents of the X register. This gives you the opportunity to review or write down intermediate results, data, the value of a counter or other output. The example at right shows one use.

The Absolute and Truncation functions make some programming even easier ...

ABS

The ABSolute value function allows you to get the absolute value and magnitude of a number within a programmed calculation.

INT

The INTeger/FRAction truncation function allows you to keep only the integer or fractional portion of a number. This is especially useful in base conversion, random number generator and other specialized routines. In addition, you can integer-fractionalize your data and double the number of data points you can save in the registers.

Description / Model		*Unit Price
Reserve Power Pack HP21 / HP25	82028A	\$15.00
Security Cradle HP21 / HP25	82029A	\$30.00
Battery Pack HP21 / HP25	82019A	\$ 7.00
Battery Charger HP21 / HP25	82026A	\$15.00
Soft Case HP21 / HP25	82027A	\$ 6.00
Owner's Handbook HP-21	00021-90001	\$ 2.00
HP-25	00025-90001	\$ 3.00
HP-25 Applications Programs	00025-10000	\$10.00
Quick Reference Guide HP-25	00025-90021	\$ 1.00
HP-55 Programming Pads, pack of 6 (can be used when writing HP-25 programs)	00055-10000	\$ 8.00

## Security Cradle

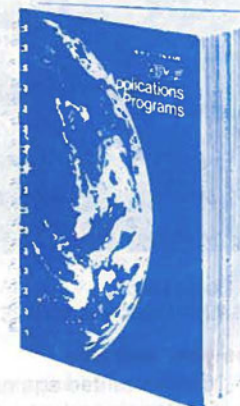


YOUR COST FROM US  
**\$172<sup>90</sup>**

## The complete HP-25 outfit \$195<sup>00</sup>\*

- HP-25 Scientific Programmable Pocket Calculator • Fast-charge battery pack, that under normal use provides up to 5 hours of continuous operation and recharges in 6 to 17 hours (no-load to full-load) • 115 or 230 Vac adapter/recharger, that lets you operate the HP-25 on house current while the battery pack is recharging • Soft carrying case with zipper and belt loop
- Illustrated Owner's Handbook with step-by-step instructions and sample problems • Quick Reference Guide that summarizes important instructions
- HP-25 Applications Programs book with 54 problems and key sequence routines

Optional accessories available: reserve power pack; security cradle; pads of programming worksheets. (Details included with the HP-25.)



Included at no extra charge

HP-25 Applications Programs Book to help you get the most out of your HP-25

These HP-25 Applications Programs—54 in all—have been drawn from the varied areas of algebra and number theory, trigonometry and analytical geometry, numerical methods, statistics, finance, surveying, navigation, and games. Each program is furnished with a full explanation which includes a description of the problem, any pertinent equations, a list of keystrokes to be entered into program memory, a set of instructions for running the program, and an example or two, with solutions. To use these programs does not require any proficiency in programming.

The first program in each chapter contains, in addition to the usual explanations, a more detailed description of the problem, a commented list of the program keystrokes with a step-by-step tracing of the contents of the stack registers, and a list of the keystrokes required to solve the example problem. Whenever an interesting programming technique is used in one of these programs, it is described in a short section headed "Programming Remarks."

Thus, whether your interest lies in solving a particular problem in a specific area, or in learning more about the programming power of your calculator, this book will help you get the most from your HP-25.

It comes with your HP-25.

This warranty does not apply if the calculator has been damaged by accident or misuse, or as a result of service or modification by other than an authorized Hewlett-Packard Customer Service facility. No other express warranty is given by Hewlett-Packard. HEWLETT-PACKARD SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

YOUR COST FROM US  
**\$172<sup>90</sup>**

### Here's an example of keystroke programming

Suppose you were asked to plot the trajectory of a stone which is hurled into the air with an initial velocity  $V$  at an angle to the horizontal of  $\theta$ .

Neglecting drag due to friction with the atmosphere, the following equations describe the stone's  $x$ - and  $y$ -coordinates as functions of the time  $t$ :

$$x = vt \cos \theta$$

$$y = vt \sin \theta - \frac{1}{2} gt^2$$

Where  $x$  = the horizontal distance the stone has traveled

$y$  = height of the stone

$g$  = acceleration due to gravity (9.8 m/s<sup>2</sup> or 32 ft/s<sup>2</sup>)

Using a page from the HP-25 Applications Programs Book as a guide, here's how you would program the solution on the HP-25:

KEY ENTRY	DISPLAY		COMMENTS
	LINE	CODE	
f → R	01	14 09	Use polar-to-rectangular for
STO 2	02	23 02	$v_x = v \cos \theta$ = horiz. vel.
x → y	03	21	
STO 3	04	23 03	$v_y = v \sin \theta$ = vert. vel.
0	05	00	
STO 4	06	23 04	Initialize: $t = 0$
RCL 0	07	24 00	Start of loop
STO + 4	08	23 51 04	Next time interval:
RCL 4	09	24 04	$t \leftarrow t + \Delta t$
$g \times^2$	10	15 02	
RCL 1	11	24 01	
x	12	61	
2	13	02	
÷	14	71	
CHS	15	32	
RCL 4	16	24 04	
RCL 3	17	24 03	
x	18	61	
+	19	51	$y = v_y t - 1/2 g t^2$
RCL 4	20	24 04	
RCL 2	21	24 02	
x	22	61	$x = v_x t$
RCL 4	23	24 04	
f PAUSE	24	14 74	Pause to display $t$
R↓	25	22	
R/S	26	74	Halt and display $x$
$x \leftrightarrow y$	27	21	
R/S	28	74	Halt and display $y$
GTO 07	29	13 07	Branch back for next $t$
	30		

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	Key in program			
2	Store time interval	$\Delta t$	STO 0	
3	Store gravitational constant	$g$	STO 1	
4	Input angle and initial speed	$\theta$	f	
		$v$	f PRGM	
5	Perform steps 5 and 6 any number of times. Display time and horizontal distance		R/S	$t$
6	Display height		R/S	$x$
7	To change $\theta$ or $v$ , go to step 4. To change $\Delta t$ or $g$ , go to appropriate step, store new value, then go to step 4.			$y$

### Problem:

Plot the trajectory of a stone cast upwards with a velocity of 20 m/s at an angle of 30° to the horizontal. Use intervals of 1/4 second between points plotted. Let  $g = 9.8 \text{ m/s}^2$ .

### Solution:

0.25	STO 0	9.8	STO 1	30	f	20	f	PRGM	R/S	→	0.25 ( $t_1$ )
											4.33 ( $x_1$ )
R/S											→ 2.19 ( $y_1$ )
R/S											→ 0.50 ( $t_2$ )
											8.66 ( $x_2$ )
R/S											→ 3.78 ( $y_2$ )
R/S											→ 0.75 ( $t_3$ )
											12.99 ( $x_3$ )
R/S											→ 4.74 ( $y_3$ )

Continue until  $y$  becomes negative.

The table of these results is shown below:

t	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25
x	4.33	8.66	12.99	17.32	21.65	25.98	30.31	34.64	38.97
y	2.19	3.78	4.74	5.10	4.84	3.98	2.49	0.40	-2.31





# 8 HP-25 Functions and Features

## Programming:

Program writing capability • Single step execution or inspection of a program • Pause (to display intermediate result) • Program editing capability • 8 relational tests:  $x < y$ ,  $x > y$ ,  $x = y$ ,  $x < 0$ ,  $x > 0$ ,  $x = 0$ ,  $x = 0$ ,  $x = 0$  • Conditional branching • Direct branching

## Keyboard commands:

**Trigonometric functions:** 3 angular modes (degrees, radians, grads) •  $\sin x$  •  $\arcsin x$  •  $\cos x$  •  $\arccos x$  •  $\tan x$  •  $\arctan x$  • Rectangular coordinates  $\leftrightarrow$  Polar coordinates • Decimal angle (time)  $\leftrightarrow$  Angle in degrees (hours)/minutes/seconds  
**Logarithmic functions:**  $\log x$  •  $\ln x$  •  $e^x \cdot 10^x$

**Statistical functions:** Mean and standard deviation • Positive and negative summation giving  $n$ ,  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma xy$

**Other functions:** Integer (gives only integer portion of number) • Fraction (gives only fractional portion of number) • Absolute (gives absolute value of  $x$ ) •  $y^x$  •  $\sqrt{x}$  •  $1/x$  •  $\pi$  •  $x^2$  • % • Register arithmetic in all 8 addressable registers • Addition, subtraction, multiplication or division in serial, mixed serial, chain or mixed chain calculations

**Data storage and positioning operations:** Data entry • Stack roll down •  $x, y$  interchange • Data storage • Data recall • Change sign • Enter exponent

## Memory:

4-register stack • "Last x" register • 8 addressable registers • Program memory for storage of up to 49 steps

## Light-emitting diode display:

Displays up to 10 significant digits, 8 plus two-digit exponent in scientific and engineering notation, and appropriate signs. Three selectable display modes: fixed point (with automatic overflow and underflow into scientific), engineering and scientific, with dynamic range of  $10^{99}$  to  $10^{-99}$ . Automatic decimal point positioning.

# and Features

Selective round-off; range 0-10 digits in fixed point; 0-8 digits in scientific; 0-8 in engineering notation. "Error" appearing in display indicates improper operation; low battery indicator.

## General specifications:

Operates on fast-charge battery pack or AC. (Battery recharges in 6-17 hours.) Tactile feedback keyboard. Polyethylene liquid-barrier shield under keyboard. Compact case of high-impact plastic with recessed display. Recessed recharger/AC plug receptacle. Solid state electronics.

## Operating specifications:

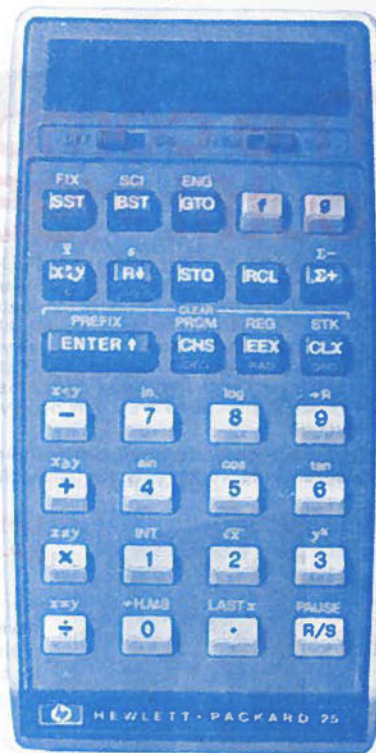
**Power:** AC: 115 or 230 V,  $\pm 10\%$ , 50 to 60 Hz, 5 watts. Battery: 500 mw derived from nickel-cadmium rechargeable battery pack.  
**Weight:** HP-25: 6 ounces (170 g) with battery pack. Recharger: 5 ounces (142 g). Shipping wt.: Approx. 1.5 lbs. (.7 kg).

## The HP-25 continues the Hewlett-Packard tradition of quality and innovative features, backed up by prompt world-wide service.

Ever since 1939, Hewlett-Packard has been a leading designer and manufacturer of special-purpose electronic equipment for measurement and computation.

Hewlett-Packard pocket calculators have become the standard of excellence in the industry, and more than 1,000,000 are in use throughout the world.

This excellence is achieved via advanced technology... final assembly in HP's own facilities... and thorough testing—not only for mechanical operation, but for accuracy in computation.

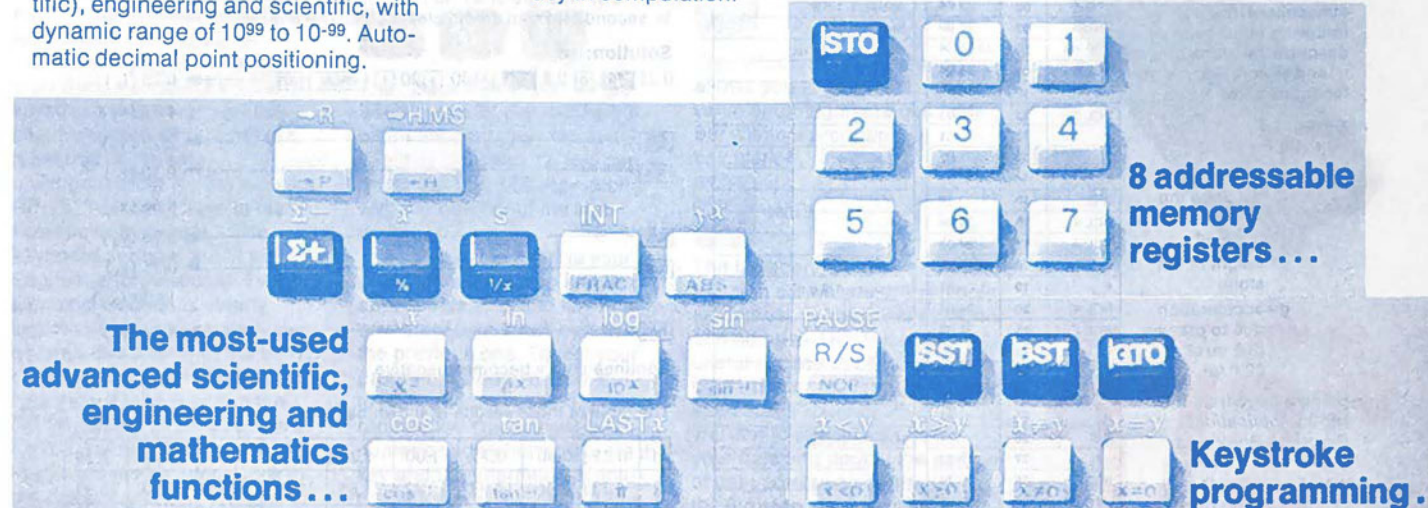


**HP-25 Scientific Programmable Calculator \$195.00\***

## Full one-year warranty

The HP-25 is warranted against defects in materials and workmanship for one year from the date of delivery. During the warranty period, Hewlett-Packard will repair, or at its option, replace at no charge components which prove to be defective, provided the calculator is returned shipping prepaid, to Hewlett-Packard's Customer Service facility.

This warranty does not apply if the calculator has been damaged by accident or misuse, or as a result of service or modification by other than an authorized Hewlett-Packard Customer Service facility. No other express warranty is given by Hewlett-Packard. HEWLETT-PACKARD SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.



**The most-used advanced scientific, engineering and mathematics functions...**

**8 addressable memory registers...**

**Keystroke programming.**

# 9 The Hewlett Packard Keyboard HP-25 Problem-Solving

**-with advanced scientific functions pre-programmed for you**

## Advanced scientific capabilities

The HP-25 is an advanced scientific pocket calculator with dozens of keyboard commands—including the functions most used by scientists and engineers.

To make the HP-25 smaller, one row of keys was eliminated. But, to keep the advanced capability, most keys now perform three commands. Some commands are labeled in gold above a key, or labeled in blue on the underside of a key, and activated by first pressing the appropriate gold or blue prefix key(s). (All functions may be incorporated into a program for automatic operation.)

## Extra trigonometric capability



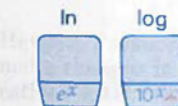
**Rectangular/polar coordinate conversions:** You can convert rectangular coordinates to polar coordinates or vice versa, enabling you to do vector arithmetic quickly, easily and accurately.



**Angle (time) conversions:** You can convert angles (times) in decimal degrees (hours) to angles (times) in degrees (hours)/minutes/seconds... or vice versa.

Of course the HP-25 is also preprogrammed with the six basic trig functions— $\sin x$ ,  $\arcsin x$ ,  $\cos x$ ,  $\arccos x$ ,  $\tan x$ ,  $\arctan x$ .

## Logarithmic functions



The HP-25 computes both natural and common logarithms as well as their inverse functions (antilogarithms).

## Extra statistical capability



**Summations:** The " $\Sigma +$ " key automatically calculates  $n$ ,  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma xy$  for statistical and vector calculations. Data may be deleted via the " $\Sigma -$ " key.



**Mean and standard deviation:** The HP-25 calculates the mean and standard deviation.

## Your choice of display formats



When you first turn on the HP-25, the display "wakes up" in fixed point notation, with the display rounded to two decimal places. By pressing "f", "FIX" and a number key (0 to 9), you can specify the number of decimal places. Or you can select scientific notation, by pressing "f", "SCI" and a number key to specify the number of decimal places (up to seven digits after the decimal point).

**-14641278-12**

New to HP pocket calculators is engineering notation, which allows all numbers to be shown in a modified scientific notation with exponents of 10 that are multiples of three (e.g.,  $10^3$ ,  $10^6$ ,  $10^{12}$ ). This is particularly useful in scientific and engineering calculations, where units of measure are often specified in multiples of  $10^3$ . When the HP-25 is in engineering notation, the first three digits are always present but you can display up to 8 total.

Whichever notation is selected, the HP-25 always maintains the complete 10-digit number internally. Also, the HP-25 switches the display automatic-

ally from fixed point notation to full scientific notation whenever a number is too large or too small to be seen in fixed point notation.

## Superior HP memory power

**In addition to the 49-step program memory the HP-25 has...**

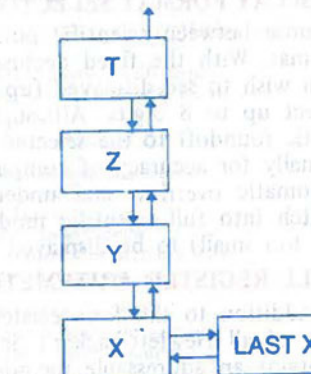
## 8 addressable registers



Instead of writing down and re-entering numbers manually, you can simply store them in any or all of the eight addressable memory registers, and recall them when needed. The registers

may also be used for register arithmetic—directly adding to, subtracting from, dividing into or multiplying the register contents. Eight addressable registers and register arithmetic make data manipulation easy, especially with programmed problem-solving.

## "RPN" and 4-register stack



Like all other HP pocket calculators, the HP-25 uses HP's famous "RPN logic" system and a four-register stack. Intermediate answers are automatically stored, then automatically re-entered into the calculation. The "Last x" register stores the last input for instant recall, to correct a keystroke error or for use in another calculation.

## Keystroke programming

## Dozens of keyboard commands

## 8 addressable memories plus register arithmetic

## Plus... some new HP additions

**YOUR COST FROM US**

**\$172<sup>90</sup>**



# The Hewlett-Packard The HP-21

## Smallest Scientific Pocket Calculator in our Extraordinary Problem Solving Power

THE HP-21 SCIENTIFIC POCKET CALCULATOR HAS ALL THE FEATURES AND FUNCTIONS YOU'D EXPECT IN A FULL SCIENTIFIC CALCULATOR PLUS A FEW SURPRISES. . . .

### PERFORMS RECTANGULAR/POLAR CONVERSIONS AUTOMATICALLY

The HP-21 converts rectangular coordinates to polar coordinates (and vice versa) easily; thus simplifying vector addition and subtraction.

### DISPLAY FORMAT SELECTIVITY

Choose between scientific notation and fixed decimal point display format. With the fixed decimal format, you select how many digits you wish to see displayed (up to 10). In scientific notation you can select up to 8 digits. Although the HP-21 provides you with automatic roundoff to the selected digit, a full ten digits are retained internally for accuracy of computation. The calculator incorporates an automatic overflow and underflow feature that will "temporarily" switch into full scientific mode to accommodate numbers too large (or too small) to be displayed in any particular fixed decimal mode.

### FULL REGISTER ARITHMETIC FOR SPEED AND ACCURACY

In addition to the four-register Operational Stack that is characteristic of all Hewlett-Packard Scientific Pocket Calculators, the HP-21 contains an addressable memory for storing data. . . and, you can perform all four arithmetic operations directly upon this stored data, pushbutton-fast with  $M+$ ,  $M-$ ,  $M \times$ ,  $M \div$  keys. And, of course, not having to recall and store data to perform an operation, makes your calculation just that much simpler.

### DEGREE/RADIAN MODE SELECTION AND CONVERSION CAPABILITY

The HP-21 lets you express angles in either degrees or radians and perform trig operations in either angular mode. It also simplifies conversion from one mode to the other.

### THE FULL RANGE OF SCIENTIFIC FUNCTIONS

And, of course, the HP-21 gives you the standard scientific functions:  $\sin x$ ,  $\arcsin x$ ,  $\cos x$ ,  $\arccos x$ ,  $\tan x$ ,  $\arctan x$ ,  $e^x$ ,  $\ln x$ ,  $\log x$ ,  $10^x$ ,  $Y^x$ ,  $\sqrt{x}$ ,  $1/x$ ,  $\pi$ .

### BUILT-IN QUALITY MAKES OWNING A HEWLETT-PACKARD CALCULATOR AN EXPERIENCE OF A LIFETIME.



The HP-21, with its solid design and construction, continues the respected Hewlett-Packard tradition of quality. The most frequent comment encountered from owners of Hewlett-Packard pocket calculators is the "feel" of the instrument. The positive action of the keys is the direct result of Hewlett-Packard's uncompromising commitment to the design and manufacture of only high quality electronic instruments. And where some might consider

such "extras" as double injection-molded keys and a moisture barrier to be extravagant, they are indicative of the "permanence" that is built into every Hewlett-Packard instrument. It is attention to details like this that prevents symbols from wearing off the keys and protects against spilled liquids. Even a quick glance at the full specifications of the HP-21 reveals that the HP-21's precision capability combined with high quality construction make the HP-21 exceptionally durable.



complete with manual, battery pack, recharging unit and carrying case.

# \$117<sup>95</sup>

YOUR COST FROM US

# HP-21 The Hewlett-Packard

IT TAKES A COMPANY LIKE HEWLETT-PACKARD TO BRING YOU THE REMARKABLE NEW HP-21.

**36 YEARS OF EXPERIENCE** — Ever since 1939, Hewlett-Packard has been a leading designer and manufacturer of special-purpose electronic equipment for measurement and computation. Today, there are more than 3,000 different HP products, ranging in size from microscopic components to complete computer systems.

HP pocket calculators have become the standard of excellence in the industry, and more than 500,000 are in daily use throughout the world.

**ADVANCED TECHNOLOGY** — Hewlett-Packard has always been an innovator, with a policy of introducing products with unique features and benefits. To make this advanced technology possible, HP maintains an unusually high dedication to research and development. In 1974, \$85,000,000 was spent on R & D. The HP-21 is one result of this expenditure.

**THOROUGH TESTING** — The HP-21 is manufactured to exceedingly close tolerances entirely in the United States, with final assembly and testing in Hewlett-Packard's own facilities. Every single HP-21 is thoroughly tested not only for mechanical operation but for accuracy in computation.

**SERVICE** — Prompt service is available from Hewlett-Packard in the United States and in other countries around the world.

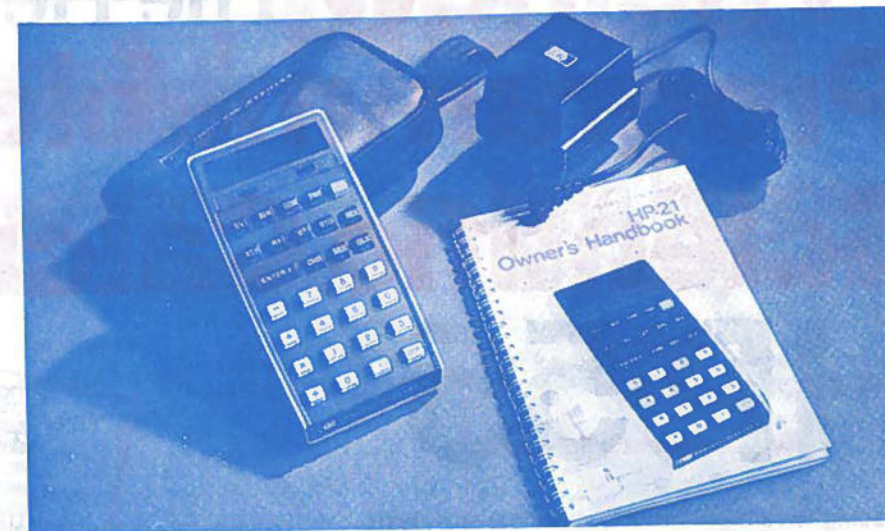
**WARRANTY** — The HP-21 is warranted against defects in materials and workmanship for one (1) year from date of delivery. During the warranty period, Hewlett-Packard will repair or, at its option, replace components that prove to be defective when the calculator is returned, shipped prepaid, to a Hewlett-Packard Customer Service Facility.

This warranty does not apply if the HP-21 has been damaged by accident or as a result of service or modification by any person other than at an authorized Hewlett-Packard Customer Service Facility.

No other warranty is expressed or implied. Hewlett-Packard is not liable for consequential damage.

Hewlett-Packard reserves the right to make changes in materials and specifications without notice.

With Hewlett-Packard's famous RPN logic and four-register stack system, one key. . .



The HP-21 Scientific Pocket Calculator comes complete with:

- Battery pack that under normal use provides 3 to 5 hours of operation and fully charges in under 6 hours
- 115/230 V AC adapter/recharger that lets you operate the calculator on AC while the pack is recharging
- Soft carrying case with belt loop
- Illustrated Owner's Handbook with instructions and sample problems

### OPTIONAL ACCESSORIES

(Details sent with HP-21)

- Security Cradle (Lets you secure your HP-21 to your work area.)
- Reserve Power Pack (Provides a spare battery pack and keeps it fully charged.)

### THE HP-21

Scientific Pocket Calculator Features and Specifications

### TRIGONOMETRIC FUNCTIONS:

$\sin x$ ,  $\arcsin x$ ,  $\cos x$ ,  $\arccos x$ ,  $\tan x$ ,  $\arctan x$ . Use in either Degrees or Radians Mode. Rectangular  $\leftrightarrow$  Polar Coordinate Conversion

### LOGARITHMIC FUNCTIONS:

$\log x$ ,  $10^x$ ,  $\ln x$ ,  $e^x$

### OTHER FUNCTIONS:

Addition, Subtraction, Multiplication or Division in Serial, Mixed Serial, Chain or Mixed Chain Calculations. Full Four Function Register Arithmetic.  
 $Y^x$ ,  $1/x$ ,  $\sqrt{x}$ ,  $\pi$

### DISPLAY:

- 10 Significant Digits (8 + 2 digit exponent displayed in Scientific Notation) with trailing zeros suppressed
- Fixed Decimal Notation with Automatic Overflow and Underflow into Scientific Notation
- Scientific Notation with Dynamic Range of  $10^{99}$  to  $10^{-99}$
- Automatic Decimal Point Positioning and Selective Round-off
- Indicators for improper operations (ERROR in display) and low battery condition (lighted decimal points)

- Light-emitting diode (LED) display recessed for better contrast in harsh lighting

### MEMORY

- Four-register Operational Stack (automatic memory)
- Stack Roll Down
- x, y Register Interchange
- Separate Addressable Memory with full Register Arithmetic

### DESIGN SPECIFICATIONS

- Operates 3 to 5 hours on rechargeable batteries (under 6 hours to recharge) or AC
- Specially designed recessed plug to prevent erroneous insertion of improper unit
- Solid state electronics with all critical connections gold-plated
- Tactile feedback keyboard. Positive contact action assures accurate entry of data
- Heavy gauge compact case contoured to fit the hand
- Ultrasonically welded impact resistant case prevents entry of dust and moisture
- Vinyl liquid-barrier shield under keyboard sealed to prevent entry of moisture
- Keys are double injection molded to prevent wear

### PHYSICAL SPECIFICATIONS

- Calculator Length: 5-1/8" (13.02 cm)
- Calculator Width: 2-11/16" (6.83 cm)
- Calculator Height: 1-3/16" (3.02 cm)
- Calculator Weight: 6 oz. (170.1 g)
- Recharger Weight: 5 oz. (141.8 g)
- Shipping Weight: approx. 1 1/4 lbs. (680 g)
- Operating Temperature Range: 32° F to 113° F (0° C to 45° C)
- Charging Temperature Range: 59° F to 104° F (15° C to 40° C)

### POWER REQUIREMENTS:

- AC: 100-127 v/200-254 v,  $\pm 10\%$ , 50 to 60 Hz, 5 watts
- Battery: 350 mw derived from nickel-cadmium rechargeable battery pack

ENTER  $\uparrow$  makes all these keys unnecessary!



# \$117<sup>95</sup>



# 12 The new Hewlett Packard Programmable Pocket Scientific Calculator HP-55

Including extra trigonometric, statistical and metric conversion capability incorporated into your programs

The most powerful scientific pocket calculator ever... because it offers keystroke programming, more keyboard commands and more data memory

## Metric Conversion capability

$\sin^{-1}$   $\cos^{-1}$   $\tan^{-1}$   
6 trigonometric functions—You can calculate  $\sin$ ,  $\cos$ ,  $\tan$ ,  $\sin^{-1}$ ,  $\cos^{-1}$  and  $\tan^{-1}$  in any mode.

## Extra statistical capability

$\Sigma$ —  
Summations—Useful when working with vectors as well as statistics, this key automatically calculates and stores for recall or further use:  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma y^2$ , and  $\Sigma xy$ . Data may be deleted via the "Z-" key.

$\bar{x}$ —  
Mean—The HP-55 simultaneously calculates the means of both the  $x$  and  $y$  values.

$s$ —  
Standard deviation—Two keystrokes are all it takes to calculate the standard deviation of  $x$  and  $y$ .

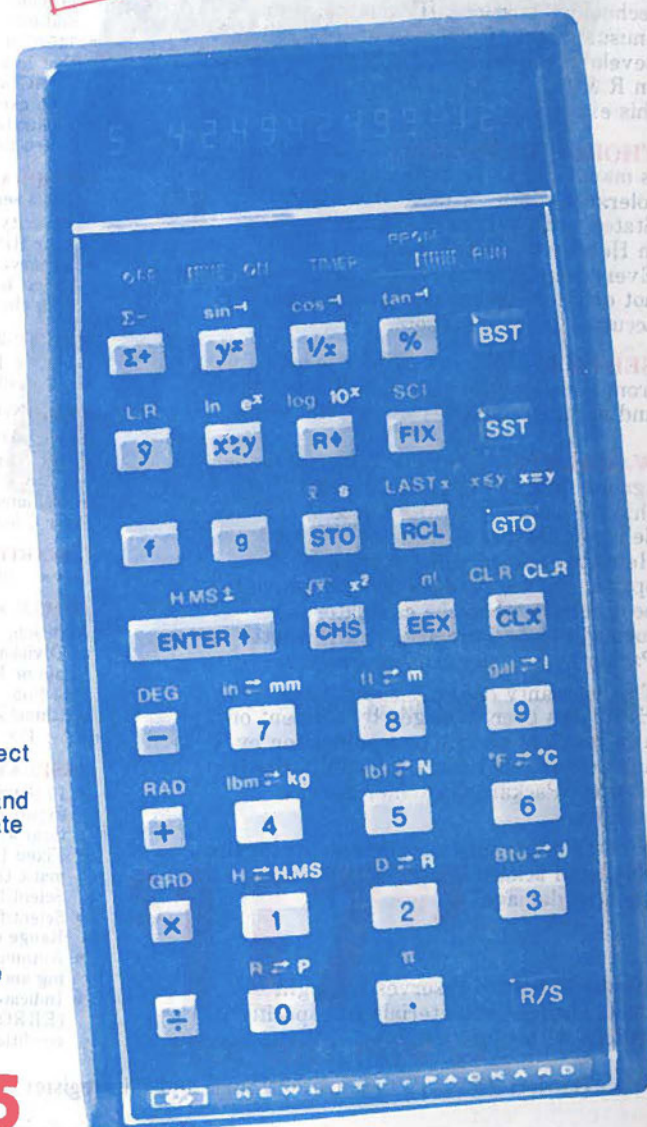
L.R.—  
Linear regression—After two or more data points are accumulated with the "Z+" key, you can quickly calculate linear regression with the "L.R." key (via the least squares method). Then, using the "Y" key, you can calculate other data points on the curve.

$\text{in} \rightleftharpoons \text{mm}$   
 $\text{ft} \rightleftharpoons \text{m}$   
 $\text{gal} \rightleftharpoons \text{l}$   
 $\text{lbm} \rightleftharpoons \text{kg}$   
 $\text{lbf} \rightleftharpoons \text{N}$   
 $^{\circ}\text{F} \rightleftharpoons ^{\circ}\text{C}$   
 $\text{Btu} \rightleftharpoons \text{J}$

Not just constants, but true direct two-way conversions between U.S. and metric units are fast and easy—and exceedingly accurate—with the HP-55.

## Plus dozens more!

For the complete list of pre-programmed functions, see the back cover of this brochure. Better yet, see the HP-55!



**\$349<sup>95</sup>** YOUR COST FROM US

# 13 The Hewlett Packard More powerful HP-55

More data storage registers than any other pocket calculator

More keyboard than any other

## 20 addressable data storage registers

R10	R20
R9	R19
R8	R18
R7	R17
R6	R16
R5	R15
R4	R14
R3	R13
R2	R12
R1	R11

Other pocket calculators—even many of the scientific models—have only a few data storage registers. (Some have only one... none has more than nine.)

But the more data storage registers a calculator has, the less writing down and re-entering of numbers you have to do... and the less chance for error.

That's why the HP-55 has more data registers than any other pocket calculator on the market—20!

And they're all fully addressable. This means you can enter and retrieve data (e.g., an intermediate solution) from any register... push-button fast. Or, with 10 of the registers, you can do register arithmetic (i.e., directly add to, subtract from, divide into, or multiply the contents of a register).

Data manipulation is extremely easy even when working such problems as four simultaneous linear equations with four unknowns, or other 4 x 4 matrix inversions, or linear regression.

Addressable registers—to use from the keyboard or as part of a program.

Twenty addressable registers—to make your work easier!

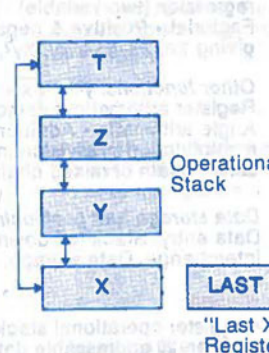
## 49 Keystroke memories

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The HP-55 incorporates 49 keystroke memories to store the keystroke sequence(s) required for one or more programs.

Forty-nine keystroke memories—to help make programming possible!

## "Computer logic" and five more registers



Like all other Hewlett-Packard pocket calculators, the HP-55 uses RPN—"computer logic"—the most sensible logic system a calculator can have!

It allows you to solve any problem without restructuring, in natural left-to-right sequence.

RPN is possible only because the HP-55 has a four-register operational stack. The stack retains as many as four intermediate solutions in sequence. At the proper time, these solutions are automatically entered into the calculation being performed, so you don't have to enter them manually.

As the HP-55 does its work, every intermediate answer is visible on the display. And it's easy to recall previously-entered data, for review or other operation.

RPN and the four-register stack—so unique Hewlett-Packard patented it—to give you "confidence in computation!"

And the HP-55 also features a "Last x" register. It automatically stores the last input argument of a calculation, for instant recall—to correct an error (in case you pressed the wrong key) or to enter the number into another calculation.

## 86 keyboard functions and operations—and all but a few operations can be

## Extra trigonometric capability

$R \rightleftharpoons P$   
Coordinate conversions—You can convert polar coordinates to rectangular coordinates, or vice versa, enabling you to do vector arithmetic quickly, easily and accurately.

DEG RAD GRD

3 angular modes—You can calculate in degrees, radians or grads. The degrees mode is automatic when the HP-55 is turned on. The others are set from the keyboard.

$D \rightleftharpoons R$   
Angle conversions—You can convert directly from degrees to radians, or from radians to degrees.

H.M.S ±  
Angle (time) arithmetic—You can add or subtract angles (times) in degrees (hours)/minutes/seconds.

H  $\rightleftharpoons$  H.M.S  
Angle (time) conversion—You can convert angles (times) in decimal degrees (hours) to angles (times) in degrees (hours)/minutes/seconds, or vice versa.

YOUR COST FROM US

**\$349<sup>95</sup>**



Due to a new packaging system the Hewlett Packard Company will not furnish Safety Travel Cases any longer with calculators.



#### The HP-55 outfit includes:

- HP-55 Programmable Scientific Pocket Calculator
- Rechargeable battery pack, that under normal use provides up to 5 hours of continuous operation
- 115/230 V AC adapter/recharger, that lets you operate the HP-55 on house current while the battery pack is recharging
- Soft carrying case with zipper and belt loop
- Safety travel case that holds the complete HP-55 outfit
- Illustrated Owner's Handbook with step-by-step instructions and sample problems
- Quick Reference Guide that summarizes instructions
- Pad of programming worksheets

#### Optional accessories:

Mathematics Programs Book; Statistics Programs Book; reserve power pack; security cradle; field case; additional pads of programming worksheets. (Details sent with HP-55.)

#### The most powerful scientific pocket calculator ever . . .

##### Programming:

Program writing capability • Single step running or inspection of a program • Program overwriting capability •  $x \leq y$ ,  $x = y$  relational tests • Conditional and direct branching

##### Keyboard commands:

Trigonometric functions: 3 angular modes •  $\sin x$  •  $\arcsin x$  •  $\cos x$  •  $\arccos x$  •  $\tan x$  •  $\arctan x$

Logarithmic functions:  $\log x$  •  $\ln x$  •  $e^x$  •  $10^x$

**Conversion functions:** Rectangular coordinates  $\leftrightarrow$  Polar coordinates • Decimal angle  $\leftrightarrow$  Angle in degrees/minutes/seconds • Decimal time  $\leftrightarrow$  Time in hours/minutes/seconds • Angle in degrees  $\leftrightarrow$  Angle in radians •  $\text{Btu} \leftrightarrow \text{J}$  •  $\text{lbm} \leftrightarrow \text{kg}$  •  $\text{lbf} \leftrightarrow \text{N}$  •  $\text{in} \leftrightarrow \text{mm}$  •  $\text{ft} \leftrightarrow \text{m}$  •  $\text{gal} \leftrightarrow \text{l}$  •  $^{\circ}\text{F} \leftrightarrow ^{\circ}\text{C}$  • Degrees  $\leftrightarrow$  Radians

**Statistical functions:** Mean & standard deviation (one or two variable) • Linear regression (two variable) • Linear estimate • Factorial • Positive & negative summation giving  $\Sigma x$ ,  $\Sigma x^2$ ,  $\Sigma y$ ,  $\Sigma y^2$ ,  $\Sigma xy$

**Other functions:**  $y^x$  •  $\sqrt{x}$  •  $1/x$  •  $\pi$  •  $x^2$  • % • Register arithmetic • Vector arithmetic • Angle arithmetic • Addition, subtraction, multiplication or division in serial, mixed serial, chain or mixed chain calculations

**Data storage and positioning operations:** Data entry. Stack roll down.  $x$ ,  $y$  interchange. Data storage. Data recall.

##### Memory:

4-register operational stack. "Last  $x$ " register. 20 addressable data storage registers. Keystroke memory for storage of up to 49 keystrokes (a program).

##### Timing:

Digital timer. 0-100 hour range.  $\pm .01\%$  accuracy. Displays hours/minutes/seconds/hundredths. Up to 10 "splits" may be stored in addressable registers.

##### General specifications:

Dynamic range is  $10^{-99}$  to  $10^{99}$ . Light-emitting diode (LED) display. Displays up to 10 significant digits plus 2-digit exponent and appropriate signs. Two display modes: fixed point and scientific. Automatic decimal point positioning to two decimal places. Selective round-off; range: 0-9 decimal places. Primary functions activated by single keystrokes; alternate functions utilize prefix keys. Indicators for improper operations and low battery condition. Operates on rechargeable battery pack or AC. Tactile feedback keyboard. Vinyl liquid-barrier shield under keyboard. Compact, ultrasonically welded contour case. Sealed battery compartment. Recessed recharger plug receptacle. Solid state electronics.

##### Operating specifications:

**Power:** AC: 115 or 230 V,  $\pm 10\%$ , 50 to 60 Hz, 5 watts. Battery: 500 mw derived from nickel-cadmium rechargeable battery pack.

##### Weight:

HP-55: 9 ounces (255 g) with battery pack. Recharger: 5 ounces (142 g). Shipping weight: approx. 4.5 lbs. (2.0 kg).

##### Dimensions:

Length: 5.8 inches (14.7 cm). Width: 3.2 inches (8.1 cm). Height: 0.7 to 1.3 inches (1.8 to 3.3 cm).

**Operating temperature range:**  $32^{\circ}\text{F}$  to  $122^{\circ}\text{F}$  ( $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ ).

\$349<sup>95</sup>

The HP-55 continues the Hewlett-Packard tradition of highest quality and innovative features, backed up by prompt world-wide service.

36 years of experience—Ever since 1939, Hewlett-Packard has been a leading designer and manufacturer of special-purpose electronic equipment for measurement and computation.

Today, there are more than 3,000 different HP products, ranging in size from near-microscopic components to complete computer systems.

HP pocket calculators have become the standard of excellence in the industry, and more than 500,000 are in daily use throughout the world.

**Advanced Technology**—Hewlett-Packard has always been an innovator, with a policy of introducing products with unique features and benefits. To make this advanced technology possible, HP maintains an unusually high dedication to research and development. Last year, more than \$85,000,000 was spent on R&D. The HP-55 is one result of these expenditures.

**Thorough Testing**—The HP-55 is manufactured to exceedingly close tolerances, with final assembly in Hewlett-Packard's own facilities. Then every single HP-55 is thoroughly tested not only for mechanical operation, but for accuracy in computation.

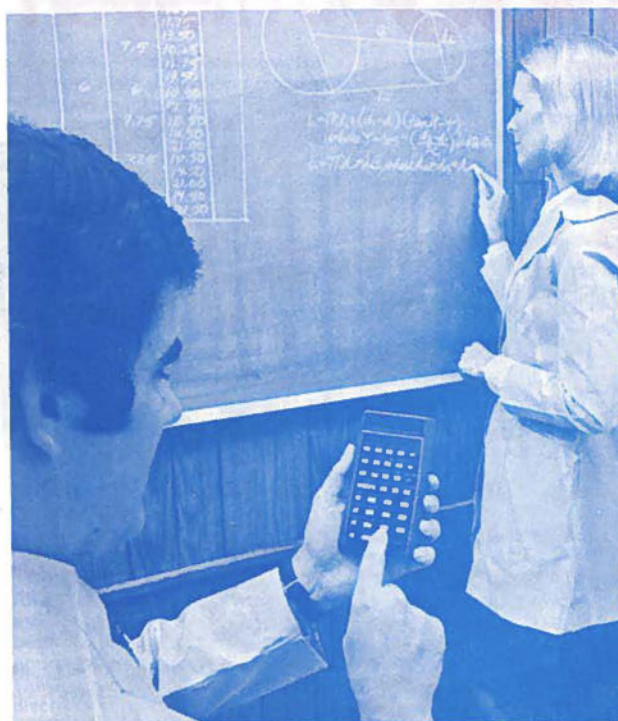
**Service**—Prompt service is available at any Hewlett-Packard Customer Service Facility. These are conveniently located throughout the world.

**Warranty**—The HP-55 is warranted against defects in materials and workmanship for one (1) year from the date of delivery. During the warranty period, Hewlett-Packard will repair or, at its option, replace components that prove to be defective when the calculator is returned, shipping prepaid, to a Hewlett-Packard Customer Service Facility.

This warranty does not apply if the HP-55 has been damaged by accident or misuse or as a result of service or modification by any person other than an authorized Hewlett-Packard Customer Service Facility.

No other warranty is expressed or implied. Hewlett-Packard is not liable for consequential damages.

Hewlett-Packard reserves the right to make changes in materials and specifications without notice.



#### And you can program the HP-55 to do computer-like branching!

Like a computer, the HP-55 can actually be programmed to make decisions . . . because it can do branching.

You can program it to test the relationship between two values, via these two tests:



Then, depending upon the outcome of the test, the HP-55 will automatically branch to the specified line of the program, or continue through the program in sequence.

Computer programmers call this powerful feature *conditional branching*.

Or, using the "Go TO" key in a program, you can direct the HP-55 to go directly to a specified line in the keystroke memory, and then continue executing the program. This is known as *direct branching*.

Conditional branching and direct branching are extremely useful in solving iterative problems.

**Keystroke programming brings new ease and speed to any type of problem-solving — simple, complex, repetitive or iterative.**

You can even use programming to create your own "custom made" pocket calculator!

Simply write a program (e.g., an equation) to solve a specific type of problem, and store it in the HP-55's keystroke memory. (It remains stored for as long as you leave the HP-55 turned on.)

Whenever you need to use the equation in a calculation, run the program. Instead of pressing a dozen or more keys, you need press just one!

Since the HP-55 has a 49-step keystroke memory, you can store two or more short programs simultaneously, calling upon the exact one you need at the time.

And thanks to the HP-55's on-the-spot programming, you can *change* your program whenever and wherever you wish.

Here's an example of how keystroke programming can be used to solve an iterative problem.

Suppose a culture of a certain bacteria doubles each day. Given any initial population size, you wish to find out: How long will it take to grow to 1 million?

#### Writing the program

Turn the HP-55 on, switch it to PROGRAM mode, and key in the keystroke sequence as follows:

Directions	Program Key Sequence	Display shows: Program Line No.	Key Code
Store the initial bacteria count in Register 1. ("STO" means "STORE".)	STO	00. 01.	00 33
	1	02.	01
Set the counter in Register 2 to zero, to start counting the days.	0	03.	00
	STO	04.	33
	2	05.	02
Add "1" to the number of days. The HP-55 can add directly to data in registers.	1	06.	01
	STO	07.	33
	+	08.	61
	2	09.	02
Calculate the population on that day by recalling the previous population count and doubling it.	RCL	10.	34
	1	11.	01
	2	12.	02
	X	13.	71
	STO	14.	33
	1	15.	01
Compare the population to 1 million. If true (if the value of $x$ is less than, or equal to, the value of $y$ ), go to program line 21. If false, go to line 06.	EEX	16.	43
	6	17.	06
	1	18.	31
	X ≤ y	19.	-21
	GTO 2 1	20.	-06
	GTO 0 6	21.	34
	RCL	22.	02
	2	23.	-00
	GTO 0 0		

Given various initial counts  
200 1,000 5,000 50,000

let's calculate the number of days required to reach a population of 1 million.

To run your program, switch the HP-55 to RUN mode, key in the data (initial population value) and start the program . . .

Key Sequence	Answer In Display	Comments
2 0 0 R/S	13	Number of days to reach a population of 1 million, given the initial population.
1 0 0 0 R/S	10	
5 0 0 0 R/S	8	
5 0 0 0 0 R/S	5	

This is a relatively simple example of the iterative problem-solving power of the HP-55's keystroke programming. You can easily solve problems that are much more complex, too!



# The Hewlett-Packard HP-80

If you're in business, you can't afford to be without it

Beyond the basic four functions (+ - × ÷), the HP-80 is pre-programmed with 36 separate financial capabilities:

1. Constant storage
2. Selective round-off
3. Percentage calculation
4. Percent difference
5. Square root
6. Powers (exponentiation)
7. Running total (summation)
8. Mean (arithmetic average)
9. Standard deviation
10. Number of days between two dates
11. Future date given number of days
12. Future value of an amount compounded
13. Present value of an amount compounded
14. Effective rate of return for compounded amounts
15. Number of periods for an amount compounded
16. Future value of an annuity
17. Present value of an annuity
18. Effective rate of a sinking fund
19. Effective rate of a mortgage
20. Installment of an annuity given future value
21. Installment of an annuity given present value
22. Number of periods for a sinking fund
23. Number of periods for a mortgage
24. Add-on to effective annual rate conversion
25. True equivalent annual rate
26. Linear regression (trend-line) analysis
27. Sum-of-the-years' digits depreciation amortization
28. Rule of 78's finance charge amortization
29. Discounted cash flow analysis
30. Accumulated mortgage interest calculation
31. Remaining principal on a mortgage
32. Accrued interest (360 and 365 day year)
33. Discounted notes (360 and 365 day year)
34. Discounted note yields (360 and 365 day year)
35. Bond price
36. Yield-to-maturity of a bond

And, the HP-80 is a 200-year calendar.

## Save as much as 20 minutes on a single problem

You need never use time-consuming tables and inaccurate interpolation again. On the average, the HP-80 solves many problems in less than 2 seconds. During the course of your business day, it's easy to see how that time saved can add up. The HP-80 has a mathematical range of from 10 to the -99th power to 10 to the 99th power. It displays up to ten significant digits and you can specify where you want to round off, up to six decimals. And, it will not accept impossible problems or dates (the display repeatedly flashes to tell you it can't be figured).

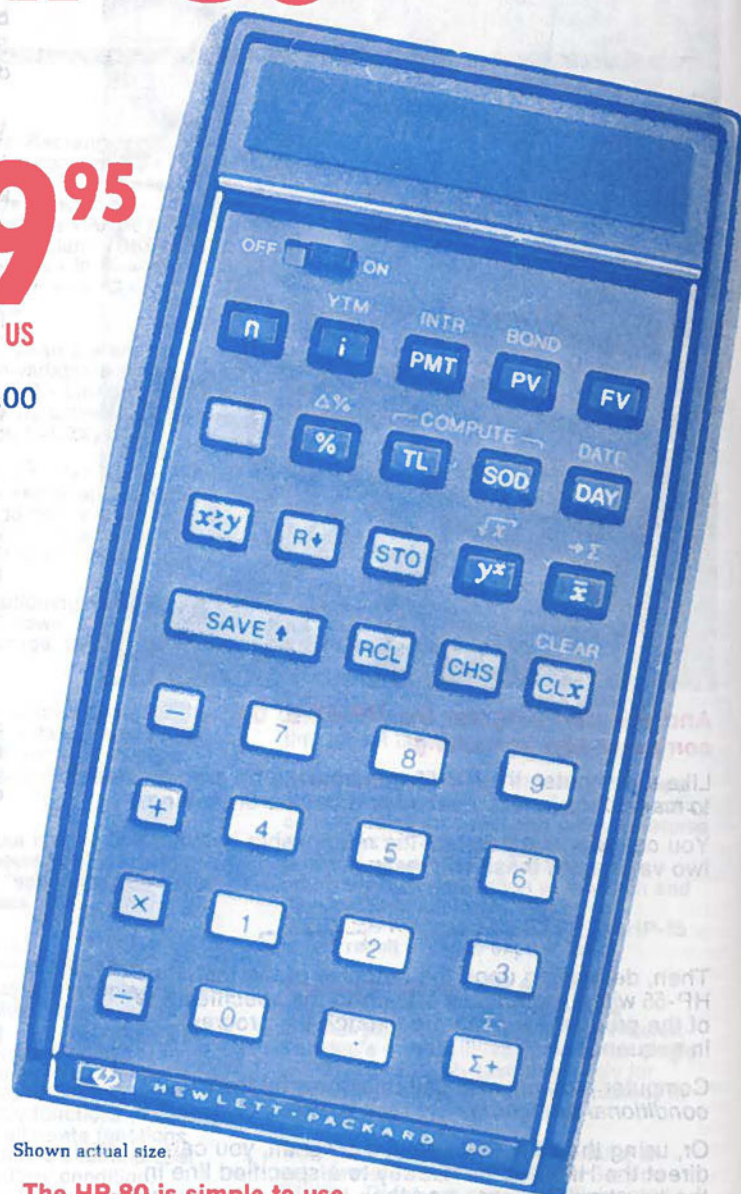
## Calculate your rate of return from an airplane seat

The HP-80 goes everywhere with you. Take it to meetings. On business trips. To the field. To the moon. It works on rechargeable batteries or AC. Wherever your business takes you, you can take the HP-80. And you should.

When you're not using it, the HP-80 can easily be slipped inside a desk drawer and locked up safe.

**\$259<sup>95</sup>**  
YOUR COST FROM US

Retail \$295.00



Shown actual size.

## The HP-80 is simple to use

Just minutes after you get the HP-80 in your hand, you'll be solving business problems with a few key-strokes. It's so simple and easy, you'll wish you had one back in high school math class.

Because the HP-80 is pre-programmed for all 40 basic capabilities, all the "brain power" has already gone into its design, resting inside, waiting for you to call on it. All you do is make the entries, and in a few seconds you have the answer. In fact, by using combinations of the basic 40 capabilities, you can answer over 100 types of problems instantly.

You can easily see that with the HP-80, anyone can calculate a range of financial problems that ordinarily could have been learned only through a long and costly business education.

An MBA may open a lot of doors for you, but all you need to run the HP-80 is a keen desire to save time and money.

## Astronauts navigate by Hewlett-Packard

The development of the HP-80 was an almost inevitable extension of Hewlett-Packard's capabilities in precision electronic measurement,

# Hewlett-Packard HP-80

The HP-80 Financial lets you solve business math or time-and-money problems quickly and easily.

All the interest equations and tables have been pre-programmed. So has a 200-year calendar, used in solving for bond price and yield, or short-term interest.

## It's pre-programmed to handle general business math problems

### Percentages

The "%" and "Δ%" keys allow you to easily handle problems concerned with: percentages; net amounts (markups, discounts, chained discounts, dealer discount ratios, anticipation discounts, etc.), and percent difference.

## Just press the keys to solve time-and-money problems in seconds

At the top of the HP-80's keyboard are five keys for solving all types of business problems involving compound interest or compound growth. They replace the compound interest, discount, bond and annuity tables commonly in use. Merely enter the known amounts (the data) and press the appropriate keys.

**n** **i** **PMT** **PV** **FV**

Number of periods—To enter or find the number of time periods, payment periods, compounding periods, etc.

Interest rate per period—To enter or find the compound interest rate.

Payment per period—To enter or find the payment or deposit amount.

Present value—To enter or find the loan amount, principal amount, current price, beginning value or investment—the "now money."

Future value—To enter or find the final balance—after all the interest and deposits, or payments have been added.

The HP-80's financial keys save you time and effort when calculating:

## Compounded Amounts (compound interest)

It takes but a few seconds to solve for: present value and future value amounts; rate of interest; number of periods; interest earned; effective annual interest rate, and nominal (stated) annual interest rate.

## Amortized (direct reduction) loans (ordinary annuity)

You can solve for: the number of payments; the number of payments to reach a specified balance; payment amount; annual percentage rate, with or without fees; principal amount; amortization schedules; remaining balance (remaining principal, last payment, balloon payment) and accumulated interest; payment amount for loan with a balloon payment; annual percentage rate with balloon payment coincident with, or one period after, the last payment; price and yield of discounted mortgages (prepaid or fully amortized), and the mortgage factor for Canadian mortgages.

## Loans with a constant amount paid toward the principal

With the HP-80 you can prepare a payment schedule showing the interest portion per payment and the remaining balance, when a constant amount is paid toward the principal.

## Sinking funds (ordinary annuity)

The HP-80 can calculate: payment amount, interest rate, number of payments and debt retirement amount.

## Consumer loans

Just press the keys to calculate the monthly payment amount, or to convert the add-on interest rate to the annual percentage rate of interest. And, using the Rule of 78's, you can use the HP-80 to calculate rebates.

Also, you can convert the annual percentage rate to the add-on rate.

## Savings functions (annuity due)

You can calculate the number of deposits, the rate of interest, the deposit amount and the future value.

## Lease and rent functions (annuity due)

The HP-80 can be used to convert the add-on interest rate to the annual percentage rate, or vice versa.

You can calculate: the number of payments; rate of interest; payment amount; payment amount with balloon payment or residual value, and present value.

## Discounted cash flow analysis

You can quickly and easily perform a discounted cash flow analysis, and calculate the net present value of even, uneven or deferred payment streams.

The HP-80 can also be used to calculate the discounted or internal rate of return (iteration of above).

## Equity investment analysis for income property

You can use the calculator to solve for: equity yield rate; equity investment value and present value; and future value and overall appreciation/depreciation rate.

## Bond functions

**YTM** **INTR** **BOND**

The HP-80 has pre-programmed function keys for bond calculations: "Yield-To-Maturity," "INTEst" and "BOND". You can calculate bond price, yield and after-tax yield, accrued interest (between coupons) and bond amortization. You can also calculate a callable bond price and yield-to-call.

## Commercial loans (short term notes)

**INTR**

The HP-80's "INTEst" key lets you calculate the accrued interest amount or the discount amount and annual yield for a discounted note (for either a 360- or 365-day year).

For calculating most financial problems—even a bond price or yield—in seconds, without referring to tables

## Calendar functions

### DATE

**DAY**

This key puts a 200-year calendar (1900 to 2099) at your fingertips. You can find: the number of calendar days between two dates; the day of the week a date falls on; a future date, or a past date, given the number of days from a known date.

## Depreciation functions

### COMPUTE

**SOD**

The HP-80 incorporates a unique key labeled "SOD" for calculating sum-of-the-years'-digits depreciation—amount and remaining balance—on a full-year or partial year basis.

You can also calculate the depreciation amount and remaining balance via the straight-line method, or via the declining-balance method (full year or partial year).

## Statistical functions

**Σ** **→Σ**  
**TL** **Σ+** **Σ**

By using the "Trend Line" key, you can easily calculate: a trend line (time series linear regression) giving you the y-intercept (value at point 0); the number of time periods; the slope, and automatic projections. You can also calculate two variable linear regression.

The HP-80 can also calculate: the mean and the standard deviation, with the ability to change data points after a calculation and recalculate. The "Σ+" key provides running totals and computes the sum of the squares and the number of entries.

## Memory power

In addition to the four-register stack, the HP-80 has an addressable memory for storing constants or other numbers to be used later on in a calculation.

## Plus other quality HP features...

The HP-80 features the famous RPN "computer logic" system (see pages 20, 21).

**Light-emitting diode display**—Displays up to 10 significant digits, plus two-digit exponent and appropriate signs. Two selectable display modes: fixed point, with automatic overflow for large numbers into scientific, and scientific with a dynamic range of 10<sup>99</sup> to 10<sup>-99</sup>. Automatic decimal point positioning. Selective round-off; range: 0-6 decimal places in fixed point. Flashing display indicates improper operation; flashing decimal points indicate low battery.

**The Safety Travel Case is not included. It has been replaced by The Real Estate Book Code 00080 - 66006**

YOUR COST FROM US

## Functions and features

### Keyboard commands:

**Financial functions:** Number of periods (n) • Interest rate (i) • Payment per period (PMT) • Present value (PV) • Future value (FV) • Simple interest (INTR) • Sum-of-the-years'-digits depreciation (SOD)

**Bond functions:** Bond prices • Bond yields • 200-year calendar

**Statistical functions:** Mean, standard deviation (sum-of-the-squares)

• Trend line  
**Mathematical functions:** Percentage

• Percent difference •  $\sqrt{x} \cdot y$  • Addition, subtraction, multiplication or division in serial, mixed serial, chain or mixed chain calculations

**Data storage and positioning operations:** Data entry • Stack roll down • x, y interchange • Data storage • Data recall • Change sign

### Memory:

4-register stack • Addressable memory

### Specifications

**Power:** AC: 115 or 230 V ±10%, 50 to 60 Hz • Battery: 500 mw nickel-cadmium rechargeable battery pack

**Weight:** HP-80: 9 ounces (255 g) • Adapter/recharger: 5 ounces (142 g) • Shipping: Approx. 2 lbs (900 g)

**Dimensions:** Length: 5.8 in (14.7 cm) • Width: 3.2 in (8.1 cm) • Height: 0.7 to 1.3 in (1.8 to 3.3 cm)

**Operating temperature range:** 32° F to 122° F (0° C to 50° C)



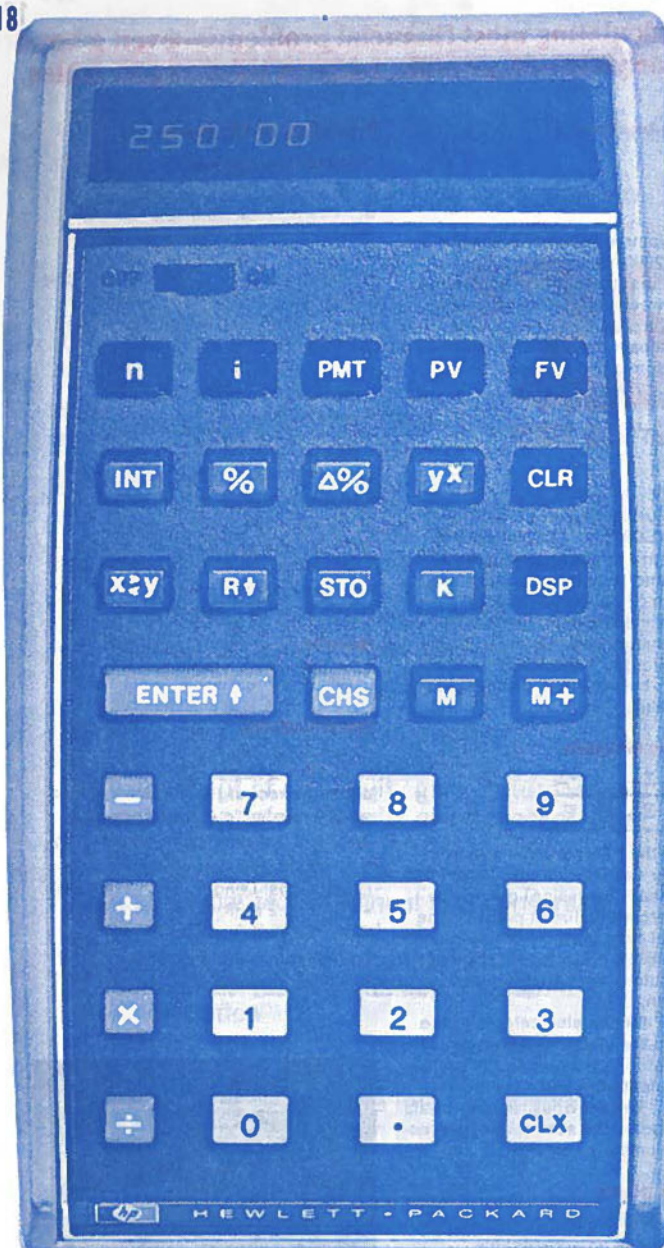
## The HP-80 outfit includes:

- HP-80 Financial Pocket Calculator
- Rechargeable battery pack • 115/230 V AC adapter/recharger • Soft carrying case
- Illustrated Owner's Handbook • Quick Reference Guide • "A Guide to Profitable Real Estate Decisions" Book

**HP-80 Outfit ..... \$295.00**

**\$259<sup>95</sup>**





...with the  
unique new  
**HP-70**  
Business  
Pocket Calculator  
from Hewlett-Packard

Thanks to its numerous pre-programmed functions, superior memory power and other features, the HP-70 can rapidly solve dozens of business math problems such as...

#### General business

- Arithmetic • Single discount • Multiple discount • Net balance • Markup • Percentage • Percent difference • Summation • Simultaneous summation of two columns • Serial calculation • Chain calculation • Mixed chain calculation • Exponentiation (powers and roots) • Common logarithm • U.S./foreign currency conversion

#### Financial management or analysis

- Effective rate of return for an amount compounded • Discounted cash flow analysis • Straight line depreciation • Declining balance depreciation • Sum-of-the-years' digits depreciation • Effective rate of a sinking fund • Present value of an amount compounded • Future value of an amount compounded • Number of time periods for an amount compounded • Number of time periods for a sinking fund • Ordinary annuity and annuity due calculations • Payment amount of annuity due with balloon payment • Rate of interest for an amount compounded

#### Lending, borrowing or saving

- Accumulated mortgage interest • Remaining principal on a mortgage • Number of time periods for a mortgage • Effective rate of a mortgage • Installment of an annuity given the future value • Installment of an annuity given the present value • Present value of an annuity • Future value of an annuity • Number of time periods for a loan • Finance charge amortization (Rule of 78's) • Conversion from add-on to effective rate (Annual Percentage Rate—APR) • Conversion from APR to equivalent add-on rate • Conversion from nominal rate to APR • Conversion from APR to nominal rate • Accrued interest amount (360- and 365-day year) • Discounted note yields (360- and 365-day year) • Discount amount for discounted notes (360- and 365-day year)

And these features help make it easy to use—anywhere...anytime!

- Financial memory bank • Four-memory stack • Two addressable memories • Display showing up to 10 significant digits (can be rounded to any number of digits—0 to 9—after the decimal point) • Dynamic range of  $10^{-99}$  through  $10^{99}$  • Automatic decimal point positioning • Scientific notation can be selected • Single keystroke functions • Indicators for improper operations (e.g., division by 0) and low battery condition • Operates anywhere in the world on 115 or 230 V AC, or on its rechargeable battery pack • Solid state electronic design • Light-emitting diode (LED) display with continuous-line, bright red numerals • Compact, contoured case • Tactile feedback keyboard • Silent operation

**\$147<sup>90</sup>**  
YOUR COST FROM US

## The Hewlett-Packard

Pre-programmed functions and interest tables, and superior memory power, let you solve business math problems in seconds... anywhere

Designed for the "generalist" in business, the HP-70 gives you the ability to solve everyday business math problems—such as markups, discounts and extensions—quickly and easily.

The HP-70 also has reserve power to rapidly solve financial management problems that previously required much time or expensive equipment.

And you can use it anywhere... anytime.

**The HP-70 can quickly solve problems dealing with everyday business math**

#### Percentages



The "%" and "Δ%" keys allow you to easily handle problems concerned with: percentages; net amounts (markups, discounts, chained discounts, etc.), and percent difference.

**Random-entry financial keys... the reserve memory power that speeds and simplifies the solving of time-and-money problems**

The five keys in the top row of the HP-70 are financial keys—pre-programmed with problem-solving equations and interest tables. Simply enter the known data and press these keys to get your answers.

This random-entry system also lets you change any number at any time, so you can solve the same problem with different data quickly and easily, by keying in only the new data. These five powerful, financial keys are:



Number of periods—To enter or find the number of time periods, payment periods, compounding periods, etc.

Interest rate per period—To enter or find the compound interest rate.

Payment per period—To enter or find the payment or deposit amount.

Present value—To enter or find the loan amount, principal amount, current price, beginning value or investment—the "now money."

Future value—To enter or find the final balance—what you get after all the interest and deposits or payments have been added.

These financial keys save you valuable time when calculating:

#### Compounded amounts (compound interest)

You can readily solve problems involving future and present value amounts; rate of interest; number of periods; interest earned; effective annual interest rates; and nominal (stated) annual interest rates.

#### Amortized (direct reduction) loans (ordinary annuity)

The HP-70's financial keys also aid in solving problems dealing with: the number of payments; the number of payments to reach a specified balance; payment amounts; annual percentage rates, with or without fees; principal amounts; amortization schedules; remaining balance (remaining principal, last payments and balloon payments) and accumu-

lated interest; payment amount for loan with balloon payment; annual percentage rate with balloon payment coincident with, or one period after, the last payment; price and yield of discounted mortgages (prepaid or fully amortized), and the factor for Canadian mortgages.

#### Loans with a constant amount paid toward the principal

Using the HP-70, you can prepare a schedule showing the interest portion per payment and the remaining balance when a constant amount is paid toward the principal.

#### Sinking funds (ordinary annuity)

Just press the keys, and the HP-70 can solve for: the debt retirement amount; rate of interest; payment amount, and number of payments.

#### Consumer loans

With the HP-70, it's easy to calculate the monthly payment amount or, using the Rule of 78's, rebates. You can also convert the add-on interest rate to the annual percentage rate, or vice versa.

#### Savings functions (annuity due)

In seconds, you can calculate: number of deposits; rate of interest; deposit amount, or future value.

#### Lease and rent functions (annuity due)

Calculations include: number of payments; rate of interest; payment amount; the payment amount with a balloon payment or a residual value, and present value. The HP-70 will also convert add-on interest rate to annual percentage rate of interest, or vice versa.

#### Discounted cash flow analysis

You can use the "M" addressable memory as an accumulator, to calculate the net present value of even, uneven or deferred payment streams. You can also calculate the discounted or internal rate of return (IRR)—an iteration of the above.

#### Equity investment analysis for income property

You can calculate equity investment value and present value, and future value and overall appreciation/depreciation rate.

#### Commercial loans (short term notes)



The "INTERest" key expedites problems dealing with accrued interest amounts or discount amounts and annual yields for discounted notes (360- or 365-day years).

#### Depreciation functions

You can use the HP-70 to calculate the depreciation amount and remaining balance, using the straight-line method, the sum-of-the-years'-digits method (full year only), or declining-balance methods (full or partial year).

## The HP-70—with power plus.

**Superior memory power—for solving complex or repetitive problems in just seconds**

Memory power gives the HP-70 the ability to store entries, answers or constants for use later on in a calculation. And the HP-70 has memory power superior to other business pocket calculators.

Four memories are in the four-register stack (see pages 20, 21). Each time you key in a number, it's stored in this automatic memory and automatically positioned to make calculating easier. For example, when doing chain calculations, you don't have to write down any numbers and key them in again later on which helps reduce your error ratio.



Two addressable memories are also available for saving numbers you want to use later on, or for storing constants. One of these registers may also be used as an accumulator. Together with the stack, it permits you to keep two different running totals at the same time.



A financial memory bank is inside the HP-70, too. Each of the five financial keys has its own memory. This permits random entry and lets you change any number at any time—to make financial problem solving faster and easier. Or you can use any three of these memories as addressable memories.

#### Plus other quality HP features...

The HP-70—like other Hewlett-Packard pocket calculators—features the famous RPN "computer logic" system (see pages 20, 21) that facilitates the handling of lengthy, complex or repetitive problems.

**Light-emitting diode display**—Displays up to 10 significant digits, plus two-digit exponent and appropriate signs. Two selectable display modes: fixed point, with automatic overflow for large numbers into scientific, and scientific with a dynamic range of  $10^{-99}$  to  $10^{99}$ . Automatic decimal point positioning. Selective round-off; range: 0-9 decimal places in fixed point. Flashing display indicates improper operation; flashing decimal points indicate low battery.

#### Functions and features

##### Keyboard commands:

**Financial functions:** Number of periods (n) • Interest rate (i) • Payment per period (PMT) • Present value (PV) • Future value (FV) • Simple interest (INT)

**Mathematical functions:** Percentage • Percent difference •  $y^x$  • Addition, subtraction, multiplication or division in serial, mixed serial, chain or mixed chain calculations • Accumulation

**Data storage and positioning operations:** Data entry • Stack roll down • x, y interchange • Data storage • Data recall • Change sign

##### Memory:

4-register stack • 2 addressable memories (including an automatic accumulating memory) • Financial memory bank

##### Specifications

**Power:** AC: 115 or 230 V,  $\pm 10\%$ , 50 to 60 Hz • **Battery:** 500 mw nickel-cadmium rechargeable battery pack  
**Weight:** HP-70: 9 ounces (255 g) • Adapter/recharger: 5 ounces (142 g)  
**Shipping:** Approx. 2 lbs. (900 g)  
**Dimensions:** Length: 5.8 in. (14.7 cm) • Width: 3.2 in. (8.1 cm) • Height: 0.7 to 1.3 in. (1.8 to 3.3 cm)  
**Operating temperature range:** 32° F to 122° F (0° C to 50° C)

#### The HP-70 outfit includes:

HP-70 Business Pocket Calculator • Rechargeable battery pack • 115/230 V AC adapter/recharger • Soft carrying case • Illustrated Owner's Handbook • "Your Key To Better Real Estate Decisions" Book

YOUR COST FROM US  
**\$147<sup>90</sup>**





- 20
1. It operates on pre-recorded program cards that turn complex or lengthy calculations into a few simple steps anyone can do quickly...
  2. Or you can actually program it yourself—without learning “computer language”—to create your own highly specialized “answer machine”...
  3. And it's also an advanced scientific pocket calculator—with numerous functions already built in!

# HP-65

It's like having a “computer” in your pocket!

Only the HP-65 offers full programmability in a pocket calculator... because only the HP-65 can permanently store programs on tiny magnetic program cards.

It's the closest thing yet to a personal, portable computer! Like a computer, the HP-65 accepts and memorizes programs (fed in via the keyboard or tiny, magnetic program cards)... it executes programs (up to 100 steps long) with just a few keystrokes... and it uses computer logic to solve even extremely complex problems in seconds, with exceptional accuracy.

Once the HP-65 is programmed to solve a problem, you can run the program any number of times with different data. And since you can feed in a new program card in only two seconds, you can rapidly customize the HP-65 to meet your specific needs of the moment.

Yet you don't have to know a thing about computers to operate it! The HP-65's programming system is based on the everyday English language. All the keys are labeled with either recognized symbols (e.g.,  $\sqrt{x}$ ) or abbreviations for words or phrases (e.g., “LBL” means “LABEL”). You don't have to learn “computer language!”

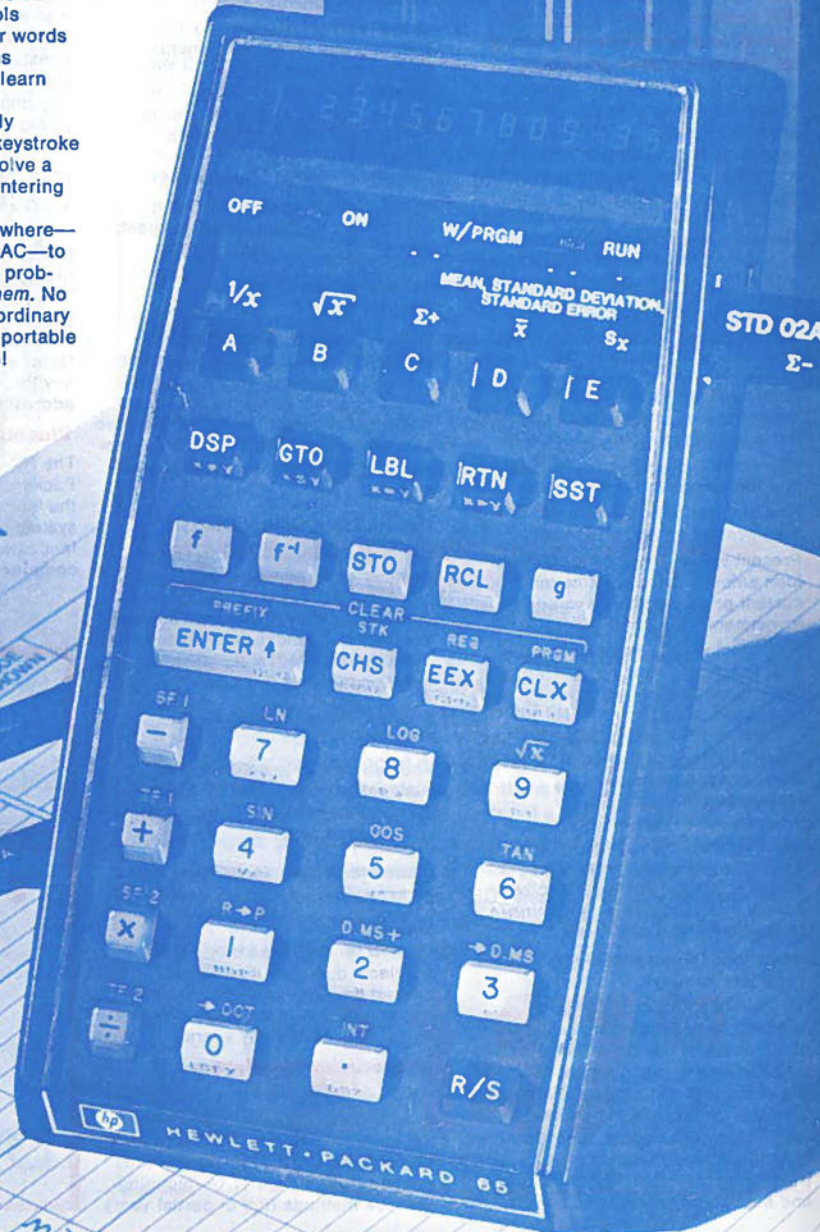
The program itself is usually nothing more than a normal keystroke sequence you would use to solve a problem with provisions for entering data.

And you can operate it anywhere—on rechargeable batteries or AC—to give you answers to complex problems the moment you need them. No computer—and certainly no ordinary calculator—can give you the portable power you get with the HP-65!

Due to a new packaging system the Hewlett Packard Company will not furnish Safety Travel Cases any longer with calculators.

## HP-65 Fully Programmable

The exceptionally versatile “personal computer” for science, engineering and business



# The Hewlett Packard HP-65

21

- 1 Pre-recorded program cards quickly transform the HP-65 into a special-purpose calculator... to solve your complex problems at just the touch of a few keys.

Here's how easy it is to operate the HP-65 with pre-recorded program cards



Select the card needed for the problem you're working and insert it into the HP-65's magnetic card reader. In less than two seconds...



To identify the “User Definable Keys” (top row of the HP-65), insert the program card in the window slot directly above the keys.



... the card's entire program is duplicated in the HP-65's program memory. Then the card exits for further use at another time.



Key in your known data, and run the program as described in the instructions furnished for the program. No special training is required.



To solve the same problem with different data, simply key in the new data and rerun the program. For other problems, insert different program cards.



The HP-65 will give you the answer in just seconds, with accuracy up to 10 digits. And it's all done automatically!

Like a computer, the HP-65 can be programmed so that it goes through a step-by-step routine at just the touch of a few keys—to solve even extremely complex, lengthy or repetitive problems quickly, easily and accurately.

But instead of bulky reels of tape or stacks of keypunch cards, the HP-65 uses tiny, magnetic program cards, less than one-half inch by three inches in size.

Each card contains a program directing the HP-65 to perform a pre-determined routine, to solve a specific problem or series of problems.

A particular program can be a relatively simple or intricate sequence of steps. Each card stores a program of up to 100 steps. If a program greater

than 100 steps is required, it may be stored on two or more program cards.

Because the program card has all of the steps pre-recorded, you only have to feed in the known data—the HP-65 will do the work!

Hundreds of pre-recorded program cards, packaged in Application Pacs (shown at left and listed on pages 18 and 19), are available from Hewlett-Packard. Each Pac contains up to 40 pre-recorded programs, plus a manual with step-by-step instructions for running each program.

Individual Application Pac programs, and programs contributed by HP-65 owners, are available through the HP-65 Users' Library\* (see page 17).

The Users' Library provides a low-cost way to obtain any of the hundreds of individual HP Application Pac programs, and also those programs contributed by HP-65 users, which you can record on blank program cards. The Catalog of Contributed Programs lists and describes the programs currently available, and is updated periodically. A year's subscription to the Catalog of Contributed Programs is given free to each HP-65 purchaser.

- 1 It operates on pre-recorded program cards that turn complex or lengthy calculations into a few simple steps anyone can do quickly.
- 2 Or you can actually program it yourself—without learning “computer language”—to create your own highly specialized “answer machine”...

3 And it's also an advanced scientific pocket calculator—with numerous functions built in!

**\$699<sup>50</sup>** your cost from us



# The Hewlett-Packard HP-65

**2** Or you can create your own time-saving programs—without learning “computer language”—and save them on blank cards.

No separate keyboard needed... no key punching.



On a piece of paper, or a program form (supplied), make a step-by-step list of the keystrokes needed to solve your problem.



Then, with the HP-65 set in the “WRITE PROGRAM” mode, press the keys (except those for entering data) in the proper sequence.



The resulting program is stored in the program memory until the HP-65 is turned off, but can also be permanently recorded on a blank card.



Label the program card and insert it in the slot directly above the User Definable Keys to identify how they are to be used.



With the HP-65 set in the “RUN PROGRAM” mode, key in the known data for the problem you want to solve, and run the program.



You can change any part of the program by deleting keystrokes and adding new ones. Or clip a corner of the card to prevent erasure or modification.

incorporate any of the HP-65's powerful built-in functions, some of which are shown on the next page.

For repeated use, you can store your custom-made program on blank program cards (supplied). Then you—or anyone—can insert the card to customize the HP-65 to solve that specific problem.

Because entire sequences of keystrokes are stored as programs, then executed by merely pressing a few keys (to enter the data and run the program), the chance of manual keystroke error is substantially reduced. So in addition to saving time and effort, the HP-65 program cards greatly insure accuracy.

And it's easy to create your own program cards, using only the HP-65 and blank cards. Just follow the simple steps shown on this page.

Any program may be easily reviewed, and keystrokes can be added or deleted via the HP-65's unique editing capabilities.

Depending on your needs, a program can be simple or complex. If more than 100 steps are required for your program, just store the intermediate data in the HP-65's memory registers and use an additional program card. A program can even direct the HP-65 to make logical decisions, with the aid of one or two flags (described below), or to make any of four numeric comparison tests. Therefore, if you want to skip certain steps or branch to another part of the program—based on whether or not certain conditions are met—it can be done... automatically.

It does take time to write a program, but you need do it only once... you'll never have to rethink those solutions again. And you can create all types of programs.

## To edit your program...

### PRGM

Use this “PROGRAM” key to clear the entire 100-step program memory, so you can begin keying in a new or revised program you have developed.

### DEL

This “DELETE” key erases a single program step and automatically moves the remaining steps up one place in the program memory to fill the resulting gap. To insert the corrected step, just key it in and the following steps will move down automatically.

### SST

When the HP-65 is in the “WRITE PROGRAM” mode, this “SINGLE STEP” key lets you step through each program instruction in the program memory, as the display shows a number for each step. This number represents the location (row and column) of the key corresponding to that particular instruction. For example, “34” refers to the key in row 3, column 4—“RCL.” (Exception: digit keys are represented by the numbers 00 to 09.)

If the “SST” key is used with the HP-65 in the “RUN” mode, you can execute a program one step at a time.

### TF1

### TF2

The condition of the flags can be tested automatically at any point in your program by using these “TEST FLAG 1” and “TEST FLAG 2” keys to include an appropriate test flag instruction. Your program will either advance sequentially or skip over the next steps, depending on the condition of the tested flag.

### $x \neq y$

### $x \leq y$

### $x = y$

### $x > y$

These keys allow you to compare the values in the X and Y registers. If the test condition is not met, the program skips over the next two steps. If the test condition is met, the program continues with the next step. This allows the HP-65 to perform conditional branches based on the results of the test.

### DSZ

The “DECREMENT AND SKIP ON ZERO” key subtracts a “1” from the integer previously stored in addressable register 8, then advances your program depending on the value remaining in the register. If the value in register 8 is not equal to zero, the program advances to the next step. If it does equal zero, it skips the next two steps. “DSZ” allows you to loop through a portion of your program a predetermined number of times.

### NOP

If this “NO OPERATION” key is included in your stored program, it will advance the program to the following step. It is often used in conjunction with conditional skip instructions.

### A

### B

### C

### D

### E

These User Definable keys are just what their name implies. They are letter labels for parts of your program which can be executed directly from the keyboard. Or, they can be used to call a sub-routine when used within a program.

### RTN

When this “RETURN” key is pressed, it enables you to start at the beginning of your program again. If this key is used as part of your stored program, it stops execution of your program and returns control to the keyboard for manual operation. When used as part of a letter sub-routine, it returns control to the calling program.

### R/S

When this “RUN/STOP” key is pressed, it halts execution of the program and returns control to the keyboard for manual operation. When used from the keyboard, it can stop a running program or start a stopped program at the next step.

## To include conditional functions in your program...

### SF1

### SF2

Like a computer, the HP-65 can take alternate computational paths based on the condition of the two flags. With the “SET FLAG 1” and “SET FLAG 2” keys, the flags can be set or cleared manually from the keyboard or automatically by an appropriate program step.

## These keyboard controls give you full programmability in a pocket calculator...

These keys take the HP-65 out of the realm of the calculator and into the sophisticated world of computer technology. They permit you to write, record, save and read back your programs. They also set in motion the HP-65's other powerful programming functions.

## To write or run your program...

### W/PRGM

### RUN

Set this switch to “WRITE PROGRAM” to enter or change any steps in the program memory and for recording programs, without altering any data stored in the four-register automatic memory or the addressable registers.

Set to “RUN” for all other operations.

## To structure your program...

### LBL

This “LABEL” key enables you to indicate and identify a series of steps within your program. Up to 15 labels are available by pressing this key and any digit (0-9) or letter (A-E) key.

### GTO

This “GO TO” key, in conjunction with a digit key, sets off a search in the program memory for the label with the same digit. It can be used from the keyboard when editing, or as part of a program.

# The Hewlett-Packard HP-65

**3** The HP-65 is also an advanced scientific pocket calculator, with all these functions and features built in

“Shift” keys multiply the functions of many keys



To save space, many of the built-in functions are shown on the keyboard as alternate functions, and are indicated either above a key (in gold) or on the underside of a key (in blue). To activate them, first press the appropriate prefix “shift” key. Note that f-1 performs the inverse of the labeled gold functions.

## Advanced trigonometric capability

### R → P

**Coordinate conversions**—Convert polar coordinates to rectangular coordinates, or vice versa. This lets you do vector arithmetic quickly and accurately.



**Angle modes**—You can calculate trig functions in any of three angular modes—degrees, radians or grads. You can also convert from an angle in one mode to an angle in another mode with a few keystrokes.

### → D.MS

**Angle (time) conversions**—In any of three angular modes, you can convert decimal angles (times) into angles (times) in degrees (hours)/minutes/seconds... or vice versa.

### D.MS±

**Angle (time) arithmetic**—You can add or subtract angles (times) in degrees (hours)/minutes/seconds.

## Other specialized functions

### INT

**Truncation**—To truncate the contents of the X register to its integer value, press “I”, then this key. To truncate it to a decimal fraction, first press “f-1”. By using the decimal key and this key, you can save memory storage space by retaining two numbers within a single register. This is often used in programs.

### → OCT

**Octal conversion**—Press the “I” key and this key to convert a decimal integer to octal. Press the “f-1” key first to convert an octal integer to decimal.

Advanced memory power for faster, easier problem-solving

In addition to the 100-step program memory, the HP-65 incorporates nine addressable memories.

These nine addressable memories make data manipulation easy. You can store data in any register... retrieve data from any register... and even do register arithmetic (+ - X ÷), using or modifying data in any register.

The addressable registers are not only useful when operating the HP-65 as a scientific calculator—to accumulate sums, or to store constants or intermediate results—but are equally useful when working with a program. Data may be stored in any register, then retrieved—either manually or automatically, as part of a program.

## Plus other quality HP features...

The HP-65 also includes a four-register stack—which makes possible the famous RPN “computer logic” system—and a “Last x” register (see pages 20 and 21).

**Light-emitting diode display**—Displays up to 10 significant digits, plus two-digit exponent and appropriate signs. Two selectable display modes: fixed point, with automatic overflow and underflow into scientific, and scientific with a dynamic range of  $10^0$  to  $10^{-9}$ . Automatic decimal point positioning. Selective round-off; range: 0-9 decimal places.

Flashing display indicates improper operation; flashing decimal point indicates low battery.

## Functions and features Programming:

Magnetic card reader/writer • Program writing capability • Unique single-step, insert/delete editing features •  $x \neq y$ ,  $x \leq y$ ,  $x = y$ ,  $x > y$  relational tests for conditional branching • Direct branching • Built-in decrementer • Two flags for skip or no-skip programming or branching to another part of program • Five User Definable Keys • Subroutines (1 level) • 15 labels

## Keyboard commands:

**Trigonometric functions:** 3 angular modes •  $\sin x$  •  $\arcsin x$  •  $\cos x$  •  $\arccos x$  •  $\tan x$  •  $\arctan x$  • Rectangular coordinates ↔ Polar coordinates • Decimal angle ↔ Angle in degrees/minutes/seconds • Decimal time ↔ Time in hours/minutes/seconds • Decimal angle ↔ Angle in degrees, radians or grads • Degrees (hours)/minutes/seconds arithmetic • Vector arithmetic  
**Logarithmic functions:**  $\log x$  •  $\ln x$  •  $e^x$  •  $10^x$   
**Other functions:**  $y^x$  •  $\sqrt{x}$  •  $1/x$  •  $\pi$  •  $x^2$  •  $n!$  • Integer/fraction truncation •

Register arithmetic • Addition, subtraction, multiplication or division in serial, mixed serial, chain or mixed chain calculations • Decimal ↔ Octal  
**Data storage and positioning operations:** Data entry • Stack roll down and roll-up • x, y interchange • Data storage • Data recall • Change sign • Exponent entry

## Memory:

4-register stack • “Last x” register • 9 addressable memory registers • Program memory for storage of up to 100 keystrokes (a program)

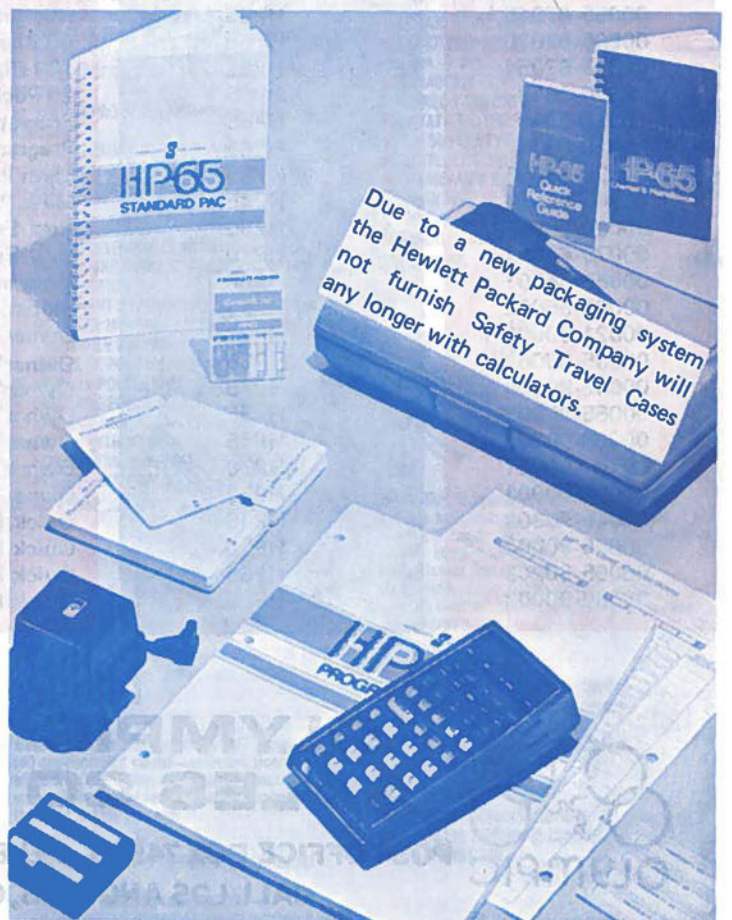
## Specifications

**Power:** AC: 115 or 230 V,  $\pm 10\%$ , 50-60 Hz, 5 watts. Battery: 500mw nickel-cadmium rechargeable battery pack  
**Weight:** HP-65: 11 ounces (342 g) with battery pack. Recharger: 5 ounces (142 g). Shipping weight: approx. 3 lbs. (1.4 kg)  
**Dimensions:** Length: 5.8 inches (14.7 cm). Width: 3.2 inches (8.1 cm). Height: 0.7 to 1.4 inches (1.8 to 3.4 cm)  
**Temperature ranges:** Operating: 32°F to 104°F (0°C to 40°C). Card reader: 50°F to 104°F (10°C to 40°C)

## YOUR COST FROM US

**\$699<sup>50</sup>**

HP-65 Outfit \$795<sup>00</sup>



Due to a new packaging system the Hewlett-Packard Company will not furnish Safety Travel Cases any longer with calculators.

**\$699<sup>50</sup>**

YOUR COST FROM US



# The Hewlett Packard Accessories

Due to a new packaging system, the Hewlett Packard Company will not furnish Safety Travel Cases with calculators any longer.

Model Number	Accessory to Model	Description	List Price	Your Cost
82001	All except HP21	Battery Pack only	10.00	9.50
82002	All except HP21	Battery Charger 115-240 volts	18.00	17.10
82004	All except HP21	Battery Pack and Holder	20.00	19.00
82006	All except HP21 & HP65	Field Case	20.00	19.00
82016	HP65	Field Case	25.00	23.75
82019	HP21	Battery Pack only	7.00	6.65
82028	HP21	Battery Pack and Holder	15.00	14.25
82007	All except HP21 & HP65	Security Cradle	25.00	23.75
82015	HP65	Security Cradle	25.00	23.75
82029	HP21	Security Cradle	30.00	28.50
82021	All except HP21 & HP65	Soft Case	6.00	5.70
82017	HP65	Soft Case	10.00	9.50
82027	HP21	Soft Case	6.00	5.70
82018	All except HP21	Safety Travel Case	8.00	7.60
00065-67001	HP65	Math Pac one program	45.00	42.75
00065-67002	HP65	Math Pac two program	45.00	42.65
00065-67003	HP65	Surveying Pac one Program	45.00	42.75
00065-67004	HP65	Medical Pac One Program	45.00	42.75
00065-67005	HP65	Stat Pac One Program	45.00	42.75
00065-67007	HP65	E E Pac one Program	45.00	42.75
00065-67008	HP65	Standard Pac One Program	45.00	42.75
00065-67044	HP65	Finance Pac One Program	45.00	42.75
00065-67050	HP65	Chemical Engineering Pac one Program	45.00	42.75
00065-67051	HP65	Stress Analysis Pac One Program	45.00	42.75
00065-67042	HP65	Aviation Pac One Program	45.00	42.75
00065-67045	HP65	Navigation Pac One Program	45.00	42.75
00065-67010	HP65	40 Blank Program Cards	25.00	23.75
00065-67054	HP65	120 Blank Program Cards	50.00	47.50
9320-0613	HP65	20 Pocket Card Holders	7.50	7.12
9320-2940	HP55	Program Work Sheets (pad of 50)	1.65	1.56
9320-0616	HP65	Program Work Sheets (pad of 50)	1.65	1.56
00035-66001	HP35	Math Pac book	10.00	9.50
00045-66001	HP45	Math Pac book	10.00	9.50
00080-66006	HP80	Real Estate Application Book	10.00	9.50
00070-66001	HP70	Real Estate Decisions Book	10.00	9.50
00055-66001	HP55	Mathematics Programs Book	10.00	9.50
00065-66002	HP55	Statistics Programs Book	10.00	9.50
00021-90001	HP21	Owner's Handbook	2.00	2.00
00035-90008	HP35	Owner's Handbook	1.50	1.50
00045-90300	HP45	Owner's Handbook	2.00	2.00
00055-90001	HP55	Owner's Handbook	2.50	2.50
00065-90200	HP65	Owner's Handbook	2.50	2.50
0070-90001	HP70	Owner's Handbook	2.00	2.00
00080-90001	HP80	Owner's Handbook	2.00	2.00
00045-90303	HP45	Quick Reference Guide	1.00	1.00
00055-90002	HP55	Quick Reference Guide	1.00	1.00
00065-90203	HP65	Quick Reference Guide	1.00	1.00
00080-90003	HP80	Quick Reference Guide	1.00	1.00



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# The Hewlett-Packard HP-65

can be "tailor made" for your profession  
Pre-recorded programs let you transform your HP-65 into a specialized calculator—in seconds

Each Application Pac contains up to 40 pre-recorded program cards, to save you hundreds of hours of calculating time!

To concentrate the capabilities of the HP-65 in your field of interest, you can select from an ever-expanding variety of pre-recorded magnetic program cards packaged in Application Pacs. Each Pac contains cards for up to 40 programs, a detailed manual on the Pac, and a set of Pocket Instruction Cards for listing your program instructions.



## FINANCE PAC 1

These 38 programs (on 40 pre-recorded cards) help give you fast answers to complex problems in investment analysis, loans, leasing, savings and annuities, business statistics and other business and financial applications. Included are programs for:

- COMPOUND AMOUNT
- DIRECT REDUCTION LOAN
- DIRECT REDUCTION LOAN WITH BALLOON PAYMENT
- SINKING FUND
- Other programs are:
- PERIODIC SAVINGS, ANNUITY DUE
- PRESENT VALUE, ANNUITY DUE
- PRESENT VALUE, ANNUITY DUE WITH BALLOON PAYMENT
- SAVINGS-COMPOUNDING PERIODS DIFFERENT FROM PAYMENT PERIODS
- NOMINAL TO EFFECTIVE/EFFECTIVE TO NOMINAL RATE CONVERSION
- DIRECT REDUCTION LOAN; ACCUMULATED INTEREST/REMAINING BALANCE
- DIRECT REDUCTION LOAN; AMORTIZATION SCHEDULE
- ADD-ON RATE INSTALLMENT LOAN
- CONSTANT PAYMENT TO PRINCIPAL LOAN AMORTIZATION SCHEDULE
- INTEREST REBATE—RULE OF 78'S
- INTERNAL RATE OF RETURN, UNEVEN CASH FLOWS
- DISCOUNTED CASH FLOW ANALYSIS, NET PRESENT VALUE
- STRAIGHT LINE DEPRECIATION SCHEDULE
- SUM-OF-THE-YEAR'S DIGITS DEPRECIATION SCHEDULE
- VARIABLE RATE DECLINING BALANCE DEPRECIATION SCHEDULE
- Crossover POINT-DECLINING BALANCE TO STRAIGHT LINE
- DAYS BETWEEN DATES
- BOND PRICE AND YIELD
- ACCRUED SIMPLE INTEREST
- LINEAR REGRESSION (Trend Line)
- EXPONENTIAL CURVE FIT (Growth Curve)
- TOTAL, AVERAGE AND PERCENT OF TOTAL
- MOVING AVERAGES
- INVOICING

00065-67044 .....\$45.00



## MATH PAC 1

This basic series of 40 programs (on 40 pre-recorded cards) speeds the handling of problems in algebra, trigonometry, analytic geometry and calculus. It covers:

- HYPERBOLIC FUNCTIONS
- FIRST ORDER DIFFERENTIAL EQUATION
- SOLUTION OF A TRIANGLE (Given a, b, c or a, b, C)
- 3 x 3 MATRIX INVERSION
- FIFTH DEGREE POLYNOMIAL EQUATION
- FACTORS OF AN INTEGER
- Other programs are:
- GREATEST COMMON DIVISOR, LEAST COMMON MULTIPLE
- ARITHMETIC AND HARMONIC PROGRESSIONS
- GEOMETRIC PROGRESSION
- FUNCTIONS OF x AND y
- QUADRATIC EQUATION
- CUBIC EQUATION
- FOURTH DEGREE POLYNOMIAL EQUATION
- SIMULTANEOUS EQUATIONS IN TWO UNKNOWN
- SIMULTANEOUS EQUATIONS IN THREE UNKNOWN
- SYNTHETIC DIVISION
- RECTANGULAR, SPHERICAL CONVERSIONS
- TRANSLATION AND/OR ROTATION OF COORDINATE AXES
- ANGLE CONVERSIONS
- SECONDARY VALUES OF sin<sup>-1</sup>, cos<sup>-1</sup>, tan<sup>-1</sup>
- TRIGONOMETRIC FUNCTIONS
- INVERSE HYPERBOLIC FUNCTIONS
- SOLUTION OF A TRIANGLE (Given a, A, C or a, B, C)
- SOLUTION OF A TRIANGLE (Given B, b, c)
- SPHERICAL TRIANGLES
- AREA OF A TRIANGLE
- AREA OF A POLYGON
- CIRCLE DETERMINED BY THREE POINTS
- EQUALLY SPACED POINTS ON A CIRCLE
- POLYGONS INSCRIBED IN AND CIRCUMSCRIBED ABOUT A CIRCLE
- UNIT CONVERSIONS: C → F; ft, in → cm; lb → kg
- UNIT CONVERSIONS: ml → km; gal → ltr; yd → m; ac → ft<sup>2</sup>
- POLYNOMIAL EVALUATION (Real)
- LINEAR AND LAGRANGIAN INTERPOLATIONS
- FINITE DIFFERENCE INTERPOLATION
- NUMERICAL INTEGRATION (Discrete Case)
- SIMPSON'S RULE FOR NUMERICAL INTEGRATION
- ROOTS OF f(x) = 0 IN AN INTERVAL
- DETERMINANT AND CHARACTERISTIC EQUATION OF A 3 x 3 MATRIX
- 2 x 2 MATRIX OPERATIONS

00065-67001 .....\$45.00

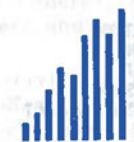


## MATH PAC 2

A variety of advanced mathematical functions is provided by the 37 programs (40 pre-recorded cards) in this Pac. The programs are:

- BASE CONVERSION
- COMPLEX FUNCTIONS  $|z|$ ,  $z^2$ ,  $\sqrt{z}$ ,  $1/z$
- GAUSSIAN QUADRATURE FOR  $\int_a^b f(x)dx$
- BESSEL FUNCTION J
- COMPLETE ELLIPTIC INTEGRALS
- Other programs are:
- COMPLEX ARITHMETIC
- COMPLEX TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS
- COMPLEX INVERSE TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS
- OCTAL ARITHMETIC
- INTEGER BASE CONVERSION
- COMPLEX FUNCTIONS  $z^n$ ,  $z^{1/n}$
- COMPLEX FUNCTIONS  $e^z$ ,  $\ln z$ ,  $a^z$ ,  $\log_a z$
- COMPLEX FUNCTIONS  $z^w$ ,  $z^{1/w}$ ,  $\log_z w$
- POLYNOMIAL EVALUATION (Complex)
- INTERSECTIONS OF A LINE AND A CONIC SECTION
- VECTOR PRODUCTS AND ANGLE BETWEEN VECTORS
- PARTIAL SUM AND PARTIAL PRODUCT
- GAUSSIAN QUADRATURE FOR  $\int_a^b f(x)dx$
- KELVIN FUNCTIONS
- EULER'S FUNCTION
- GAMMA FUNCTION
- INCOMPLETE GAMMA FUNCTION
- ERROR FUNCTION AND COMPLEMENTARY ERROR FUNCTION
- CONFLUENT HYPERGEOMETRIC FUNCTION
- GAUSSIAN HYPERGEOMETRIC FUNCTION
- CHEBYSHEV POLYNOMIAL
- LEGENDRE POLYNOMIAL
- HERMITE POLYNOMIAL
- LAGUERRE POLYNOMIAL
- SINE INTEGRAL
- COSINE INTEGRAL
- EXPONENTIAL INTEGRAL
- FRESNEL INTEGRALS

00065-67002 .....\$45.00



## STAT PAC 1

Basic and advanced functions—37 programs (40 pre-recorded cards)—selected from the areas of general statistics; distribution functions; curve fittings; and test statistics. Programs included in this Pac are:

- MEAN, STANDARD DEVIATION, STANDARD ERROR
- RANDOM NUMBER GENERATOR

- ANALYSIS OF VARIANCE (One Way)
- MULTIPLE LINEAR REGRESSION
- 2 x k CONTINGENCY TABLE
- SUMS FOR TWO VARIABLES
- BASIC STATISTICS (Two Variables)

Other programs are:

- MEAN, STANDARD DEVIATION, STANDARD ERROR (Grouped Data)
- PERMUTATION AND COMBINATION
- ARITHMETIC, GEOMETRIC, HARMONIC AND GENERALIZED MEANS
- MOMENTS, SKEWNESS AND KURTOSIS (Grouped or Ungrouped Data)
- NORMAL DISTRIBUTION
- INVERSE NORMAL INTEGRAL
- CHI-SQUARE DISTRIBUTION
- t DISTRIBUTION
- F DISTRIBUTION
- BIVARIATE NORMAL DISTRIBUTION
- LOGARITHMIC NORMAL DISTRIBUTION
- WEIBULL DISTRIBUTION
- BINOMIAL DISTRIBUTION
- NEGATIVE BINOMIAL DISTRIBUTION
- HYPERGEOMETRIC DISTRIBUTION
- POISSON DISTRIBUTION
- LINEAR REGRESSION
- EXPONENTIAL CURVE FIT
- POWER CURVE FIT
- LOGARITHMIC CURVE FIT
- LEAST SQUARES REGRESSION OF  $y = cx^a + dx^b$
- PARABOLIC CURVE FIT
- PAIRED t STATISTIC
- t STATISTIC FOR TWO MEANS
- CHI-SQUARE EVALUATION
- BARTLETT'S CHI-SQUARE STATISTIC
- SPEARMAN'S RANK CORRELATION COEFFICIENT
- MANN-WHITNEY STATISTIC
- KENDALL'S COEFFICIENT OF CONCORDANCE
- BISERIAL CORRELATION COEFFICIENT

00065-67005 .....\$45.00



## EE PAC 1

Thirty-five programs (40 pre-recorded cards) provide functions for use in electronic and electrical engineering projects. Topics addressed include impedance matching filter design; transmission line calculation; parameter conversion; power supply design; transistor biasing; control system; and waveform analyses. The programs are:

- REACTANCE CHART
- IMPEDANCE OF LADDER NETWORK
- TRANSMISSION LINE IMPEDANCE TRANSFORMATION
- S ↔ Y PARAMETER CONVERSION
- FOURIER SERIES
- Other programs are:
- SERIES RESONANT CIRCUIT
- PARALLEL RESONANT CIRCUIT
- ATTENUATOR

YOUR COST FROM US \$42.75

Suggested Retail \$45.00



# The Hewlett-Packard HP-65

PI ATTENUATOR  
WYE-DELTA OR DELTA-WYE TRANSFORMATION  
MINIMUM-LOSS PAD MATCHING  
PI NETWORK IMPEDANCE MATCHING  
BAND PASS FILTER DESIGN  
ACTIVE FILTER—LOW PASS  
ACTIVE FILTER—HIGH PASS  
BUTTERWORTH FILTER  
CHEBYSHEV FILTER  
CAPACITANCE OF PARALLEL PLATES  
SELF-INDUCTANCE OF STRAIGHT ROUND WIRE  
INDUCTANCE OF A SINGLE-LAYER CLOSE-WOUND COIL  
SKIN EFFECT AND COIL Q  
TRANSFORMER DESIGN  
REED RELAY DESIGN  
IMPEDANCE OF TRANSMISSION LINE  
MICROSTRIP TRANSMISSION LINE  
POWER SUPPLY RECTIFIER CIRCUITS  
CONTROLLED RECTIFIER CIRCUITS  
INTEGRATED CIRCUIT CURRENT SOURCE  
TRANSISTOR BIAS  
JFET BIAS AND TRANSCONDUCTANCE  
PHASE-LOCKED LOOP  
DECIBEL CONVERSION  
VOLTAGE TO dBm  
WIRE TABLES AT ANNEALED Cu  
HEAT SINKS  
00065-67007 ..... \$45.00



## CHEMICAL ENGINEERING PAC 1

18 programs (on 40 pre-recorded cards) designed to aid the engineer in thermodynamic and transport process calculations. Topics addressed include P-V-T gas relations, gas dynamics, incompressible flow, heat exchangers, heat conduction, black body radiation, and curve fitting.

IDEAL GAS EQUATION OF STATE  
REDLICH-KWONG EQUATION OF STATE  
REVERSIBLE POLYTROPIC PROCESS FOR AN IDEAL GAS  
ISENTROPIC FLOW FOR IDEAL GASES  
ONE DIMENSIONAL NORMAL SHOCKS FOR IDEAL GASES

### Other programs are:

FLUID TRANSPORT NUMBERS (NUSSELT—HEAT & MASS, REYNOLDS, STANTON, LEWIS, SCHMIDT, BIOT, AND PRANDTL)  
FANNING FRICTION FACTOR AND CONDUIT FLOW  
CONSERVATION OF ENERGY  
VON KÁRMÁN ANALOGY FOR HEAT AND MASS TRANSFER  
HEAT EXCHANGER ANALYSIS (HEAT TRANSFER AND EFFECTIVENESS FOR CROSS-FLOW, COUNTER-FLOW, PARALLEL-FLOW AND PARALLEL-COUNTER-FLOW HEAT EXCHANGERS)  
HEAT TRANSFER THROUGH COMPOSITE CYLINDERS AND WALLS  
STRAIGHT FIN EFFICIENCY  
NATURAL CONVECTION (ESTIMATE COEFFICIENTS FOR VERTICAL CYLINDERS AND WALLS, AND HORIZONTAL CYLINDERS AND PLATES)  
BLACK BODY THERMAL RADIATION  
TEMPERATURE OR CONCENTRATION PROFILE FOR A SEMI-INFINITE SOLID  
HYDROCARBON COMBUSTION  
CURVE FITTING (LINEAR, EXPONENTIAL, AND POWER)  
UNIT CONVERSIONS  
00065-67050 ..... \$45.00



## STRESS ANALYSIS PAC 1

25 programs (on 39 pre-recorded cards) designed to aid the engineer in the calculation of the properties of structural elements. Topics addressed include vector statics, section properties, interference fits, stress analysis, flat plates, beams and columns. Programs included in this Pac are:

TWO DIMENSIONAL VECTOR OPERATIONS  
STATIC EQUILIBRIUM OF A POINT  
STATIC EQUILIBRIUM OF A RIGID BODY

### Other programs are:

PROPERTIES OF RECTANGULAR SECTIONS  
PROPERTIES OF CIRCULAR SECTIONS  
PROPERTIES OF ANNULAR SECTIONS  
COMPOSITE SECTION PROPERTIES  
BENDING STRESS IN BEAMS OR TORSIONAL SHEAR STRESS IN CIRCULAR SHAFTS  
LINEAR OR ANGULAR DEFORMATION OF A SHAFT  
THIN-WALLED PRESSURE VESSELS  
STRESS IN THICK-WALLED CYLINDERS  
INTERFERENCE FITS  
MOHR CIRCLE FOR STRESS  
SODERBERG'S EQUATION FOR FATIGUE  
CIRCULAR PLATES WITH SIMPLY SUPPORTED EDGES  
CIRCULAR PLATES WITH FIXED EDGES  
RECTANGULAR PLATES (SIMPLY SUPPORTED AND WITH FIXED EDGES)  
COMPRESSIVE BUCKLING  
ECCENTRICALLY LOADED COLUMNS  
RECTANGULAR, REINFORCED CONCRETE SECTIONS  
BOLT TORQUE

The next four programs calculate deflection, slope, moment, and shear for various beam geometries.

CANTILEVER BEAMS  
SIMPLY SUPPORTED BEAMS  
BEAMS FIXED AT BOTH ENDS  
BEAMS FIXED AT ONE END AND SIMPLY SUPPORTED AT THE OTHER  
00065-67051 ..... \$45.00



## SURVEYING PAC 1

Because surveying practices differ from country to country, different versions are offered. Contact your local Hewlett-Packard sales office for the exact contents of Surveying Pac 1 in your country. The U.S. version consists of 34 programs (on 34 pre-recorded cards) dealing with traversing; curves; triangles and intersections; pre-determined area; and earthwork. The Pac contains:

FIELD ANGLE TRAVERSE  
HORIZONTAL CURVE LAYOUT  
BEARING-DISTANCE INTERSECT  
STADIA REDUCTIONS  
VOLUME BY AVERAGE END AREA

### Other programs are:

BEARING TRAVERSE  
CLOSURE FOR FIELD ANGLE AND BEARING TRAVERSES  
INVERSE FROM COORDINATES  
SIDESHOTS  
COORDINATE TRANSFORMATION  
COMPASS RULE ADJUSTMENT  
TRANSIT RULE ADJUSTMENT  
TWO INSTRUMENT RADIAL SURVEY  
CURVE SOLUTION—Given  $\Delta$  & R or  $\Delta$  & T  
CURVE SOLUTION—Given R & T or R & L  
CURVE SOLUTION—Given  $\Delta$  & C or R & C  
ELEVATIONS ALONG A VERTICAL CURVE  
TRIANGLE SOLUTION—Given SSS or SAS  
TRIANGLE SOLUTION—Given SSA  
TRIANGLE SOLUTION—Given ASA or AAS  
BEARING-BEARING INTERSECT  
DISTANCE-DISTANCE INTERSECT  
DISTANCE FROM A POINT TO A LINE  
TAPING CORRECTIONS  
EDM SLOPE REDUCTION—Given Zenith Angle  
EDM SLOPE REDUCTION—Given  $\Delta$  Elevation

FIELD ANGLE CHECK  
THREE WIRE LEVELING  
SLOPE-STAKING—Given Centerline Terrain Elevation  
SLOPE STAKING—Given Centerline Cut/Fill  
AZIMUTH OF THE SUN  
PREDETERMINED AREA—Line Through a Point  
PREDETERMINED AREA—Two Sides Parallel  
VOLUME OF BORROW PIT  
00065-67003 ..... \$45.00



## MEDICAL PAC 1

This Pac of 27 programs (38 pre-recorded cards) allows for the following types of medical calculations: unit conversions; ventilator set-up and calibration; analysis of cardio-pulmonary function; acid-base balance, blood gases; and respiratory status. The Pac contains:

WEIGHT CONVERSIONS  
LENGTH CONVERSIONS  
VOLUME CONVERSIONS  
ENGLISH-METRIC CONVERSIONS  
PATIENT IDENTIFICATION

### Other programs are:

MALE VITAL CAPACITY  
FEMALE VITAL CAPACITY  
LUNG DIFFUSION  
RESPIRATORY GAS CONVERSIONS  
VENTILATOR SETUP  
P<sub>CO</sub> NORMALIZATION  
BLOOD ACID-BASE STATUS  
VIRTUAL P<sub>O</sub><sub>2</sub>  
OXYGEN SATURATION AND CONTENT  
ANAEROBIC P<sub>CO</sub> AND pH CHANGE  
ANAEROBIC P<sub>O</sub> CHANGE  
DEAD SPACE FRACTION  
A-a O<sub>2</sub> DIFFERENCE  
PHYSIOLOGIC SHUNT AND FICK  
DUBOIS BODY SURFACE AREA  
BOYD BODY SURFACE AREA  
DYE CARDIAC OUTPUT  
FICK CARDIAC OUTPUT  
VALVE AREA  
ANATOMIC SHUNTS  
CONTRACTILITY  
STROKE WORK  
00065-67004 ..... \$45.00



## AVIATION PAC 1

Here are 29 programs (31 cards) for flight and preflight calculations—primarily for the private and business pilot, but also being used by many airline pilots. Included are:

AIRCRAFT FLIGHT PLAN WITH WIND  
FLIGHT MANAGEMENT  
PREDICTING FREEZING LEVELS  
GENERAL AIRCRAFT WEIGHT AND BALANCE  
CUSTOMIZED WEIGHT AND BALANCE  
TURN PERFORMANCE

### Other programs are:

RATE OF CLIMB AND DESCENT  
HEAD WINDS AND CROSSWINDS  
FLIGHT PLANNING AND FLIGHT VERIFICATION  
DETERMINING IN-FLIGHT WINDS  
STANDARD ATMOSPHERE (For altitudes 0-36089 and 36089-82000)  
MACH NUMBER AND TRUE AIRSPEED  
TRUE AIR TEMPERATURE AND DENSITY ALTITUDE  
LOWEST USABLE FLIGHT LEVEL  
GREAT CIRCLE PLOTTING  
RHUMBLINE NAVIGATION  
GREAT CIRCLE NAVIGATION

POSITION, GIVEN HEADING; SPEED AND TIME  
LINE OF SIGHT DISTANCE  
POSITION BY TWO VORS  
NAVIGATION BY TWO VORS  
POSITION BY ONE VOR  
DME SPEED CORRECTION  
AVERAGE WIND VECTOR  
COURSE CORRECTION  
TIME OF SUNRISE AND SUNSET  
AZIMUTH OF SUNRISE AND SUNSET  
PILOT UNIT CONVERSIONS  
CUSTOMIZED UNIT CONVERSIONS  
00065-67042 ..... \$45.00



## NAVIGATION PAC 1

Written for marine navigators but also useful to the land or air navigator, these 26 programs (40 cards) assist the navigator in piloting, dead reckoning, celestial navigation, and relative motion problems. The pac includes:

GREAT CIRCLE COMPUTATION  
LONG-TERM ARIES ALMANAC  
1974-1975 SUN ALMANAC  
LONG-TERM STAR ALMANAC  
ALMANAC POSITIONS  
SIGHT REDUCTION TABLE  
MANEUVERING RELATIVE TO ANOTHER VESSEL

### Other programs are:

LENGTH CONVERSIONS  
SPEED, TIME, AND DISTANCE  
TIME-ARC CONVERSION  
PROPELLER SLIP  
FUEL CONSUMPTION  
DISTANCE TO OR BEYOND HORIZON  
DISTANCE BY HORIZON ANGLE AND DISTANCE  
SHORT OF HORIZON  
DEAD RECKONING  
RHUMBLINE NAVIGATION  
GREAT CIRCLE NAVIGATION  
COMPOSITE SAILING  
SEXTANT ALTITUDE CORRECTIONS  
SUNRISE, SUNSET, AND TWILIGHT  
MOST PROBABLE POSITION  
FIX BY TWO OBSERVATIONS  
FIX BY THREE OBSERVATIONS  
DISTANCE OFF AN OBJECT BY TWO BEARINGS  
VECTOR ADDITION  
VELOCITY TO CHANGE RELATIVE POSITION  
00065-67045 ..... \$45.00

## BLANK PROGRAM CARDS

So that you may customize the HP-65's capabilities even more, these blank magnetic cards can be used to store programs of up to 100 steps, then used again and again for problem-solving. Each card may be "erased" to record different programs, or a corner clipped for permanency.

00065-67010 (40 cards) ..... \$25.00  
00065-67054 (120 cards) ..... \$50.00

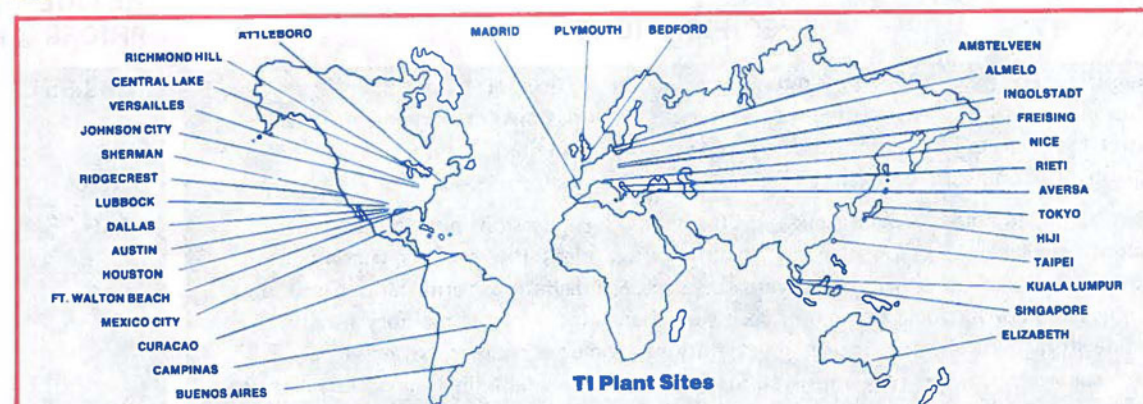
## YOUR COST FROM US

# \$42<sup>75</sup>

Suggested Retail \$45.00



# TEXAS INSTRUMENTS INCORPORATED



"Bringing new technology to your fingertips"

A lot of history is being made at Texas Instruments in major fields of science and engineering.

### Here are the facts:

## Products and Services

World's leading supplier of semiconductor components and materials.

- Integrated circuits, transistors, optoelectronic devices.
- Continually expanding range of applications: auto electronics; color TV circuitry; computers; industrial controls; communications.
- The standard "calculator-on-a-chip" that revolutionized production of pocket calculators.
- Advanced work in semiconductor memories, LSI and MOS.
- R & D in semiconductor materials, including purification, processing, and surface treatment and in device and circuit applications.

World's leading designer/producer of engineered materials systems.

- Clad metals for coins around the world and for wire, cable, switches, thermostats.
- Bi-metallic controls for hundreds of different household appliances and industrial machines.
- Precision engineered switches and thermostats for spacecraft and commercial aircraft.
- A newly developed PTC ceramic technology, expected to have broad application in control products.

- ranked 150th in the FORTUNE 500
- 55,000 employees throughout the world
- 32 plants in 17 countries
- 50 distribution centers worldwide
- 1975 sales projected to be over 1.5 billion dollars

## State-of-the-art radar, infrared and control systems.

- Airborne and airport radars.
- Infrared mapping systems for commercial and military use.
- Defense electronics equipment and systems.
- Laser electronics.
- Broad aerospace technologies with fan-out applications to business and industry that have had far-reaching results.

## Supercomputers, minicomputers, peripherals.

- The ASC (Advanced Scientific Computer), among the most powerful computers in the world.
- Minicomputers that are rapidly replacing larger systems for such applications as manufacturing control and control of message switching systems.
- Terminals that give remote access to computers.

## Services that search for energy, protect the environment, and expedite health care.

- Comprehensive services in the earth sciences, offered on every continent and including photogeological interpretation, mapping, and airborne geophysical surveys.
- Environmental studies that assess the impact of our society on land and water and involve professionals in many fields of biology and aquatic ecology.

- Computerized information handling procedures for hospitals, including admission and logistics controls and patient services accounting.

- Information services for business and government that are supported by one of the world's finest suites of data processing hardware.

## A major factor in the dynamic market for consumer electronic calculators.

- TI ranks as a leading producer and marketer of consumer calculators with a broad line of models in distribution.
- TI is a major component supplier to the calculator industry.

## Research and Development

Technological leadership that includes more than 3,500 patents.

- Design of the first commercial transistor radio and first mass production of transistors for radio.
- First commercial production of silicon transistors.
- Invention of the integrated circuit.
- World's leading manufacturer of semiconductor components.
- Leading edge of infrared technology.
- Price/performance leadership in minicomputers.
- Development of clad metal systems allowing for significant savings of precious metals.
- Leadership in digital seismic exploration for petroleum.



# Texas Instruments

MODEL	SPECIFICATIONS	RETAIL PRICES	YOUR COST FROM US
SR 50 A	Scientific, hand held, 10 digits, 2 digit mantissa, 13 digit accuracy, finds powers, roots, factorials, logarithmic, trigonometric and hyperbolic functions for sum and store, for converting answers to scientific notations, one of the top sellers, includes batteries and charger, case, one year warranty by Texas Instruments.	\$99.95	\$74.95
SR 51 A	Scientific, hand held, 13 digit accuracy, 20 automatic conversions plus their inverses, performs single arithmetic, reciprocals, factorials, exponentiations, roots, trigonometric hyperbolic, linear regression, mean, variance, standard deviation, permutations, random numbers and conversions. Three user accessible memories, versatile memory functions include storage, recall, sum of product operations. Includes charger, batteries, case. One Year warranty. The new improved SR 51 A will be available in June or July, very soon.	149.95	114.95
SR 16	Scientific, hand held, 16 functions, 10 digits, 2 digits mantissa, scientific notations, square root, squares, raising to power, log, three memory keys, reciprocals, natural logs, complete intermediate calculations, The SR 16 fits between the SR 50 and the SR 11. Includes charger, batteries, case. One Year Warranty.	69.95	53.95
TI 2500-2	Hand held, 8 digits, percent key, auto constant, four basic functions, decimal, rechargeable, Includes charger, batteries, and case. One Year Warranty.	49.95	35.95
TI 2550	Full access memory, 8 digits hand held, four basic functions, percent key, auto. constant, four memory keys, Plus, Minus, Recall and Clear keys. Includes charger, batteries, and case. One Year Warranty by Texas Instruments. Good Seller.	49.95	43.95
TI 1500	8 digits, hand held, very small unit which fit in your shirt pocket, four functions plus auto-constant, percent key, Includes charger and batteries and case.	39.95	35.95
TI 3500	Desk Top calculator, 10 digits large display, with constant and decimal. Heavy duty for heavy work. Good Seller. AC only. Includes Cover.		49.95
TI 5050	New PRINTER, electronic, small, AC-DC with charger, regular size paper roll, capacity \$9,999.999.99, buffered keyboard, silent, constant, percent key, including charger, batteries, thermal printer, fits in your suit or brief case. Large pocket or Large hand. . Good Seller!	149.95	119.95
TI 620	Printing calculator, full size and heavy duty with powerful performance, 12 digits capacity, full MEMORY system, high level keyboard buffering, fixed and floating decimal, add-mode, round up and round off, constant, full access memory, four key memory system, plus, minus, recall, clear, automatic percentage system. Heavy duty unit.	249.95	199.95
*****	All above units carry one full year guaranty from Texas Instruments Inc. on all parts and labor, all include charger, batteries, case, instruction manuals		
TI 1200	Promotional 8 digits, constant, percent, replaceable battery 9 volt battery not included. . . AC adapter optional, 90 days warranty by Texas Instruments (minimum 2 units)	Adapter	15.95 5.95
TI 1250	Promotional 8 digits with full memory, constant, percent key, four memory keys, plus, minus, recall, clear, (no battery incl) Adapter optional. 90 days warranty. Minimum order of two models 1200 or 1250 will be accepted due to low cost.	Adapter	19.95 5.95

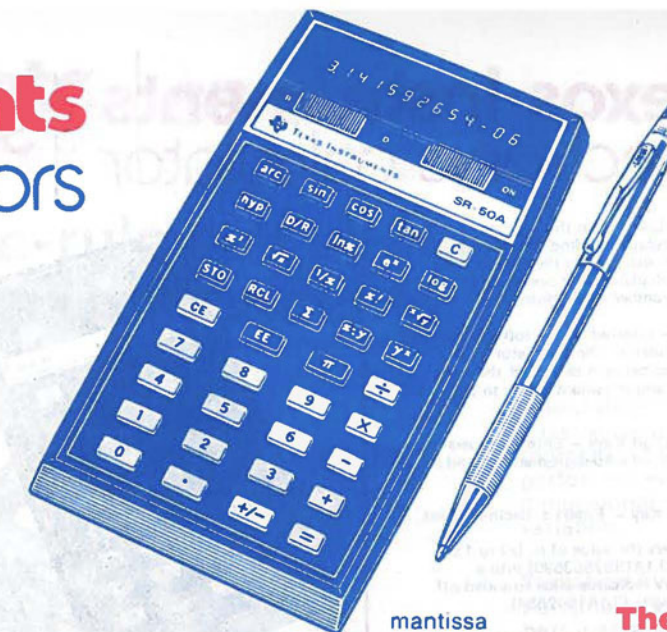
All the above units are made in the U.S.A. by Texas Instruments. The above Texas Instruments calculators carry a full one year warranty on all parts and all labor by the Texas Instruments organization. All units must be shipped for repair to the Texas Instruments servicing center which is located in Dallas Texas at the customer's mailing or shipping expenses. The service center is located at: TEXAS INSTRUMENTS INC., P.O. Box 22283, Dallas Texas 75222, attention service dept. Please do not send any Texas Instruments for repair to Olympic Sales Company, by doing so you will delay repairs on your Texas Instruments by one or two weeks. Olympic Sales Co. does not guaranty these calculators, Texas Instruments Inc. does. TI-1200 & 1250—90 Days Warranty Only.

## Texas Instruments electronic calculators

### SR-50A

YOUR COST FROM US

**\$74<sup>95</sup>**



The SR-50A



Complex scientific calculations are solved as easily as simple arithmetic with a full function, portable slide-rule calculator, ideal for student or professional use. The SR-50A features an algebraic keyboard and sum-of-products capability with single-function keys for easy problem solving.

Most calculations are performed in the same order the problem is stated. In addition to simple arithmetic, the SR-50A performs all classical slide-rule calculations—roots, powers, reciprocals, factorials, common and natural logarithms and their inverses, trigonometric (sin, cos, tan) and hyperbolic (sinh, cosh, tanh) functions and their inverses—all in free floating decimal point or in scientific notation. (See chart for additional detail.)

The versatile electronic memory allows data to be stored and retrieved or added to memory. The SR-50A features a degree/radian switch which makes the calculator interpret the displayed angle in degrees (when set at "D") or in radians (when set at "R"). By pressing the angle change key (D/R), the calculator will convert the displayed angle from radians to degrees or degrees to radians.

**READOUT:** Bright, easy to read, 14-character LED display; 10-digit mantissa plus sign, and 2-digit exponent plus sign.

**OVERFLOW, UNDERFLOW:** The display will flash on and off to indicate overflow or underflow. Also, invalid operations will cause the display to flash on and off.

**NEGATIVE SIGN:** Minus sign appears on display to indicate true value, negative or positive.

**ELECTRONICS:** Texas Instruments manufactured MOS/LSI integrated circuits and other solid state components.

**POWER:** Rechargeable battery pack that can be recharged hundreds of times. AC Adapter/Charger input 115 V/60 Hz.

**SIZE:** 3.2 X 5.8 X 1.25 inches.

**WEIGHT:** 8.3 ounces.

The SR-50A computes and displays numbers as large as  $\pm 9.999999999 \times 10^{99}$  or as small as  $\pm 1.0 \times 10^{-99}$  on the bright, easy-to-read 14-character display (10-digit mantissa, 2-digit exponent, 2 signs). Automatically converts to scientific notation when the calculated answer is greater than  $10^{10}$  or less than  $10^{-10}$ . Answers are calculated to 13 digits and displayed rounded to 10 significant digits; however, for maximum accuracy, the SR-50A uses all 13 digits for internal calculations. Operates on single-unit rechargeable battery pack (4 hours to restore full charge, operable while recharging) or AC.

#### Fast and easy. No calculator in its class is so easy to master.

The SR-50A lets you key the problem just as you would state it. A unique register system provides a sum-of-products capability directly at the keyboard. This ability to store the first product while the second is being calculated is in addition to the memory accessed by the memory keys. The efficiencies are suggested by this simple problem:

$$(2 \times 3) + (4 \times 5) = 26$$

TI's Algebraic Entry Method:

$$2 \times 3 + 4 \times 5 = 26$$

Reverse Polish Entry Method:

$$2 \uparrow 3 \times 4 \uparrow 5 \times + 26$$

The Texas Instruments electronic calculator is warranted for a period of one year from the original purchase date against defective materials and workmanship to the original purchaser.



# Texas Instruments

## electronic calculator

### SR-50A

**On/Off Switch** — Located on the top right front surface of the calculator. Sliding it to the right applies power, and sliding it to the left removes power from the calculator. The power-on condition is indicated by a number in the display.

**Deg/Rad Switch** — Located on the top left front surface of the calculator. The calculator interprets a displayed angle as being in degrees if the switch is to the right (D) and in radians if it is to the left (R).

**0 through 9 Digit Keys** — Enter numbers 0 through 9 to a limit of a 10-digit mantissa and a 2-digit exponent.

**Decimal Point Key** — Enters a decimal point.

**Pi Key** — Enters the value of pi ( $\pi$ ) to 13 significant digits (3.141592653590) into a calculation. Display indicates value rounded off to 10 significant digits (3.141592654).

**Enter Exponent Key** — Instructs the calculator that the subsequent number is to be entered as an exponent of 10. To enter a number in scientific notation, first enter the mantissa, press **EE** and enter the desired exponent of 10. After the **EE** key has been pressed, the calculator will display all further results in scientific notation until the **C** key is pressed.

**Change Sign Key** — Instructs the calculator to change the sign of the mantissa or exponent appearing in the display. To enter a negative number, first enter the number and then press the **+/-** key. Using this change sign key prior to using the **EE** key changes the sign of the mantissa. If the **+/-** key is pressed after the **EE** key, the sign of the exponent is changed.

**Clear Entry Key** — Clears the last keyboard entry. Pi is entered as a calculated value and is not cleared by this key. If the **CE** key is inadvertently pressed in processing a complex expression, it can be nullified by simply entering the correct number to be processed.

**Clear Key** — Clears (erases) information in the calculator and display and sets the calculator to zero for the start of a new problem. However, the contents of the memory are not affected by this key. To clear the memory, a zero must be entered in place of the stored data.

**Add Key** — Instructs the calculator to add to the previous number or result the next entered quantity.

**Subtract Key** — Instructs the calculator to subtract from the previous number or result the next entered quantity.



**Multiply Key** — Instructs the calculator to multiply the previous number or result by the next entered quantity.

**Divide Key** — Instructs the calculator to divide the previous number or result by the next entered quantity.

**Equals Key** — Instructs the calculator to complete the previously entered operation to provide the desired calculation result.

**Square Key** — Instructs the calculator to find the square of the number displayed (that is, to multiply the number displayed by itself).

**Square Root Key** — Instructs the calculator to find the square root of the number displayed (that is, to find the number which multiplied by itself, equals the number displayed).

**Reciprocal Key** — Instructs the calculator to find the reciprocal of the number displayed (that is, to divide the number displayed into 1).

**Factorial Key** — Instructs the calculator to find the factorial of the number displayed (that is, the product of all integer numbers from one through the integer value displayed). The largest factorial the SR-50A can compute without an overflow condition is 69!

**Sine Key** — Instructs the calculator to determine the sine of the displayed angle.

**Cosine Key** — Instructs the calculator to determine the cosine of the displayed angle.

**Tangent Key** — Instructs the calculator to determine the tangent of the displayed angle.

**Inverse Trigonometric Key** — Instructs the calculator to determine the angle of the selected trig function whose value is the displayed quantity, when pressed as a prefix to the sin, cos, or tan key.

**Hyperbolic Function Key** — Instructs the calculator to determine the hyperbolic trig function of the displayed angle when pressed as a prefix to the sin, cos, or tan key.

**Angle Change Key** — If the Deg/Rad switch is set for degrees, pressing the change key instructs the calculator to convert the displayed angle from radians to degrees. If the switch is set for radians, pressing this key instructs the calculator to convert the displayed angle from degrees to radians.

**Common Logarithm Key** — Instructs the calculator to determine the logarithm to the base 10 of the displayed number.

**Natural Logarithm Key** — Instructs the calculator to determine the logarithm to the base  $e$  of the displayed number.

**e to the x Power Key** — Instructs the calculator to raise the value of  $e$  to the displayed power.

**y to the x Power Key** — Instructs the calculator to raise  $y$ , the first entered quantity, to the power of  $x$ , the second entered quantity.

**The xth Root of y Key** — Instructs the calculator to process  $y$ , the first entered quantity, to find the  $x$ th root. The value of  $x$  is the second entered quantity.

**Exchange Key** — Instructs the calculator to exchange the  $x$  and  $y$  quantities in  $y^x$  or  $\sqrt[x]{y}$  before the function is processed. The operands in  $x$  and  $y$  can also be exchanged through the use of this key.

**Store Key** — Instructs the calculator to store the displayed quantity in the memory.

**Recall Key** — Instructs the calculator to retrieve stored data from the memory. The **RCL** key does not clear the memory.

**Sum and Store Key** — Instructs the calculator to algebraically add the displayed number to the number in the memory, and to store the sum in the memory. The use of this key does not affect the displayed quantity nor the previously processed data.

**YOUR COST FROM US** **\$74<sup>95</sup>**

**Accuracy** — Calculates answers to 13 significant digits and displays answers rounded off to 10 significant digits. For maximum accuracy, the SR-50A uses all 13 significant digits for subsequent calculations.

**Versatility** — Performs simple arithmetic, reciprocals, factorials, exponentiation, roots, trigonometric and logarithmic functions, all in full floating decimal point or in scientific notation.

**Scientific Notation** — Computes and displays numbers as large as  $\pm 9.99999999 \times 10^{99}$  and as small as  $\pm 1.000000000 \times 10^{-99}$ . Automatically converts answers to scientific notation — a number (mantissa) times 10 raised to a power (exponent) — when the calculated answer is greater than  $10^{10}$  or less than  $10^{-10}$ .

**Ease of Operation** — Operations are performed in the same order as the problem is stated. For simple arithmetic operations, numbers and functions are entered in the same sequence that they are written on paper. The value of  $\pi$  (pi) is entered to 13 significant digits by pressing a single key. Automatic clearing is included; no need to use clear key between problems.

**Fully Portable** — Extremely lightweight. Battery or AC operated.

**Long Life** — Solid state components, integrated circuits, and light emitting diode displays provide dependable operation and long life.

**Battery Pack** — The SR-50A comes complete with a fast-charge rechargeable battery pack. Under normal use, the battery pack will provide 4 to 6 hours of operation without recharging. About 3 hours of recharging will restore full charge.

**AC Adapter/Charger** — Battery pack recharge or direct operation from standard voltage outlets is easily accomplished with the AC Adapter/Charger included with the SR-50A. With the AC Adapter/Charger plugged into an outlet and the attached cord plugged into the calculator, the SR-50A can be recharged or operated indefinitely.

Do not attempt to operate the SR-50A with the charger plugged in unless battery pack is in place.

# Texas Instruments

## electronic slide rule calculator

### SR-51A

## super slide-rule calculator from Texas Instruments



**Simple Arithmetic** — Addition, subtraction, multiplication and division problems may be entered in algebraic format with sum-of-products capability without using memories.

**Functions of x** — Square, Square Root, Reciprocal,  $y^x$  and  $\sqrt[x]{y}$  calculations easily solved.

**Constant Calculations** — Repetitive calculations are possible with up to two constants, two function entries and one variable.

**Percentages** — Percent and percent-change ( $\Delta\%$ ) keys simplify many business problems.

**Logarithmic Functions** — Common and natural logarithms and their inverses may be obtained to ten significant digits.

**Trigonometric Functions** — Sine, cosine, and tangent and their inverses solved in degrees or radians.

**Suggested Retail Price \$149.95**

**YOUR COST FROM US**

**\$114<sup>95</sup>**

**Hyperbolic Functions** — Hyperbolic sine, hyperbolic cosine, and hyperbolic tangent and their inverses.

**Three Memories** — Memory functions include storing, recalling, summation and multiplication independent of arithmetic keys.

**Linear Regression** — Least-squares linear regression problems performed with two-dimensional random variables.

**Statistical Functions** — Factorials, random numbers, permutations, mean, variance and standard deviation solutions provided with simple key entries.

**20 Conversions** — By entering simple 2-digit code, 17 basic conversions and their inverses are available, plus Degrees-Minutes-Seconds/Decimal Degrees, Voltage Ratio/Decibels, and Polar/Rectangular Conversions and their inverses.

**Fixed or Floating Decimal Option** — Results may be displayed with full floating decimal or fixed decimal from zero to eight places. Scientific notation usable with either decimal option.

## Accuracy to 13 digits, display rounded to 10 digits

In addition to power-on indication and numerical information, the display provides indication of a negative number, decimal point, overflow, underflow and error.

**Minus Sign** — Appears to the left of the 10-digit mantissa to indicate negative numbers, and appears to the left of the exponent (right of mantissa) to indicate negative exponents.

**Decimal Point** — Automatically assumed to be to the right of any number entered unless positioned in another sequence with the **□** key. When entering numbers, the decimal will not appear until **□** is pressed.



**Overflow Indication** — The largest number that can be entered in the calculator is  $\pm 9.99999999 \times 10^{99}$  without an overflow when a function key is pressed. If a calculation result is larger

than this value, the calculator display will flash 9.99999999 99 or -9.99999999 99.

**Underflow indication** — If a number closer to zero than  $\pm 1. \times 10^{-99}$  is entered in the calculator, the calculator will flash 1. -99 or -1. -99 when a function key is pressed. If a calculation result is closer to zero than  $\pm 1. \times 10^{-99}$  the calculator will flash 1. -99 or -1. -99.



# Texas Instruments

## electronic slide rule calculator

# SR-51A

**On/Off Switch**—Located on the top right, front surface of the calculator. The power-on condition is indicated by a number in the display.

### Data Entry Keys

**0** through **9** —Enter numbers 0 through 9.  
**.** —Enters a decimal point.  
 **$\pi$**  —Enters the value of  $\pi$  to 13 significant digits. Display rounded to 10 digits.  
 **$\pm/\mp$**  —Changes sign of displayed number when used with mantissa entry. Changes sign of the exponent when pressed after **EE**.  
 **$\leftrightarrow$**  —Exchanges contents of X and Y registers. Used to enter dual arguments for polar-rectangular conversions, decibel conversions and permutations.

### Second Function Key

**2nd** —Instructs calculator to perform second function. Cancels second function instruction when pressed twice in succession.  
 First function operations are indicated by **[ ]**.  
 Second function operations are indicated by **2nd [ ]**.

### Clear Keys

**CE** —Clears last numeric entry made with **0** - **9** keys in combination with **.**,  **$\pm/\mp$**  or **EE** keys.  
**C** —Clears current calculation in progress and the display. Contents of memories or location of fixed decimal point are not affected.  
**2nd CD** —Clears display only.  
**2nd CM** —Clears data in all three memories.  
**2nd CA** —Clears all calculator registers, operations and memories.

### Inverse Function Key

**INV** —Used prior to Trigonometric and Hyperbolic functions to calculate inverse functions. Used with list of 20 conversions to reverse order of conversion. Cancels inverse instruction when pressed twice in succession.

### Scientific Notation

**EE** —Instructs calculator to enter the next entry as an exponent of 10. All further results will be displayed in scientific notation until the **C**, **2nd CA**, or **2nd EE** keys are pressed.  
**2nd EE** —Removes display and calculations from scientific notation when absolute value of exponent is less than 10.

### Memory Keys

The SR-51 has three user accessible memories. Memory related commands are followed by the memory address n (1, 2 or 3).

**STO** n —Stores display into memory n.  
**RCL** n —Displays data stored in memory n.  
**SUM** n —Algebraically sums display to contents of memory n. Stores result in memory n.  
**2nd PRD** n —Multiplies contents of memory n by number displayed. Stores result in memory n.  
**2nd EXC** n —Exchanges contents of memory n with the display.

### Functions of X

**$x^2$**  —Squares the number displayed.  
 **$\sqrt{x}$**  —Takes the square root of the number displayed.  $x \geq 0$ .  
 **$1/x$**  —Finds the reciprocal of the number displayed.  
 **$y \sqrt[x]{x}$**  —Finds the xth root of y.  $y \geq 0$ .  
 **$y x^x$**  —Raises y to the power x.  $y \geq 0$ .

### Logarithmic Functions:

**lnx** —Calculates the natural logarithm of the number displayed.  $x \geq 0$ .  
 **$e^x$**  —Raises e to the power shown in display.  
**2nd log** —Calculates the common logarithm of the number displayed.  $x \geq 0$ .  
**2nd 10<sup>x</sup>** —Calculates the common antilogarithm of the number displayed.

### Fixing the Decimal Point

Calculated results may be displayed with 0 to 8 decimal places. Calculator continues to calculate to 13 decimal place accuracy internally.

**2nd FIX** n —Fixes decimal point in calculated results at n decimal places. Fixed point 9 is interpreted as floating point. **2nd CL** restores calculator to floating point.

### Percentages

**%** —Converts displayed number from a percentage to a decimal.  
**+ n %** —Adds n% to number displayed.  
**- n %** —Subtracts n% from number displayed.  
 **$\times$  n %** —Multiplies number in display times n%.  
 **$\div$  n %** —Divides number in display by n%.  
 **$x_1$  2nd  $\Delta\%$   $x_2$**  —Calculates the percentage change between  $x_1$  and  $x_2$  defined as  $\frac{x_2 - x_1}{x_1} \times 100$ .

### Basic Conversions (Codes 00 through 16)

**n 2nd code** —Converts n number of units in left column to units in center column of table 1.

**n INV 2nd code** —Converts n number of units in center column to units in left column of table 1.

TABLE 1  
Conversion Codes

FROM	TO	CODE
mils	microns	00
inches	centimeters	01
feet	meters	02
yards	meters	03
miles	kilometers	04
nautical miles	nautical miles	05
acres	square feet	06
fluid ounces	cubic centimeters	07
fluid ounces	liters	08
gallons	liters	09
ounces	grams	10
pounds	kilograms	11
short ton	metric ton	12
BTU	calories, gram	13
degrees	grads	14
degrees	radians	15
°Fahrenheit	°Centigrade	16
deg. min. sec.	decimal degrees	17
polar	rectangular	18
voltage ratio	decibels	19

### Degrees-Minutes-Seconds/Decimal Degrees Conversions (Code 17)

The format for entering degrees, minutes and seconds is dd. mmss.

dd —Enter number of degrees. —Enter **[ ]**.

mm —Enter two digit minutes (00-59).

ss —Enter two digit seconds and decimal fractions of seconds.

dd.mmss **2nd 17** —Converts degrees, minutes and seconds to decimal degrees.

**n INV 2nd 17** —Converts n number of decimal degrees to degrees, minutes and seconds.

### Polar/Rectangular Conversions (Code 18)

The reference system used for polar/rectangular conversions is as shown:

Position the D/R switch to the angular units desired for both entry and retrieval.

**r  $\leftrightarrow$   $\theta$  2nd 18** —Converts polar-to-rectangular coordinates and displays  $x_2$  coordinate.  **$\leftrightarrow$**  displays  $x_1$  coordinate.

**$x_1$   $\leftrightarrow$   $x_2$  INV 2nd 18** —Converts rectangular to polar coordinates and displays angle  $\theta$ .  **$\leftrightarrow$**  displays r coordinate.



Suggested Retail  
Price \$149.95

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# Texas Instruments

## electronic slide rule calculator

# SR-51A

**sin** —Calculates the sine of the angle displayed.  
**cos** —Calculates the cosine of the angle displayed.  
**tan** —Calculates the tangent of the angle displayed.  
**INV sin** —Calculates the  $\sin^{-1}$  of the number displayed.  
**INV cos** —Calculates the  $\cos^{-1}$  of the number displayed.  
**INV tan** —Calculates the  $\tan^{-1}$  of the number displayed.

### Hyperbolic Functions

**2nd sinh** —Calculates the hyperbolic sine of the number displayed.  
**2nd cosh** —Calculates the hyperbolic cosine of the number displayed.  
**2nd tanh** —Calculates the hyperbolic tangent of the number displayed.  
**INV 2nd sinh** —Calculates  $\sinh^{-1}$  of the number displayed.  
**INV 2nd cosh** —Calculates  $\cosh^{-1}$  of the number displayed.  
**INV 2nd tanh** —Calculates  $\tanh^{-1}$  of the number displayed.

### Constant Calculations

The **CONST** key can be used to enter a number as a constant in a **+**, **-**,  **$\times$** ,  **$\div$** ,  **$y^x$** ,  **$\sqrt{x}$**  or  **$\Delta\%$**  operation. Repetitive calculations are completed by entering the variable and pressing **[ ]**.

**+ n 2nd CONST** —Adds n to each subsequent entry.  
**- n 2nd CONST** —Subtracts n from each subsequent entry.  
 **$\times$  n 2nd CONST** —Multiplies each subsequent entry by n.  
 **$\div$  n 2nd CONST** —Divides each subsequent entry by n.  
 **$y^x$  n 2nd CONST** —Raises each subsequent entry to the power n.  
 **$\sqrt{x}$  n 2nd CONST** —Takes the nth root of each subsequent entry.  
**2nd  $\Delta\%$  n CONST** —Calculates percent change between n and each subsequent entry defined as  $\frac{x - n}{n} \times 100$ .

### LINEAR REGRESSION

The SR-51 performs a least-squares linear regression on two-dimensional random variables ( $x_i, y_i$ ) from a minimum of 2 to a maximum of 99 data points.

For trend analysis, enter only the  $y_i$  values in sequence  $y_1, y_2, \dots, y_n$ . The SR-51 automatically assigns  $x_i$  the value i. The calculated expression for the linear regression curve is  $f(x) = y = mx + b$ .

**2nd x** —Enters the number displayed as the x coordinate of an (x,y) data point.

**2nd y** —Enters the number displayed as the y coordinate of an (x,y) data point. Forms closed loop on data entry. Number of data points entered thus far appears in display.

### Trigonometric Functions

Trigonometric and inverse trigonometric functions use the D/R switch mode selected when accepting an argument or returning a result. The domain of the inverse sine or cosine function is defined for  $-1 \leq y \leq 1$ .

**Deg/Rad Switch**—Located on the top left, front surface of the calculator. The calculator interprets a displayed angle as being in degrees if the switch is to the right (D) and in radians if it is to the left (R).

**READOUT:** Bright, easy to read, 14-character LED display; 10-digit mantissa plus sign, and 2-digit exponent plus sign.

**OVERFLOW, UNDERFLOW:** The display will flash on and off to indicate overflow or underflow. Also, invalid operations will cause the display to flash on and off.

**NEGATIVE SIGN:** Minus sign appears on display to indicate true value, negative or positive.

**ELECTRONICS:** Texas Instruments manufactured MOS/LSI integrated circuits and other solid state components.

**POWER:** Rechargeable battery pack that can be recharged hundreds of times. AC Adapter/Charger input 115 V/60 Hz.

**SIZE:** 5.8 x 3.2 x 1.25 inches.

**WEIGHT:** 8.3 ounces.

**2nd SLOPE** —Displays the slope, m, of the calculated linear regression curve.

**2nd INTC** —Displays the Y intercept, b, of the calculated linear regression curve.

**2nd y** —Calculates f(x) where x is the value in display and f is the linear regression curve.

**2nd x** —Calculates f<sup>-1</sup>(y) where y is the value in display and f is the linear regression curve.

### STATISTICAL FUNCTIONS

#### Factorials

**2nd x!** —Calculates the factorial of the number displayed, where  $0 \leq x \leq 69$ , and x is an integer.

#### Random Numbers

**2nd RAN#** —Generates a two-digit random number from 00 to 99. Each execution of this key sequence will produce a new two-digit random number.

#### Permutations

**n  $\leftrightarrow$  r PRM** —Determines the number of permutations of n items taken r at a time,  $0 \leq n \leq 69$ ,  $r < n$ , and r integers. This expression is defined as

$$\text{Perm} \left( \begin{matrix} n \\ r \end{matrix} \right) = \frac{n!}{(n-r)!}$$

#### Mean, Variance, Standard Deviation

To calculate the mean, variance and standard deviation of data  $x_1, x_2, \dots, x_n$ , enter  $x_1$  and press  **$\leftrightarrow$** . The number 1 will appear in the display. Continue for  $x_2, x_3, \dots, x_n$ . The numbers 2, 3, ..., n will appear in the display after each successive entry to indicate the number of data points thus far entered.

**$\leftrightarrow$**  —Enters displayed number as data point for calculation of mean, variance and standard deviation.

**2nd  $\leftrightarrow$**  —Removes displayed number as data point when calculating mean, variance and standard deviation.

**2nd MEAN** —Calculates mean defined as  $\text{Mean} = \bar{X} = \frac{\sum_{i=1}^N x_i}{N}$

**2nd S DEV** —Calculates standard deviation of sample data using N-1 weighting.

$$\text{S.Dev.} = \sqrt{\frac{\sum_{i=1}^N (x_i - \bar{X})^2}{N-1}}$$

**2nd VAR** —Calculates population variance using N weighting.

$$\text{Variance} = \frac{\sum_{i=1}^N (x_i - \bar{X})^2}{N}$$

To find the standard deviation using N weighting, press

**2nd VAR  $\sqrt{x}$** .

To find the variance using N-1 weighting, press

**2nd S DEV  $x^2$** .

#### Voltage Ratio/Decibel Conversions (Code 19)

The voltage ratio  $\frac{x_1}{x_2}$  expressed in decibels is defined as  $20 \log \frac{x_1}{x_2}$

$x_1$   **$\leftrightarrow$   $x_2$  2nd 19** —Converts voltage ratio  $\frac{x_1}{x_2}$  to decibels.

**dB INV 2nd 19** —Converts dBs to decimal equivalent of a ratio  $\frac{x_1}{x_2}$ .

YOUR COST FROM US

\$114.95

Suggested Retail Price \$149.95



# Texas Instruments

## portable electronic printing calculator

### TI-5050

A small, portable printing calculator providing fast, quiet operation and high speed features usually found only on large machines. Adds, subtracts, multiplies, divides, figures percentages automatically to simplify add-ons and discounts. Constant operation with multiplication/division and repeat add/subtract. The TI-5050 prints nine digits plus audit symbols on two-inch thermal printing paper, and it fits easily into a three-inch briefcase. Position decimal automatically at two places (add mode) or select full floating decimal. High-level buffering lets you make multiple entries while the calculator is still printing. Operates on rechargeable batteries or AC.



The TI-5050

#### OPERATING FEATURES

The TI-5050 performs chain calculations with all four functions... simply press desired function key to use any result in next problem. Repeated addition and subtraction without re-entering the number. Number entries are cleared with the  $\square$  key. A  $\square$  key (non-add) to print reference numbers. The  $\square$  key feeds extra paper for easy tearoff.

#### PERCENT

Calculations requiring percentage add-ons or discounts are easily solved with the  $\square$  key... audit symbols "A" or "D" are printed beside the respective result. The TI-5050 will also print the ratio of two numbers as a percentage when the numbers are entered as a division problem and completed with the  $\square$  key.

#### CHAIN/CONSTANT SWITCH

The Chain/Const switch permits normal chain calculations or multiplication and division by a constant without re-entering numbers.

#### F/\$ SWITCH

Choose full floating decimal (F) or add-mode (\$) operation. In add mode, the decimal is automatically positioned at two places for easy entry of dollars and cents without using  $\square$  key.

#### LARGE BOLD PRINTOUT

The TI-5050 contains the silent, electronic printer pioneered by Texas Instruments. The printer provides up to nine digits on two-inch thermal printing paper. In addition to normal audit-trail symbols, the TI-5050 prints 0.T or 0.00T each time the power switch is turned on. The letter K is printed each time the Chain/Const switch is moved to Const, and NK is printed when moved to Chain.

#### OVERFLOW INDICATION

When more than nine consecutive digits are entered, the calculator prints ENT OVF to indicate entry overflow. The  $\square$  or  $\square$  key will clear this overflow condition. If a multiplication or division result contains more than nine digits to the left of the decimal, RES OVF is printed and the overflow condition is automatically cleared. The calculator is automatically cleared when ADD OVF is printed, indicating addition overflow.

Paper Rolls for the Texas Instruments Printer Model 5050 cost you \$1.85 for 3 roll pack.

**Size:** 8.7 x 3.9 x 2.7 inches

**Weight:** 28 ounces

**Included:** Calculator with thermal paper installed, Adapter/Charger, carrying case and owner's manual.

#### SPECIFICATIONS

**Paper:** TP-20225 Thermal Printing Paper. Available where the TI-5050 is sold.

**Power Source:** Built-in rechargeable batteries. AC Adapter/Charger included which operates from 115V/60Hz.

**WARRANTY:** The Texas Instruments TI-5050 electronic printing calculator is warranted for a period of one year from the original purchase date against defective materials and workmanship to the original purchaser.

**\$119<sup>95</sup>**

YOUR COST FROM US

Suggested Retail Price \$199.95

0.00	T
1765.50	+
29.95	+
115.60	+
1911.05	S
1911.05	x
5.	%
95.55	T
2006.60	A

# Texas Instruments TI-620

Suggested Retail Price . . \$249.95

YOUR COST  
FROM US

**\$199<sup>95</sup>**



#### HIGH-LEVEL BUFFERING

The TI-620 features seven levels of keyboard buffering and one print buffer to speed data entry. Up to eight digit or function key depressions will be accepted while the calculator is still computing.

#### TWO KEY ROLLOVER

Maximum operating performance is assured by the TI-620's two key rollover system. Users can press a second key before the first is released and both entries will be accepted.

#### LARGE PLUS/EQUALS KEY

Data can be entered quickly and smoothly on the TI-620 keyboard. Users can roll fingers comfortably from the digit keys back and forth to the large plus/equals key. And the convenient location of the smaller minus/equals key at the top of the keyboard prevents accidental depressions.

#### REPEAT ADD OR SUBTRACT

The TI-620 permits multiple additions or subtractions of the last number entered simply by pressing the  $\square$  or  $\square$  key repeatedly. Saves time—eliminates re-entry errors.

#### FULL 12-DIGIT CAPACITY

Virtually any business calculation can be completed with the TI-620 because entered numbers and calculated results can contain up to 12 digits. Automatic underflow system prints most significant digits of an answer in any decimal setting. Answers must exceed 999,999,999,999 before overflow occurs.

#### FLOATING OR FIXED DECIMAL

Users can select decimal settings according to the accuracy required for each problem. Answers may appear with 0, 1, 2, 4, or 6 digits to the right of the decimal, or full floating decimal may be selected allowing up to 11 decimal places to be printed.

#### CONVENIENT ADD MODE

The TI-620 operates like an adding machine when the Add Mode switch is set at "A". In this position the decimal point is automatically positioned two places to the left of the last entered digit for convenient entry of dollars-and-cents figures. No need to touch the  $\square$  key during each entry.

#### VERSATILE PERFORMANCE

The TI-620 is a versatile printing calculator designed to simplify business computations, reduce costly mistakes and provide an easy-to-read, printed record of your calculations. It will add, subtract, multiply and divide as well as figure percentages and multiply or divide by a constant. The TI-620 is packed with calculating power to speed and simplify any business problem, from simple subtotals and totals to chain discounts, depreciation costs, proration problems and much more.

#### BOLD PRINTOUT

Up to 12 digits plus corresponding audit trail symbols can be printed on the standard printing tape included with the TI-620. The true credit balance feature allows the exact result of a series of additions and/or subtractions to be printed. Entries and results appear with comma punctuation and negative numbers are printed in red to insure easy readability.

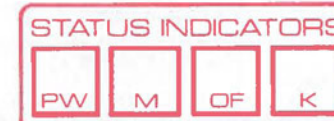
1,234,567.9	x
45.	=
55,555,555.00	T
8.52	÷
63.75	R
8.52	=
7.48	M-
1,258.65	x
5.%	=
62.93	T
62.93	M+
563.	x
4.25	=
2,392.75	T
2,392.75	M+
5,678,123.89	M+
5,675,786.59	M-

#### CONVENIENT MEMORY SYSTEM

Four memory keys provide capability for processing and recalling numbers in memory. Calculation results or entered numbers can be added to or subtracted from the contents of the memory and the resultant total can be recalled later. A convenient Sum to Memory switch allows results of addition, subtraction, multiplication and division calculations to be accumulated in memory automatically if desired.

#### AUTOMATIC STATUS INDICATORS

Solid-state light-emitting diodes located above the keyboard light up automatically when the power is turned on, when an entry or calculation overflow occurs, when the calculator is operating in the constant mode, and when numbers are stored in memory.





**SHARP**

One year Guaranty by SHARP ELECTRONICS.

MODEL NO.	MODEL DESCRIPTION	MODEL NO.	MODEL DESCRIPTION
<b>CALCULATORS</b>		<b>CALCULATORS</b>	
EL-8009	<b>COMPACT</b> <ul style="list-style-type: none"> <li>8 digit Liquid Crystal Display</li> <li>Compact design</li> <li>Constant multiplication and division</li> <li>Convenient dual entry/clear key</li> <li>Reciprocal calculation</li> <li>Power calculation</li> <li>Tax discount calculation</li> <li>Power: Two (2) silver oxide batteries included</li> <li>Dimensions:               <ul style="list-style-type: none"> <li>Folded: - 3/4" (thickness) x 3" (W) x 2-3/4" (D)</li> <li>Opened: - 3/8" (thickness) x 3" (W) x 5-1/2" (D)</li> </ul> </li> <li>Weight: Approximately 1/4 lb. with batteries</li> </ul> <b>Your Cost \$37.95</b>	EL-8114	<b>MEMORY-SQUARE ROOT</b> <ul style="list-style-type: none"> <li>8 digit capacity</li> <li>% key/Automatic mark-ups and discounts</li> <li>Square root key</li> <li>Built-in rechargeability</li> <li>Full memory</li> <li>Sign change key</li> <li>Power: Three (3) penlight batteries included</li> <li>AC/adaptor optional</li> <li>Size: 3-3/16" x 1" x 5-3/8"</li> </ul> <b>Your Cost \$21.95</b>
CTN. Unit/Weight 10/4 lbs.		CTN. Unit/Weight 10/7 lbs.	
EL-8010	<b>THIN MAN</b> <ul style="list-style-type: none"> <li>8 digit Liquid Crystal Display</li> <li>Thin-slim personal calculator</li> <li>Built-in rechargeability</li> <li>% key/automatic mark-ups and discounts</li> <li>Sign change key</li> <li>Reciprocal calculation</li> <li>Power: Two (2) Ni-Cad rechargeable batteries incld</li> <li>Dimensions: 3/8" (thickness) x 3" (W) x 5" (D)</li> <li>Weight: Approximately 1/4 lb. (without pocket secretary carrying case)</li> <li>Accessories: AC adapter/charger included. Pocket secretary carrying case</li> </ul> <b>Your Cost \$29.95</b>	PC-1802	<b>BASIC SCIENTIFIC CALCULATOR</b> <ul style="list-style-type: none"> <li>Trig-Inverse Functions</li> <li>Memory</li> <li>Sign Change key</li> <li>Reciprocal calculations</li> <li>Exponential functions</li> <li>Square roots</li> <li>8 Digit capacity</li> <li>Basic scientific calculator</li> <li>AC adapter included</li> <li>Power: Five penlight batteries included</li> <li>Size: 3-1/2" x 5-7/8" x 1-7/16"</li> </ul> <b>Your Cost \$44.95</b>
CTN. Unit/Weight 10/8 lbs.		CTN. Unit/Weight 6/11 lbs.	
EL-8005	<b>BASIC FIVE (5) FUNCTION(%)</b> <ul style="list-style-type: none"> <li>8 Digit capacity</li> <li>Constant Multiplication and division</li> <li>Clear key &amp; clear entry key</li> <li>Power calculation</li> <li>Percent key</li> <li>Floating decimal point</li> <li>Mixed calculations</li> <li>AC Adapter optional</li> <li>Power: Four (4) penlight batteries included</li> <li>Size: 3-7/16" x 1" x 5-7/16"</li> </ul> <b>Your Cost \$15.95</b>	EL-8109	<b>BASIC SCIENTIFIC CALCULATOR</b> <ul style="list-style-type: none"> <li>8 digit capacity</li> <li>Full memory</li> <li>Square root key</li> <li>Built-in rechargeability</li> <li>X to Y power calculation</li> <li>Log - Trig - Inverse functions</li> <li>Radians/Degree conversion</li> <li>DEG-RAD mode selector</li> <li>AC adapter/Charger included</li> <li>Power: Three (3) penlight batteries included</li> <li>Size: 3-1/4" x 1-1/16" x 5-3/8"</li> </ul> <b>Your Cost \$37.95</b>
CTN. Unit/Weight 20/16 lbs.		CTN. Unit/Weight 10/8 lbs.	
EL-8011	<b>FIVE (5) FUNCTION (% V) RECHARGEABLE CAPABILITY</b> <ul style="list-style-type: none"> <li>8 digit capacity</li> <li>% key/automatic mark-ups and discounts</li> <li>Square root key</li> <li>Built-in rechargeability</li> <li>Power: Four (4) penlight batteries included</li> <li>AC/adaptor optional</li> <li>Size: 3-3/16" x 1" x 5-3/8"</li> </ul> <b>Your Cost \$17.95</b>	EL-1100	<b>ADVANCED SCIENTIFIC CALCULATOR</b> <ul style="list-style-type: none"> <li>10 + 2 digit readout</li> <li>Scientific notation</li> <li>Log - Trig - Inverse functions</li> <li>Exponential function</li> <li>Built-in rechargeability</li> <li>% key/automatic mark-ups and discounts</li> <li>Full memory</li> <li>Square root key</li> <li>Constant + - x ÷</li> <li>Power: Four (4) Ni-Cad rechargeable battery included - AC/Adapter included</li> <li>Size: 3-1/2" x 1-7/16" x 5-7/8"</li> </ul> <b>Your Cost \$84.95</b>
CTN. Unit/Weight 10/7 lbs.		CTN. Unit/Weight 10/8 lbs.	
EL-8106B	<b>MEMORY-PERCENT</b> <ul style="list-style-type: none"> <li>8 Digit capacity</li> <li>Automatic percentage calculation</li> <li>Floating decimal</li> <li>Memory register</li> <li>Chain multiplication and division</li> <li>Reciprocals</li> <li>Sign changing capacity</li> <li>AC/adaptor optional</li> <li>Power: Three (3) penlight batteries included</li> <li>Size: 3-1/2" x 5-5/8" x 1-5/8"</li> </ul> <b>Your Cost \$22.95</b>	EL-8200	<b>FINANCIAL AND BANKING CALCULATOR</b> <ul style="list-style-type: none"> <li>8 digit capacity</li> <li>Financial and banking functions</li> <li>Two (2) memories</li> <li>Square root key</li> <li>Constant + - x -</li> <li>Repeat addition and subtraction</li> <li>Line regression</li> <li>Mean/data number/ standard deviation</li> <li>Decimal position selecting function</li> <li>Power: Five (5) penlight batteries included</li> <li>AC adapter/charger included</li> <li>Size: 3-1/2" x 1-1/4" x 5-3/4"</li> </ul> <b>Your Cost \$74.95</b>
CTN. Unit/Weight 10/10 lbs.		CTN. Unit/Weight 10/14 lbs.	
EL-8107	<b>MEMORY-SQUARE ROOT</b> <ul style="list-style-type: none"> <li>Square root capability</li> <li>Automatic percentage calculation</li> <li>Floating decimal</li> <li>Memory register</li> <li>Chain multiplication and division</li> <li>Reciprocals</li> <li>Sign changing capacity</li> <li>8 Digit capacity</li> <li>AC Adapter included</li> <li>Power: Three (3) penlight batteries included</li> <li>Size: 3-1/2" x 5-5/8" x 1-5/8"</li> </ul> <b>Your Cost \$32.95</b>	EL-8300	<b>METRIC CONVERTER</b> <ul style="list-style-type: none"> <li>8 digit capacity</li> <li>Unit conversion calculation</li> <li>Constant + - x ÷</li> <li>Square calculations</li> <li>Tax discount calculation</li> <li>Repeat addition and subtraction</li> <li>Complete sign logic</li> <li>Power: Five (5) penlight batteries included</li> <li>AC adapter included</li> <li>Size: 3-1/2" x 1-1/4" x 5-3/4"</li> </ul> <b>Your Cost \$59.95</b>
CTN. Unit/Weight 10/14 lbs.		CTN. Unit/Weight 10/14 lbs.	

AC adapters for EL - 8005 - 8011 - 8114 - 8106B Your Cost \$5.95

# Texas Instruments

## electronic calculator with memory

## electronic calculators

**TI-1250**

YOUR COST

**\$19<sup>95</sup>** each

(Minimum order 2 units)

ac adapter — optional 5.95

**The TI-1250**

A lightweight and economical calculator offering a full function memory system that features add to memory  $M+$ , subtract from memory  $M-$ , memory recall  $MR$ , and memory clear  $MC$  keys. Five-function capability includes addition, subtraction, multiplication, division, and a percent key for calculating percentages, taxes, discounts. Change-sign key for entering negative numbers. Automatic constant eliminates reentering the same number for repetitive calculations. Full floating decimal, 8-digit display. Operates on replaceable battery or AC (adapter available as an optional accessory).



YOUR COST FROM US

**\$15<sup>95</sup>** each

(Minimum order 2 units)

● ac adapter — optional 5.95

An affordable calculator you can carry in your pocket, briefcase, or purse, styled to be used comfortably in your hand or at your desk. Adds, subtracts, multiplies, divides, and figures percentages instantly and accurately. Other features include automatic constant, full floating decimal, 8-digit display. Operates on replaceable battery or AC (adapter available as an optional accessory).

## electronic slide rule calculator

**SR-16**

YOUR COST FROM US

**\$53<sup>95</sup>****The SR-16**

A multi-function scientific calculator that solves simple arithmetic as well as complex, technical problems. Independent memory operation permits solving calculations such as sum-of-products or quotient-of-sums without reentering intermediate results or rewriting the problems for sequential operation.

Operation of special function keys: square roots, squares, reciprocals, raising a displayed number or  $e$  to a power ( $y^x$ ,  $e^x$ ),  $10^x$ , logs, and natural logs is simple and direct in that all keys are single function and operate only on the displayed number.

Calculations are displayed to 8 places except logarithms and  $y^x$ , which are displayed to 6 places. The SR-16 will display numbers as large as  $\pm 9.9999999 \times 10^{99}$  and as small as  $\pm 1.0 \times 10^{-99}$  (answers greater than  $10^8$  or less than  $10^{-7}$  are automatically converted to scientific notation). Operates on rechargeable batteries or AC.



# Texas Instruments

## electronic calculator



The TI-3500

YOUR COST FROM US

**\$49<sup>95</sup>**

A quality calculator with attractive styling and compact design takes minimum desk-top space or fits in a briefcase. Add, subtract, multiply, and divide instantly and accurately by entering the numbers and functions in standard business machine sequence. Constant mode for multiplication or division by the same number without reentering. The decimal position switch selects floating decimal or presets at two (2) or four (4) places. The large, 10-digit display is clearly visible, ideal for long periods of office use. AC operation through detachable plug-in cord.

### TI-2500-2

Completely portable, the Datamath-II (TI-2500-II) adds, subtracts, multiplies, divides, and features a percent key for easy calculation of percentage problems. Other time-saving features include automatic constant in the four basic functions, repeat addition or subtraction, and full floating decimal. The 8-digit display is precisely tilted to be clearly visible from either desk-top or hand-held operation. Operates on rechargeable batteries, replaceable batteries, or AC adapter/charger.

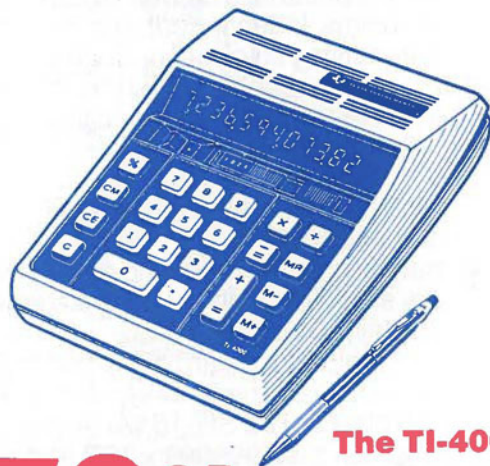
**\$35<sup>95</sup>**

YOUR COST FROM US



The Datamath-II

A versatile, quality calculator can increase calculating efficiency in the office or at home with silent effortless operation. The TI-4000 adds, subtracts, multiplies, divides, and features a memory to store and recall numbers. Subtotals may be added to or subtracted from the memory by using the convenient  $M+$  or  $M-$  keys.  $MR$  key recalls from memory;  $CM$  key clears memory. Taxes, discounts, ratios expressed as percentages, mark-ups, mark-downs, and other percentage problems can be easily solved by using the  $\%$  key. Constant switch lets you select constant mode for multiplication or division by the same number without reentering. Decimal selector switch positions decimal at full floating or presets at zero (0), two (2), or four (4) places. Large, 12-digit display (with comma punctuation) for easy readability. Operates directly from household current through detachable plug-in cord.



The TI-4000

**\$79<sup>95</sup>**

YOUR COST FROM US

# Texas Instruments

## electronic calculator with memory

### TI-2550



YOUR COST FROM US

**\$43<sup>95</sup>**

The TI-2550

Easy to read and use, the TI-2550 fits right in the palm of your hand for convenient portability wherever you go. Full function memory system features add to memory  $M+$ , subtract from memory  $M-$ , memory recall  $MR$ , and clear memory  $CM$ . Addition, subtraction, multiplication, and division problems are solved instantly by simply pressing the keys as the problem is written. Percent key allows easy figuring of taxes, discounts, and other percentage problems. Fixed or floating decimal, 8-digit display. Automatic constant permits repetitive calculation without reentering the constant number. Operates on rechargeable batteries, replaceable batteries, or AC adapter/charger.

## electronic calculator

### TI-1500



**\$35<sup>95</sup>**

YOUR COST FROM US

The TI-1500

A smartly styled unit featuring four-function capability plus percent key, full floating decimal, automatic constant in all four functions, and an easy-to-read 8-digit display — powerful performance in a compact portable that fits easily into your pocket or purse. Convenient non-skid base assures stable desk-top use, eliminates sliding when you press the keys. Precisely designed keyboard is arranged for simplicity of operation. Even complex problems can be solved easily by pressing the keys just as the problem is written. Operates on rechargeable batteries or AC.

### SR-16-II

YOUR COST FROM US

**\$43<sup>95</sup>**

#### EASY, ACCURATE OPERATION

SR-16-II memory keys can be used in solving complex calculations such as sum-of-products or quotient-of-sums without reentering intermediate results or rewriting the problems for sequential operation. All answers are calculated with ten digits and rounded to eight digits for display. The two non-displayed digits act as guard digits to increase display accuracy. Operation of keys is simple and direct — all special-function and arithmetic keys complete any previously entered arithmetic or  $y^x$  function. And, numbers can be entered in full floating decimal, scientific notation, or any combination of the two.

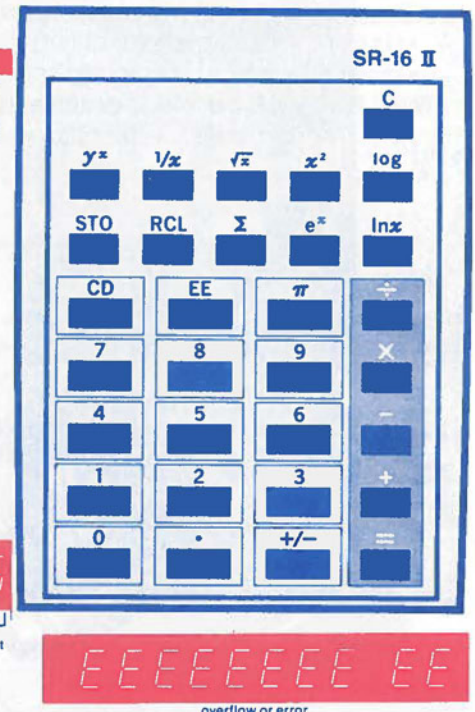
#### KEYBOARD

The keyboard consists of 10 digit keys, a decimal key, 16 function keys and three memory keys. Slide-rule functions include reciprocals  $1/x$ , squares  $x^2$ , square roots  $\sqrt{x}$ , raising a displayed number to a power  $y^x$ , logs  $\log$ , raising e to a power  $e^x$ , natural logs  $\ln x$  and  $\pi$  for entering value of Pi rounded to eight places. All function keys will complete intermediate calculations, while the  $\square$  key will display final results and clear the calculator for the next problem. All keys are single function for simple entry of long or complex calculations.



#### OPTIONAL AC ADAPTER \$5.95

Model AC 9180 Adapter is available as an optional accessory for operating the SR-16-II from standard 115 Vac/60 Hz electrical outlets — particularly convenient for desk-top use to save disposable battery power.





MODEL	SPECIFICATIONS	RETAIL PRICES	YOUR COST FROM US
6030	The STATISTICIAN, 8 LED digit, commercial logic, preprogrammed statistical functions, MEAN and STANDARD DEVIATION, coefficient of correlation and regression line $y$ , intercept, single key summation of $x$ , and $x$ squares and $n$ , full accum. MEMORY, live % key, square, square roots, and change sign key, with 9 volt battery and vinyl case.	\$99.95	\$79.95
6035	The STATISTICIAN PROGRAMMABLE, identical to the model 6030 plus 100 step "learn mode" key programming a great unit, rechargeable Includes ni-cad batteries and charger	149.95	119.95
6020	The FINANCIER, 8 digit LED display, commercial logic, with pre-programmed business/financial functions, present or future of value of compound interest, future value of payment on savings, present value of payment on loans, full accu., MEMORY, amount of percent, change, sum of digits depreciation. . . live % key with add on or discount and net percent interest, number of period, exchange key, sign key auto, calculation of power and roots, Incl. 9 volt battery.	99.95	69.95
6025	The FINANCIER, PROGRAMMABLE, identical to the model 6020 plus 100 step "Learn mode" keyboard programming, rechargeable. Incl. ni-cad batt and charger	149.95	119.95
6010	INTERNATIONAL COMPUTER, 8 digit LED display, commercial logic, with more than 65 pre-programmed weight and measurement conversions. Full accu. MEMORY, live % key with add on or discount and net, square and cubic measurement conversions, auto. constants, auto round off and two decimal places, low batt. ind. ind. 9 volt battery and vinyl case.	99.95	49.95
4520	The SCIENTIST, 8 Digits, LED display, slide rule with Scientific notations, Arithmetic, Trigonometric and Logarithmic functions. RPN logic with rollable 4 level stack, FI, dec, Storage MEMORY, Pi, Square root, reciprocal, exchange and sign keys, low battery ind. 9 Volt battery, vinyl case.	99.95	69.95
4525	The SCIENTIST PROGRAMMABLE. . . Same functions as the 4520 plus 100-step "learn mode" keyboard programming. . . Including charger and ni cad batteries, vinyl case	169.95	107.95
4510	The MATHEMATICIAN, 8 digit LED display, with arithmetic, trig and log. functions, RNP logic with 3 level stack FI, dec, full accu. MEMORY, degrees/radians conversions, Pi, Square root, reciprocal, exch and sign keys, 9 volt batteries.	69.95	42.95
4515	The MATHEMATICIAN PROGRAMMABLE, same functions as the model 4510 plus 10 100 step "Learn mode" keyboard programming cap. Rechargeable incl. charger and nic ad	139.95	84.95
824 T	8 digit LED, comm. logic, acc Memory, live %, floating decimal change and sign keys, including 9 volt NI-Cad battery	49.95	34.94
824 R	Same as the model 824 T but rechargeable including charger, ni cad batteries and vinyl case	59.95	41.95
822 M	8 digit, alg. logic, const, % key, Memory, squaring	24.94	19.95
822	8 Digit, alg logic, Const. % key, auto squaring	19.95	17.95

ONE YEAR WARRANTY BY NOVUS ON PARTS AND LABOR



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**The Professionals.  
Quicker, more accurate answers  
at a price never before possible.**

Of all the electronic calculators available, only a few have the performance preferred by most professional engineers and scientists. And of those few, only the Novus Scientist is priced within the means of all serious users, professionals and students alike.

In addition to numerous pre-programmed arithmetic, trigonometric and logarithmic functions, the Novus Scientists feature a rollable 4-level stack, coupled with RPN (Reverse Polish Notation), for efficient evaluation of all mathematical expressions.

Check these important performance features:

- RPN logic with "built-in" hierarchy for increased accuracy and speed in calculating sequences involving arithmetic, trigonometric, logarithmic, power or exponential functions.
- A rollable 4-level stack lets you review or use intermediate solutions.
- Eight-digit plus 2-digit exponent LED display with full-floating decimal system.
- Scientific notation for increased mathematical capacity.
- Sine, cosine, tangent and inverse trigonometric functions.
- Common and natural logarithms and antilogarithms.
- Instant automatic calculation of powers and roots.
- Single-key square root calculations.
- Single-key Pi entry.
- Separate memory.
- Square, square root and reciprocal calculations.

- Change sign and register exchange keys.
- Unique battery-saver display which automatically shuts off 30 seconds after last calculation without affecting register contents.
- Indicator light for low battery condition.
- MOS/LSI solid-state circuitry.
- Engineered and manufactured by National Semiconductor Corporation, a world leader in solid-state technology.

#### Calculating efficiency.

Because of its advanced solid-state technology, the Novus Scientist gets you to important mathematical solutions faster. Between 5 and 10 times faster than a mechanical slide rule. But even more important than speed is calculating accuracy. The Novus Scientist displays up to eight significant decimal digits, with a two-digit exponent for scientific notation.

#### All the functions you need most.

The Novus Scientist is a true slide rule, with all the functions you need for performing sophisticated problems. Unlike some limited-function machines, you don't need a standby mechanical slide rule to get you through calculating bottlenecks.

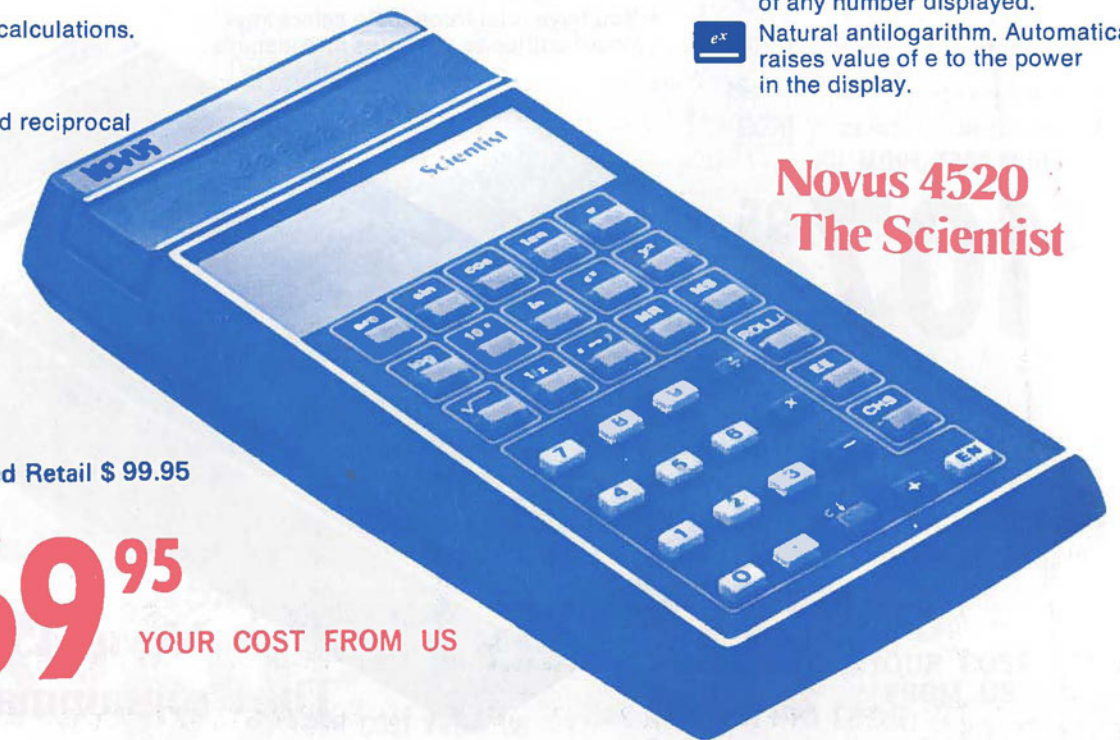
- Arithmetic: Add, subtract, multiply, divide, square root and chain calculations.

- Trigonometric:  $\sin x$ ,  $\cos x$ ,  $\tan x$ ,  $\arcsin x$ ,  $\arccos x$ , and  $\arctan x$ .
- Logarithmic:  $\log_{10} x$ ,  $\ln x$ ,  $e^x$ , and  $10^x$ .
- Other functions:  $y^x$ ,  $1/x$ , change sign and memory.

These important special functions are pre-programmed into the Novus Scientist to provide single keystroke capability. This important feature means that trigonometric and exponential value tables become unnecessary.

#### The Scientist keys and functions.

- arc** Automatically determines inverse trig functions when working with  $\sin$ ,  $\cos$  or  $\tan$ .
- sin** Sine. Automatically determines sine of displayed angle.
- cos** Cosine. Automatically determines cosine of displayed angle.
- tan** Tangent. Automatically determines tangent of displayed angle.
- $\pi$**  Pi. Automatically enters the value of Pi (3.1415926) into display.
- log** Common logarithm. Determines logarithm to the base 10 of any number displayed.
- $10^x$**  Common antilogarithm. Automatically raises 10 to the power in display.
- $\ln$**  Natural logarithm. Automatically determines logarithm to the base  $e$  of any number displayed.
- $e^x$**  Natural antilogarithm. Automatically raises value of  $e$  to the power in the display.



**Novus 4520  
The Scientist**

Suggested Retail \$ 99.95

**\$69<sup>95</sup>**

YOUR COST FROM US



# NOVUS

## The Programmable Scientist. A lot more calculating efficiency for your pocket.

- y<sup>x</sup>** y to the x power. Automatically raises any positive number to any power.
- √** Square root. Automatically determines square root of displayed number.
- 1/x** Reciprocal. Automatically determines reciprocal of any number displayed.
- x ↔ y** x y exchange.
- MR** Memory recall. Displays contents of separate memory.
- MS** Memory store. Stores displayed number in memory.
- ROLL** Rolls 4-level stack through display for either use or review of their contents.
- EE** Enter exponent. Permits entering either positive or negative exponents.
- CHS** Change sign.
- ENT** Enters number into working register for further calculations.

The addition of learn-mode programming to the already powerful Novus Scientist creates a truly innovative combination of calculating power and convenience. The Scientist's programming capability means you can virtually eliminate the possibility of errors in performing repetitious calculations. And it means you can save not just minutes, but hours of valuable time in performing sophisticated problems.

The Novus 4525 Programmable Scientist offers all the outstanding features found on the basic Scientist. But more. Its unique programming features include:

- Simplified programming. You simply engage a Learn Switch and perform a problem in normal manner. The Novus 4525 records the formula and lets you debug the program as it's written.
- The learn-mode capacity totals 100 separate steps.
- Several different programs can be contained at the same time.
- Delete feature lets you correct programs while you are writing them.
- Skip key permits skipping over entire programs to access additional programs within 100-step capacity.
- Programs remain intact until new programs are written over or until your Scientist is turned off.
- You have total freedom to select keyboard entries as variables or constants.

- Automatic warning signal in display lets you know when you exceed programming capacity.
- The Novus Programmable Scientist is rechargeable and comes complete with nickel cadmium batteries, charger and attractive vinyl carrying case.

### Novus 4520/4525 Specifications

Dimensions:	6 3/16 x 3 x 1 inches.
Electrical:	3AA Nicad's, rechargeable.
Capacity:	8 digits and 2-digit exponent.
Accuracy:	Logarithmic functions, trigonometric functions and y <sup>x</sup> : 6 digits, ±1 in the sixth digit from the left. All other functions: 8 digits.
Weight:	8 ounces.
Temperature:	Operating: 32-112°F (0-50°C).
Warranty:	One year, parts and labor.
Speed:	4520: Basic functions: All under 1 second. Scientific functions: 1.0 second typical, 2.25 seconds maximum, 0.01 second minimum. 4525: Basic functions: 1.0 second typical, 2.25 seconds maximum, 0.01 second minimum.



**Novus 4525**  
**The Programmable Scientist.**

YOUR COST FROM US  
**\$107<sup>95</sup>**

# NOVUS

## Novus 4520/4525 Problems

## The Scientist

### Example Problem for Novus 4520

**Example:** After how long a time will the charge oscillations in a LCR circuit decay to half-amplitude if  $L = 10 \text{ mh}$ ,  $C = 1.0 \mu\text{f}$  and  $R = 0.1 \text{ ohm}$ ?

The oscillation amplitude will have decreased to half when the amplitude factor  $e^{-Rt/2L}$  in the equation  $q = q_0 e^{-Rt/2L} \cos \omega t$  has the value one-half, or:  $\frac{1}{2} = e^{-Rt/2L}$ .

This leads to the equation:

$$t = \frac{2L}{R} \ln 2$$

$$= \frac{(2)(10 \times 10^{-3})(\ln 2)}{0.10}$$

KEY IN	DISPLAY SHOWS	COMMENTS
2	2	
ENT	2.	
10	10	
EE	10	
3	10 03	
CHS	10 -03	Inductance.
X	.02 -02	
2	2	
ln	0.6931475	
X	0.0138625 -02	
.10	0.10	
÷	0.1386295	Seconds to decrease to half amplitude.

### Example problem for Novus 4525

**Example:** Program the Scientist to calculate the angle of sight  $\theta$  that chemical retardant should be dropped from a fire-fighting plane to reach its target.

Using the formula:  $\theta = \tan^{-1} v_0 t / y$

Where  $\theta$  = angle of sight  
 $v_0$  = velocity of the plane  
 $y$  = altitude of the plane  
 $t$  = time of fall for the retardant.

Time of fall for the retardant can be calculated by using the formula:  $t = \sqrt{2y/g}$

Where  $g$  = force of gravity = 32 ft/sec<sup>2</sup>.

What angle of sight should the retardant be dropped at if the plane is:

1. At 12,000 feet above fire going 135 mph?
2. At 7,500 feet above fire going 150 mph?
3. At 3,250 feet above fire going 85 mph?

With the LOAD/STEP/RUN switch in the LOAD position:

KEY IN	DISPLAY SHOWS	COMMENTS
start		Clear program area and initialize new program.
2	2	This number is entered as a constant.
ENT	2.	
halt	2.	Pause to enter a variable. Any number entered after a PAUSE is treated as a variable, is not programmed in but is used in actual calculation to "debug" the program while it is being written.
12000	12000	Let's use the first problem to "debug."
MS	12000.	Store the altitude for further use.
X	24000.	

32	32	Gravity. Programmed in as a constant.
÷	750.	
√	27.386127	$t = \sqrt{2y/g}$ calculated.
halt	27.386127	Pause to enter variable.
135	135	First velocity.
ENT	135.	
5280	5280	Feet per mile.
X	712800.	
3600	3600	Seconds per hour.
÷	198.	Speeds expressed as ft/sec.
X	5422.4531	$v_0 t$
MR	12000	Recall altitude.
÷	0.451871	$v_0 t / y$
ARC tan	24.31683	First angle of sight calculated. Program is complete.

Move the LOAD/STEP/RUN switch to RUN:

KEY IN	DISPLAY SHOWS	COMMENTS
start	2.	Program starts at beginning, executes to first programmed HALT.
7500	7500.	Enter next altitude.
start	21.650635	Program executes to next HALT.
150	150	Enter next velocity.
start	32.41902	Next $\theta$ calculated. Program executes to end calculating angle of sight.
start	2.	Program starts at beginning, executes to first HALT.
3250	3250	Enter next altitude.
start	14.252192	Program executes to next HALT.
85	85	Enter next velocity.
start	28.6654	Next $\theta$ calculated.



4520

**NOVUS** \$ **69<sup>95</sup>**  
YOUR COST FROM US



4525

**\$107<sup>95</sup>**  
YOUR COST FROM US  
**PROGRAMMABLE**



# NOVUS

The Professionals.  
Fast, accurate and  
uniquely dependable.

Until now, if you wanted to go "electronic", you have had but two options. Either pay a handsome premium for a fully-featured calculator, or settle for a lower priced model with insufficient features.

The Novus Professionals offer you a whole new option. The Novus 4510 Mathematician has the features and performance of machines costing up to three times as much. Which means you can put the incredible calculating power of an electronic slide rule to work for you for approximately the price of a fine mechanical slide rule.

But there's no mechanical slide rule in the world that can match the speed, accuracy or versatility of the Novus Mathematician. Check these important performance features:

- RPN (Reverse Polish Notation) logic with "built-in" hierarchy for increased speed and accuracy in calculating sequences involving arithmetic, trigonometric, logarithmic, power or exponential functions.
- A three-level stack plus separate accumulating memory for quick, accurate solutions to complex calculations.
- Eight-digit LED display with full-floating decimal system.
- Common and natural logarithms and antilogarithms.
- Sine, cosine, tangent and inverse trigonometric functions.
- Instant automatic calculation of powers and roots.
- Instant conversions of radians to degrees or vice versa.
- Square, square root, and reciprocal calculations.
- Pi, change sign, and register exchange keys.
- Unique battery-saver display which automatically shuts off 30 seconds after last calculation without affecting register contents.

YOUR COST FROM US

**\$42<sup>95</sup>**

Suggested Retail \$69.95

- Automatic reciprocals.
- Ability to automatically sum squares.
- Storage memory.
- "Roll-down" clear.
- Indicator light for low battery condition.
- MOS/LSI solid-state circuitry.
- Engineered and manufactured by National Semiconductor Corporation, a world leader in solid-state technology.

### Calculating efficiency.

Because of its advanced solid-state technology, the Novus Mathematician gets you to important mathematical solutions faster. Between 5 and 10 times faster than a mechanical slide rule. But even more important than speed is calculating accuracy. The Novus Mathematician displays up to eight significant decimal digits. Compare that with three "approximate" digits obtainable on most mechanical slide rules.

### All the functions you need most.

The Novus Mathematician is a true slide rule, with all the functions you need for performing sophisticated problems. Unlike some limited-function machines, you don't need a standby mechanical slide rule to get you through calculating bottlenecks.

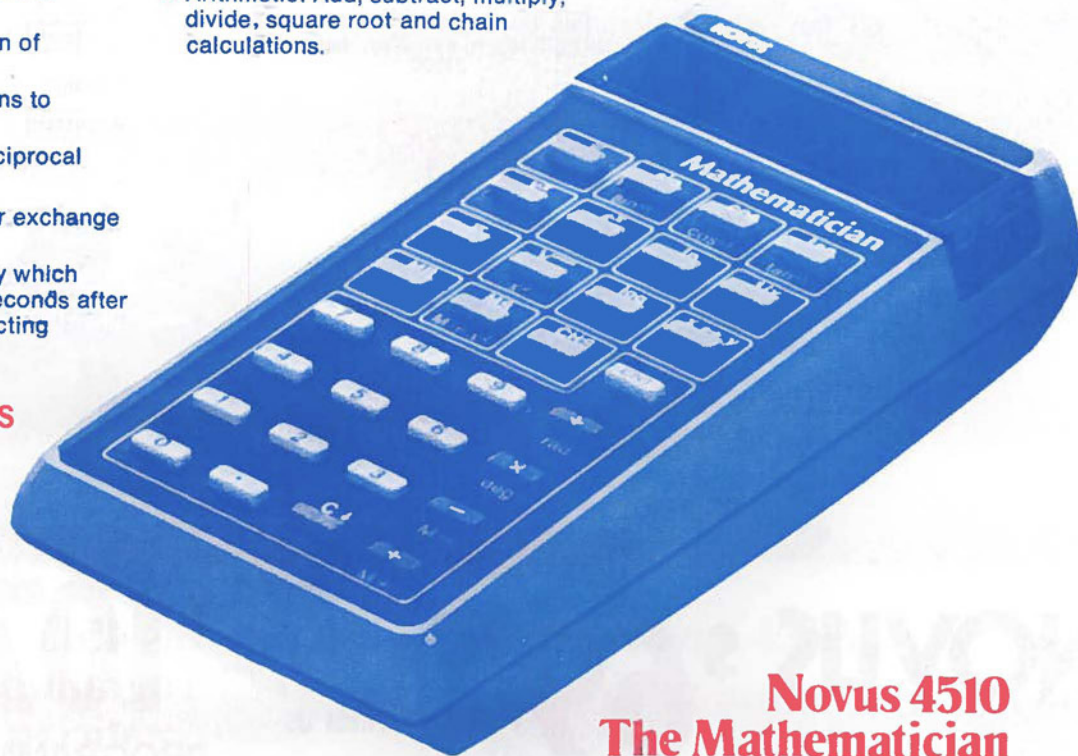
- Arithmetic: Add, subtract, multiply, divide, square root and chain calculations.

- Trigonometric:  $\sin x$ ,  $\cos x$ ,  $\tan x$ ,  $\arcsin x$ ,  $\arccos x$ , and  $\arctan x$ .
- Logarithmic:  $\log_{10} x$ ,  $\ln x$ , and  $e^x$ .
- Other functions:  $y^x$ ,  $1/x$ , radian to degree conversions and vice versa. Accumulating memory includes  $m \cdot x^2$ ,  $m \div$ ,  $m \pm$  keys.

These important special functions are pre-programmed into the Novus 4510 Mathematician to provide single keystroke capability. This important feature means that trigonometric and exponential value tables become unnecessary.

### Key descriptions and functions.

- F** Accesses double functions and automatically determines inverse trig function when working with  $\sin$ ,  $\cos$ , or  $\tan$ .
- sin** Sine. Automatically determines sine of displayed angle.
- cos** Cosine. Automatically determines cosine of displayed angle.
- tan** Tangent. Automatically determines tangent of displayed angle.
- y<sup>x</sup>** y to the x power.
- ln** Natural logarithm. Automatically determines logarithm to the base e of any number displayed.



**Novus 4510  
The Mathematician**

# NOVUS

The Programmable  
Mathematician.  
An innovation.

- e<sup>x</sup>** Natural antilogarithm. Automatically raises value of e to the power of the displayed number.
- 1/x** Reciprocal. Automatically determines reciprocal of any number displayed.
- π** Pi. Automatically enters value of Pi (3.1415926) into calculation and displays answer.
- √** Square root. Determines square or square root of any number displayed.
- log** Common logarithm. Determines logarithm to the base 10 of any number displayed.
- MR** Memory recall. Displays contents of separate accumulating memory.
- MS** Memory store/memory plus square. Stores displayed number in memory or automatically squares number displayed and adds to memory.
- CHS** Change sign.

- ENT** Enters number into working register for further calculations.
- +** Adds displayed number to contents of memory.
- Subtracts displayed number from contents of memory.
- x/deg** Converts displayed number from degrees to radians.
- ÷/rad** Converts displayed number from radians to degrees.

The addition of learn-mode programming to the already powerful Novus Mathematician creates a truly innovative combination of calculating power and convenience. The Mathematician's programming capability means you can virtually eliminate the possibility of errors in performing repetitious calculations. And it means you can save not just minutes, but hours of valuable time in performing sophisticated problems. The Novus 4515 offers all the outstanding features found on the basic Mathematician. But more. Its unique programming features include:

- Simplified programming. You simply engage a learn switch and perform a problem in normal manner. The Novus 4515 records the formula and lets you debug the program as it's written.
- The learn-mode capacity totals 100 separate steps.
- Several different programs can be contained at the same time.
- Constant factors can be entered as program steps.
- Delete feature lets you correct programs while you are writing them.
- Skip key permits skipping over entire programs to access additional programs within 100-step capacity.
- Programs remain intact until new programs are written over or until your Mathematician is turned off.
- You have total freedom to select keyboard entries as variables or constants.
- Automatic warning signal in display lets you know when you exceed programming capacity.
- The Novus Programmable Mathematician is rechargeable and comes complete with nickel cadmium batteries, charger and attractive vinyl carrying case.

### Novus 4510/4515 Specifications

- Dimensions:** Novus 4510: 6 x 2 7/8 x 1 1/2 inches.  
Novus 4515: 6 3/16 x 3 x 1 inches.
- Electrical:** Novus 4510: 9-volt or AC adapter.  
Novus 4515: 3AA Nicad's, rechargeable
- Capacity:** 8 digits.
- Accuracy:** Logarithmic functions, trigonometric functions and  $y^x$ : 6 digits,  $\pm 1$  in the sixth digit from the left. All other functions: 8 digits.
- Weight:** 8 ounces.
- Temperature:** Operating: 32-112°F (0-50°C).
- Warranty:** One year, parts and labor.
- Speed:** Basic functions:  
0.1 second minimum,  
0.5 second maximum,  
0.25 second typical.  
Transcendental functions:  
1.0 second minimum,  
4.0 seconds maximum,  
1.5 second typical.  
 $y^x$  function:  
1.0 second minimum,  
5.0 seconds maximum,  
2.0 seconds typical.

YOUR COST FROM US

**\$84<sup>95</sup>**



**Novus 4515  
The Programmable  
Mathematician.**

Suggested Retail \$139.95



# NOVUS

**The Professionals.**  
A unique combination of performance,  
quality and affordability.

The Novus 6030 is the first fully-featured pocket calculator priced within the means of all serious users, professionals and students alike. Especially dedicated to statistical problems, the Novus Statistician features pre-programmed, single-key calculations of most common statistical formulas. What this means to most users is that countless hours can be saved in performing statistical calculations. Even more important, the chances for calculating or entry errors are virtually eliminated. But more than being an extremely accurate scientific tool, Novus 6030 is a valuable business machine that offers four-function performance (addition, subtraction, multiplication, division) as well as some important extras. Like automatic square roots, a live % key with automatic add-on or discount and net, a separate accumulating memory, standard deviation,

coefficient of correlation, and regression line. Its handy business/commercial logic lets you perform addition and subtraction arithmetically (as you would on an adding machine) and multiplication and division algebraically.

Check these important performance features:

- Single-key summation of  $x$ ,  $x^2$  and  $n$ .
- Single-key calculation of mean and standard deviation.
- Single-key summation of  $x$  and  $y$  values for linear correlation and regression.
- Single-key calculation of linear correlation coefficient and slope of curve.
- Single-key calculation of  $y$ -axis intercept or any point on  $y$ -axis.
- Separate keys to remove incorrect  $x$  and  $y$  values.
- Single key to enter frequency for standard deviation of grouped data.

- Mean and standard deviation calculated without destroying summations, enabling additions or deletions.
- Single key to clear all statistical summations.
- Square, square root and change sign functions.
- Automatic constant in multiplication and division.
- Automatic repeat addition and subtraction.
- Full accumulating memory with memory-plus and equals-plus.
- Floating entries and intermediate answers.
- "Live" % key with automatic add-on or discount and net.
- Indicator light for low battery condition.
- MOS/LSI solid-state circuitry for durability and dependability.
- Bright, eight-digit LED display.
- Engineered and manufactured by National Semiconductor Corporation, a world leader in solid-state technology.

#### Calculating efficiency.

Because of its advanced solid-state technology, the Novus Statistician gets you to important statistical solutions faster. But even more important than speed is calculating accuracy. All important statistical formulas have been pre-programmed into the Novus 6030 to assure absolute accuracy. The possibility of entry errors is greatly reduced since most of the Statistician's special function keys require only single entries.

- C all** Clears all statistical summations.
- r [reg]** Linear correlation and regression.
- y val**  $y$ -intercept.
- $\bar{x}$  [σ]** Mean and standard deviation.
- Σ Y** Summation of  $y$  values.
- del Y** Delete a  $y$  value.

**6030/**

Suggested Retail 99.95

YOUR COST FROM US

**\$79<sup>95</sup>**

# NOVUS

**The Programmable Statistician.**  
After you know what it does,  
you won't believe what it costs.

- del X** Delete an  $x$  value.
- Σ X** Summation of  $x$  values.
- CHS** Change sign.
- M +** Adds displayed number to contents of memory.
- √** Square root. Automatically determines square root of displayed number.
- Freq** Enters frequency of grouped data.
- = +** Adds results of calculation to contents of memory.
- [MR] MC** Memory recall displays contents of separate accumulating memory. Memory clear function erases contents of memory.
- %** Percent key.

The addition of learn-mode programming to the already powerful Novus Statistician creates a truly innovative combination of calculating power, convenience and affordability. The Statistician's programming capability means you can virtually eliminate the possibility of errors in performing repetitious calculations. And it means you can save not just minutes, but hours of valuable time in performing sophisticated problems.

The Novus 6035 Programmable Statistician offers all the outstanding features found on the basic Statistician. But more.

Its unique programming features include:

- Simplified programming. You simply engage a Learn Switch and perform a problem in normal manner. The Novus 6035 records the formula and lets you debug the program as it's written.
- The learn-mode capacity totals 100 separate steps.
- Several different programs can be contained at the same time.
- Constant factors can be entered as program steps.

- Delete feature lets you correct programs while you are writing them.
- Skip key permits skipping over entire programs to access additional programs within 100-step capacity.
- Programs remain intact until new programs are written over or until your Statistician is turned off.
- You have total freedom to select keyboard entries as variables or constants.
- Automatic warning signal in display lets you know when you exceed programming capacity.
- The Novus Programmable Statistician is rechargeable and comes complete with nickel cadmium batteries, charger and attractive vinyl carrying case.

#### Novus 6030/6035 Specifications

Dimensions:	Novus 6030: 6 x 2 7/8 x 1 1/2 inches. Novus 6035: 6 3/16 x 3 x 1 inches.
Electrical:	Novus 6030: 9-volt or AC adapter. Novus 6035: 3AA Nicad's, rechargeable.
Capacity:	8 digits.
Accuracy:	8 digits.
Weight:	8 ounces.
Temperature:	Operating: 32-112°F (0-50°C).
Warranty:	One year, parts and labor.
Speed:	All functions: 0.01 second minimum, 2.0 seconds maximum, 0.75 second typical.

**Novus 6035**

LOW COST FROM US

**\$119<sup>95</sup>**

Suggested Retail 149.95

SUGGESTED RETAIL PRICE \$149.95



# NOVUS

**The Professionals.  
Fast, accurate  
and uniquely affordable.**

The Novus Financier might be just the biggest boon to the commercial/financial world since the invention of the calculator. The Financier is specially dedicated to solving the kinds of problems that create the biggest problems for you. Time and money problems. The Financier has been pre-programmed to solve hundreds of these problems and more. Yet the Financier is as easy to operate as any basic adding machine. And is priced considerably lower than any comparable calculator on the market.

The incredible performance features of Novus 6020 enable you to solve complicated problems such as present and future value, loan payments, amortization, annuities, sum-of-digits depreciation and much, much more. Your answers are not only instant, but extremely accurate. Check these important performance features:

- Handy Business/Commercial logic lets you do financial problems arithmetically and algebraic problems algebraically.
- Automatic constants in both multiplication and division.
- Automatic repeat addition and subtraction.
- Full accumulating memory with memory-plus and equals-plus functions.
- Automatic roundoff of answers to nearest cent (two places).

## • Floating entries and intermediate results. **Calculating efficiency.**

- "Live" percent key with automatic add-on or discount and net.
- Separate memory registers for storing amount, interest, and number-of-periods variables.
- Single-key calculation of present or future value of compound interest.
- Single-key calculation of future value or payment on savings.
- Single-key calculation of present value or payment on loans.
- Single-key calculation of sum-of-digits depreciation.
- Single-key calculation of amount and percent change, or gross profit and percent margin on retail.
- Automatic calculation of powers and roots.
- Exchange and change-sign functions.
- Unique battery-saver display which automatically shuts off 30 seconds after last calculation without affecting register contents.
- Indicator light for low battery condition.
- MOS/LSI solid-state circuitry.
- Engineered and manufactured by National Semiconductor Corporation, a world leader in solid-state technology.

Because of its advanced solid-state technology, the Novus Financier gets you to important financial solutions faster. For instance, a typical sum-of-digits depreciation schedule can be calculated on the Financier in just three key depressions. The same calculation on a conventional calculator could require dozens of entries. The time savings are obvious. And as for accuracy, you decide. On the Financier you have only three chances for entry error. On a conventional calculator you have as many chances as you do entries. And since these important special functions are pre-programmed into the Financier, you can forget about memorizing or having to look up special formulas.

## **All the keys and functions you need.**

The Financier is a true financial computer, with all the functions you need for performing daily problems, from routine to sophisticated. But the Financier's performance capabilities aren't limited to financial problem solving. The 6020 is a powerful four-function (add, subtract, multiply and divide) pocket calculator that performs chain and mixed-chain calculations.

- n** Enters number of periods (days, months, years, etc.) required in computation.
- loan PV PMT** Automatically computes present values and payment amounts on loans.



**Novus 6020  
Financier**

**\$69<sup>95</sup>**  
YOUR COST FROM US

Suggested Retail Price \$99.95

# NOVUS

**The Programmable Financier,  
Novus 6025.  
An innovation.**

- savings FV PMT** Automatically computes future value and payments of savings.
- interest FV PV** Automatically calculates present or future value of compound interest.
- amt** Separate storage memory for amount.
- %i** Interest rate per period.
- PWR** Performs power and root functions.
- SOD** Automatically computes sum-of-digits calculations.
- CHS** Change sign.
- M+** Adds displayed number to contents of memory.
- EX** Exchange key, automatically exchanges divisor/dividend, and multiplier/multiplicand.
- Δ%** Actual differences and percentage differences between two amounts.
- =+** Adds calculated results to contents of memory.
- MR/MC** Memory recall and memory clear.
- %** "Live" percent key with automatic add-on or discount and net.

The addition of learn-mode programming to the already powerful Novus Financier creates a truly innovative combination of calculating power and convenience. The Financier's programming capability means you can virtually eliminate the possibility of errors in performing repetitious calculations. And it means you can save not just minutes, but hours of valuable time in performing sophisticated problems.

The Novus 6025 offers all the outstanding features found on the basic Financier. But more. Its unique programming features include:

- Simplified programming. You simply engage a Learn Switch and perform a problem in normal manner. The Novus 6025 records the formula and lets you debug the program as it's written.
- The learn-mode capacity totals 100 separate steps.
- Several different programs can be contained at the same time.
- Constant factors can be entered as program steps.
- Delete feature lets you correct programs while you are writing them.
- Skip key permits skipping over entire programs to access additional programs within 100-step capacity.

- Programs remain intact until new programs are written over or until your Financier is turned off.
- You have total freedom to select key-board entries as variables or constants.
- Automatic warning signal in display lets you know when you exceed programming capacity.
- The Novus Programmable Financier is rechargeable and comes complete with nickel cadmium batteries, charger and attractive vinyl carrying case.

## **Novus 6020/6025 Specifications**

Dimensions:	Novus 6020: 6 x 2 7/8 x 1 1/2 inches. Novus 6025: 6 3/16 x 3 x 1 inches.
Electrical:	Novus 6020: 9-volt or AC adapter. Novus 6025: 3AA Nicad's, rechargeable.
Capacity:	8 digits.
Accuracy:	Present and future value calculations, annuity calculations, loan payment, powers and roots: 6 digits, ±1 in the sixth digit from left. All other functions: 8 digits.
Weight:	8 ounces.
Temperature:	Operating: 32-112°F (0-50°C).
Warranty:	One year, parts and labor.
Speed:	Basic functions: 0.01 second minimum, 0.5 second maximum, 0.25 second typical. y <sup>x</sup> function: 1 second minimum, 5 seconds maximum, 2.5 seconds typical. Financial functions: 0.5 second minimum, 2.5 seconds maximum, 1.25 seconds typical.



**\$119<sup>95</sup>**  
YOUR COST FROM US

**The Programmable Financier,  
Novus 6025.**

Suggested Retail Price \$249.95



# NOVUS

## 6010 The Professionals...Fast, accurate and automatic coverversions of international weights and measures. and a lot more.

### Example problems for Novus 6010

**Example:** A firm wants to put up a plant that would measure 473 feet by 1550 feet. How many acres of land will the plant occupy?

KEY IN	DISPLAY SHOWS	COMMENTS
473	473	
$\times$		
1550	1550	
$=$	733150.	Total square footage of plant.
$\div$	733150.	
(ac / ft <sup>2</sup> )	16.830808	Total acreage firm should acquire.

**Example:** How many American dollars do you give the storekeeper if you buy a suit for 334.00 pesos, a hat for 56.00 pesos and a tie for 29.00 pesos if the exchange rate is 12.50 pesos per dollar?

KEY IN	DISPLAY SHOWS	COMMENTS
12.50	12.50	Exchange rate.
sto K	12.50	Store as a user definable conversion constant.
334	334	Cost of the suit.
$\div$ $\div$ K	26.72	Cost in dollars.
M+	26.72	Add to memory.
56	56	Cost of the hat.
$\div$ $\div$ K	4.48	Cost in dollars.
M+	4.48	Add to memory.
29	29	Cost of the tie.
$\div$ $\div$ K	2.32	Cost in dollars.
M+	2.32	Add to memory.
MR	33.4986	Total cost in dollars.

## Novus 6010 The International computer



OPERATES ON 9 VOLTS  
OR AC ADAPTER



### Novus 6010 Specifications

Dimensions:	6 x 2 7/8 x 1 1/2 inches.
Electrical:	9-volt or AC adapter.
Capacity:	8 digits.
Accuracy:	Conversions: 6 digits, +1 in the sixth digit from left. All other functions: 8 digits.
Weight:	8 ounces.
Temperature:	Operating: 32-112 F (0-50 (0-50 C).
Warranty:	One year, parts and labor.
Speed:	All functions: 0.75 second maximum, under 0.5 second typical.

### Novus 6010 — truly a computer.

The Novus 6010 is a true computer, with all the functions you need for performing sophisticated problems as well as routine conversions. Besides its pre-programmed conversion functions, the 6010's arithmetic and algebraic functions make it a valuable tool for travelers, professionals and business persons.

### Novus 6010 keys and functions.

in/mm	Inches to millimeters.
in/cm	Inches to centimeters.
in/ft	Inches to feet.
ft/m	Feet to meters.
yd/m	Yards to meters.
mi/km	Miles to kilometers.
CHS	Change sign/pounds per square inch to atmospheres.

M+	Memory plus/miles per hour to kilometers per hour.
MC	Memory clear.
sto K	Store user-definable constant/convert to constant.
$= +$	Equals plus/cubic feet to gallons.

MR	Memory recall/US gallons to Imperial gallons.
$\%$	Percent/acres to square feet.
$\div$	Acres to hectares.

$\frac{7}{\text{gal}^3 \text{lit}}$	Gallons to liters.
$\frac{8}{\text{qt}^3 \text{lit}}$	Quarts to liters.
$\frac{9}{\text{fl oz}^3 \text{cc}}$	Fluid ounces to cubic centimeters (troy ounces).
$\frac{4}{\text{lb}^3 \text{kg}}$	Pounds to kilograms.
$\frac{5}{\text{oz}^3 \text{gr}}$	Ounces to grams.

$\frac{6}{\text{oz}^3 \text{lb}}$	Ounces to pounds.
$\frac{1}{\sqrt{x}}$	Reciprocal. Automatically determines reciprocal of any number displayed.
$\frac{2}{\sqrt{\quad}}$	Square root.
$\frac{3}{\text{lb}^3 \text{sto}}$	Pounds to stone.
$\frac{0}{\text{F}^3 \text{C}}$	Degrees Fahrenheit to Centigrade.
$\pi$	Pi. Automatically enters the value of (3.1415927) into calculation and displays answer.

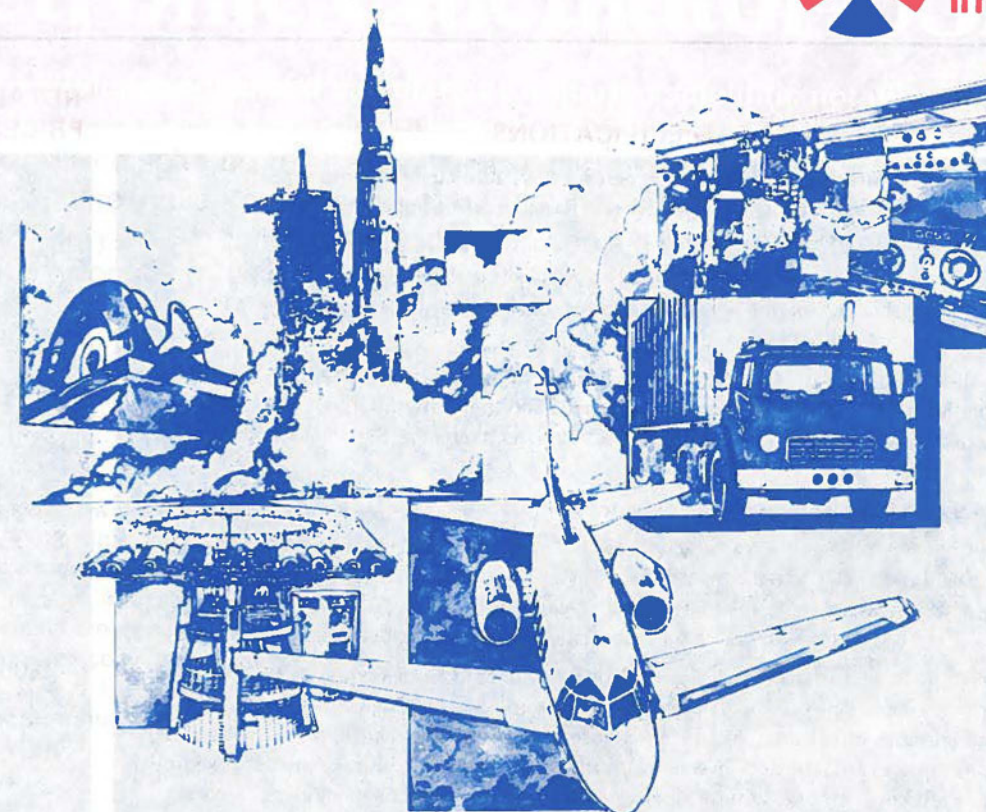
**\$49<sup>95</sup>**  
YOUR COST FROM US

## QUESTION:

Who Is The Company Behind The Answers?



Rockwell  
International



## I ROCKWELL INTERNATIONAL

Rockwell is a diversified worldwide corporation whose sales exceeded 4 Billion Dollars last year. A few of the corporations products include:

Prime Contractor on the Apollo Project. Remember the men on the moon? Rockwell made those successful flights possible.

Currently prime contractor for the Space Shuttle Program.

Developer of the world's most advanced bomber, the B-1.

Manufacturer of General Aviation Aircraft (single engines to business jets).

Rockwell Power Tools.

Admiral Appliances.

Navigational equipment developed and manufactured by Collins Radio guides your airline flights safely through the skies. You guessed it, a Rockwell subsidiary.

The clothing you are wearing may have been woven on Rockwell's textile machinery.

The newspaper you read this morning may have been printed on a Rockwell printing press. A quality line of calculators.

## II ROCKWELL CALCULATORS

A broad quality line consisting of more than 12 machines. We can fill anyone's need.

Rockwell gained its integrated circuit (heart of the electronic calculator) technology in the 1950's from the Minuteman program. We are a major supplier of "chips" to many calculator firms. Rockwell is a major private label manufacturer of calculators for many firms including Sears.

With this vast background and technology, a decision was made in mid 1974 to enter the calculator field under the Rockwell Label. In August of 1974, 6 units were introduced. Since that time, we have grown to meet the consumer's demands with our current expanded line.

Our objective was to provide a high reliability calculator at an affordable price to the consumer. We have accomplished just that.





MODEL	SPECIFICATIONS	RETAIL PRICES	YOUR COST FROM US
8R	8 Digit, basic four functions, algebraic logic, percent key, auto-constant auto-repeat, mixed calculations, dual clear entry/clear all key. AC adapter optional at \$5.95. ... Weight 5.5 oz. (Minimum purchase 2 units)		\$15.95
18 R	8 Digit, two key stroke/recall memory, percent key, algebraic logic, auto-constant, auto-repeat, floating decimal, floating negative indicator, dual clear entry/clear all key. ... AC adapter optional at \$5.95 (min. order 2 units)		18.95
30 R	Memory Slide Rule, 8 digits, four functions plus percent, reciprocal, square, square root, addressable MEMORY (allows separate performance and then intermixing of two calculations), Overflow protection, auto-constant, auto-repeat, Register exchange, Sign change, clear entry, AC adapter optional at \$5.95		27.95
31 R	Similar to the 30 R but with rechargeable batteries and charger, case		36.95
51 R	Universal Converter, 8 digits, Two fully addressable memories, plus, minus, recall, and clear Fraction calculations, 224 fixed conversions, programmable conversions, algebraic logic, auto-constant, auto-repeat, mixed calculations, large green 8 digit display, negative indicator, floating 2 place decimal, rechargeable including charger, carry case, batteries. ...	89.95	74.95
61 R	Advanced Slide Rule, for architects, statisticians and math students, computes trigonometric, inverse trigonometric, logarithmic and inverse, logarithm functions, calculates roots, powers, reciprocals and sum of squares. Register Exchange, common log and antilog, Xy, Natural log and antilog, square root, trig and inverse trig, (sin-cos-tan) Degree to Radian mode, Reciprocal, Constant, Pi, 6 key memory, sum of square key, algebraic, rechargeable includes charger.	69.95	56.95
63 R	Slide rule with Scientific Notations, in addition to all capabilities of the 61R, this model performs factorial computations, Degree/Radian conversions, and Parenthetical operations. ... With exponent capabilities, fully addressable memory. ... Large 8 digit green display mantissa and 2 digit scientific notation. Two level parentheses, 8 key memory, common log and antilog, Yx, Register change, natural log and anti log, square root, trig and inverse trig (sin, cos, tan) Degree/Radian mode, Degree/Radian conversions, Factorial, reciprocal, Constant Pi, change sign, algebraic logic, auto-constant, auto-repeat and other features, including charger, case manual etc.	89.95	69.95
204	FINANCIER a business calculator, four separate memories, Cost/Margin/Price calculations, Logic selection switch: Business or Algebraic, Present and future value. ... Interest amount, Amortization/depreciation application, automatic percentages and averages, Number of periods, included charger and batteries	99.95	79.95
310	Desk Top: 8 Digit Display, Memory, Add Mode, Change sign, Percent key, Auto constant, Auto repeat. AC Only.	89.95	69.95
82 R	PRINTER electronic, 12 digit, 14 column thermal printer, electric paper feed, addition, subtraction, multiplication, division, TWO fully addressable MEMORIES (four keys memories), business logic. Non add key, percent key, with auto-add on and discount capability. Floating 0-8 place fixed and add mode decimal selection, auto-constant, separate subtotal and total keys weight 4 lbs 13 oz.	169.95	139.95
415 P	PRINTER calculator, heavy duty, commercial quality, 12 digit, 14 column printer, addition, subtraction, multiplication, division, separate += and -= memory accumulating keys, buffered keyboard for speed, add mode and flexible decimal system, auto-ITEM COUNTER, auto-constant, percent key with auto-add on and discount capabilities. ... AC operation 7.2 lbs.	249.95	159.95
420 P	PRINTER with commercial quality, 12 digit, 14 column printer, four basic functions, buffered keyboard for speed, add mode and flexible decimal system, auto Item Counter, auto-constant, percent key with auto-add on capability, fully addressable independent memory, exchange key, optional square root, weight 7.2 lbs. ... AC only. ...	279.95	189.95

All Rockwell International products carry one full year warranty by Rockwell not by Olympic Sales Co. when shipped by customer to the closest servicing station.

# Rockwell Electronic Calculator 63R

Scientific Slide Rule for advanced calculations requiring scientific notation.

Designed to handle complex calculations with ease, this model performs factorial computations, degree/radian conversions and parenthetical operations. With fully addressable memory and exponent capabilities for working in scientific notation, this is the answer for scientists, engineers and higher math students.

## Features:

- Extra-large 12-digit display with scientific notation (dynamic range  $10^{-99}$  to  $10^{99}$ )
- 4 functions (+, -, X, ÷)
- Fully addressable memory (store, recall, m+, m-, mX, m÷, exchange and clear)
- Algebraic logic (enter  $5-3=$ , display answer, 2)
- Floating decimal
- Enter exponent key for working in scientific notation
- Two levels of parenthetical operations
- Degree/radian conversion
- Trigonometric functions in either degrees or radians
- Inverse trigonometric functions in either degrees or radians
- Logarithmic functions (common and natural)
- Antilogarithms ( $e^x$  and  $10^x$ )
- $y^x$  for raising positive numbers to power
- Factorial
- Square root
- Reciprocal
- Register exchange
- Sign change
- Constant pi
- Dual clear entry/clear key
- Automatic clearing at turn-on
- Automatic constant for all four functions
- Automatic repeat for all four functions
- Indicator for improper operations
- Indicator for non-zero memory
- Automatic overflow/underflow
- Automatic leading zero suppression
- Automatic trailing zero suppression for multiply and divide
- Solid state electronics (MOS/LSI)
- Contemporary, high-impact, molded plastic case
- Operates on rechargeable batteries or AC
- Rechargeable nickel-cadmium batteries, AC charger and deluxe vinyl carrying case included

**Display:** Large 12-digit fluorescent tube display shows up to 8 significant digits in the mantissa plus 2 digits for exponent and 2 digits for negative mantissa and exponent sign

**Keyboard:** Deluxe double injected, three-color keyboard

## Specifications:

**Power:** AC: Input: 120 V, 60 Hz, 5 watts; Charger output: 6 VDC, 130 ma

**Battery:** 300 mw derived from nickel-cadmium rechargeable batteries

**Weight:** calculator: 11 ounces  
recharger: 5 ounces  
shipping weight: 2 pounds (approx.)

**Dimensions:** length: 6.2 inches  
width: 3.3 inches  
height: 1.0 inch

**Temperature operating range:**  $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  ( $32^{\circ}\text{F}$  to  $122^{\circ}\text{F}$ )



Model 63R  
Scientific Slide Rule  
Electronic Calculator

YOUR COST FROM US  
**\$69<sup>95</sup>**

Suggested Retail \$99.95



Rockwell International

...where science gets down to business



# Electronic Calculator 61R

This model is ideal for anyone needing immediate answers to trigonometric, logarithmic and other complex problems. It will simultaneously sum numbers and their squares — one total accumulating in display and the other in memory. Memory and display figures can also be made to switch places.

## Features:

- Extra-large 8-digit display
- 4 functions (+, -, ×, ÷)
- Addressable memory — fully accessible and chainable
- Memory exchange
- Data recovery
- Algebraic logic (enter 5-3=, display answer, 2)
- Floating decimal (positions decimal point automatically)
- Trigonometric functions in degrees or radians
- Inverse trigonometric functions in either degrees or radians
- Logarithmic functions (common and natural)
- Antilogarithms ( $e^x$  and  $10^x$ )
- Square root
- Sum of the squares
- Reciprocals
- Register exchange
- Sign change
- Constant pi
- Dual clear entry/clear key
- Automatic clearing at turn-on
- Automatic constant for all four functions
- Automatic repeat for all four functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Overflow protection with wrap-around decimal
- Automatic leading zero suppression
- Automatic trailing zero suppression for multiply and divide
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Contemporary, high-impact, molded plastic case
- Operates on rechargeable batteries or AC
- Rechargeable nickel-cadmium batteries, AC charger and deluxe vinyl carrying case included

**Display:** Large fluorescent tube display shows up to 8 significant digits plus negative indicator for appropriate sign

**Keyboard:** Deluxe double-injected, two-color keyboard

## Specifications:

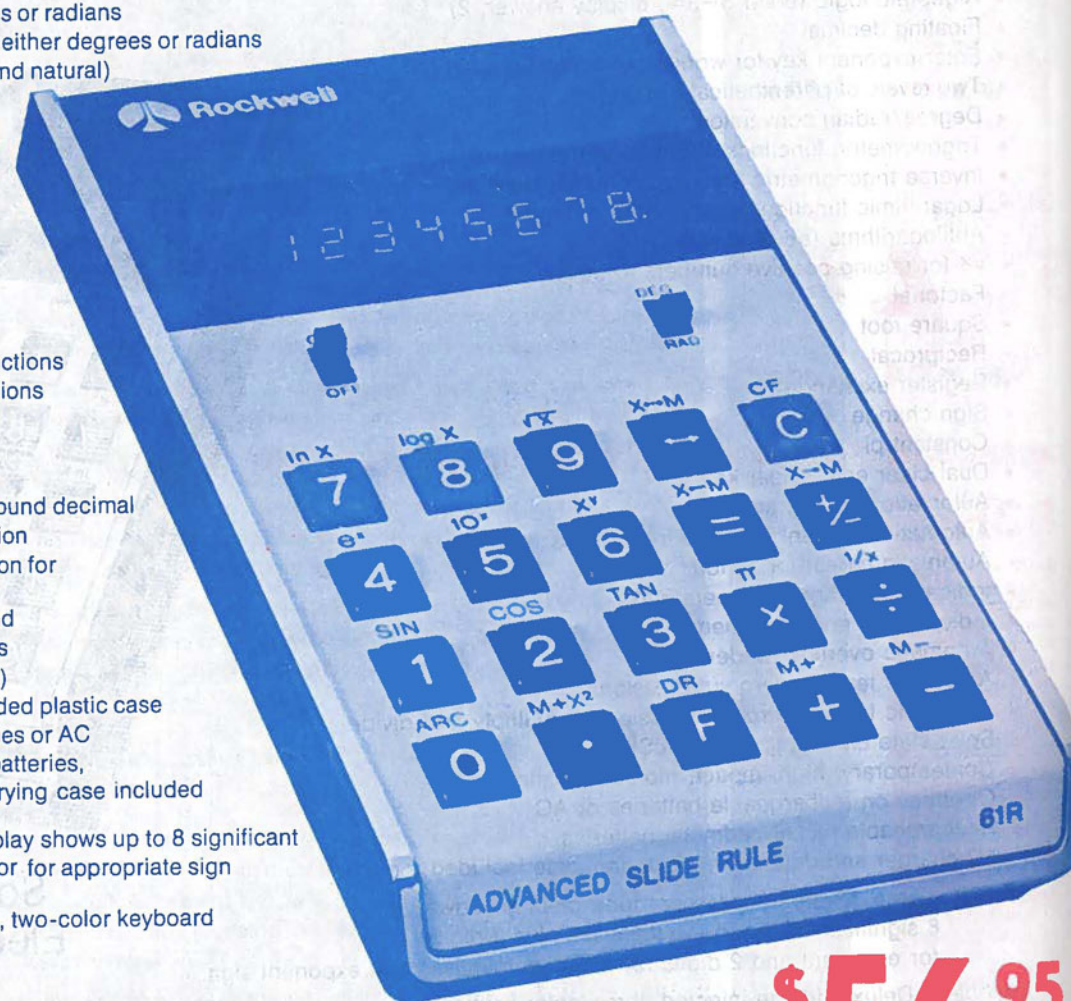
**Power:** AC: Input: 120 V, 60 Hz, 5 watts; Output: 6 VDC, 130 ma  
Battery: 600 mw derived from nickel-cadmium rechargeable batteries

**Weight:** calculator: 11 ounces  
recharger: 5 ounces  
shipping weight: 2 pounds (approx.)

**Dimensions:** Length: 6.2 inches  
Width: 3.3 inches  
Height: 1.0 inch

**Temperature operating range:** 0°C to 50°C (32°F to 122°F)

## Model 61R Advanced Slide Rule Electronic Calculator



**\$56<sup>95</sup>**

YOUR COST FROM US



**Rockwell International**

...where science gets down to business



**Rockwell International**

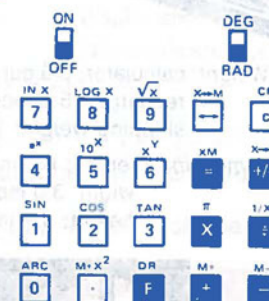
...where science gets down to business

## 61R

- BASIC ANSWER FEATURES
- FULLY ADDRESSABLE MEMORY
- AUTOMATIC CONSTANT
- REGISTER EXCHANGE
- SIGN CHANGE
- RECIPROCALLS
- SUM OF THE SQUARES
- SQUARE ROOTS
- LOG FUNCTIONS
- ANTILOG FUNCTIONS
- TRIG FUNCTIONS IN DEGREES/RADIANS
- INVERSE TRIG FUNCTIONS
- POWERS
- AC CHARGER AND CASE

YOUR COST FROM US

**\$56<sup>95</sup>**



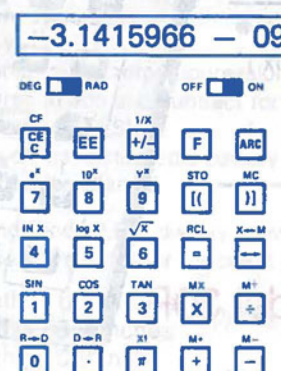
<b>ON</b> <b>OFF</b>	<b>DEG</b> <b>RAD</b>	<b>SIN</b>	DIGIT ENTRY KEY. COMPUTES NATURAL LOGARITHM OF DISPLAYED NUMBER	<b>1</b>	DIGIT ENTRY KEY. SINE FUNCTION
<b>LOG X</b>	<b>8</b>	<b>COS</b>	DIGIT ENTRY KEY. COMPUTES COMMON LOGARITHM OF DISPLAYED NUMBER	<b>2</b>	DIGIT ENTRY KEY. COSINE FUNCTION
<b>√X</b>	<b>9</b>	<b>TAN</b>	DIGIT ENTRY KEY. COMPUTES SQUARE ROOT OF DISPLAYED NUMBER	<b>3</b>	DIGIT ENTRY KEY. TANGENT FUNCTION
<b>X-M</b>	<b>←</b>	<b>π</b>	INTERCHANGES NUMBER IN DISPLAY WITH NUMBER IN WORKING REGISTER. EXCHANGE NUMBER DISPLAYED WITH NUMBER IN MEMORY.	<b>X</b>	MULTIPLICATION OPERATION; REPEAT; CONSTANT. CONSTANT PI
<b>CF</b>	<b>C</b>	<b>1/X</b>	CLEARING OPERATION. CLEARS CALCULATOR OF UNINTENTIONAL SECONDARY FUNCTION	<b>÷</b>	DIVISION OPERATION; REPEAT; CONSTANT. COMPUTES RECIPROCAL OF DISPLAYED NUMBER
<b>e<sup>x</sup></b>	<b>4</b>	<b>ARC</b>	DIGIT ENTRY KEY. COMPUTES THE ANTILOGARITHM OF DISPLAYED NUMBER FOR THE BASE e.	<b>0</b>	DIGIT ENTRY KEY. PREPARES CALCULATOR FOR INVERSE TRIG FUNCTIONS (SIN, COS, TAN).
<b>10<sup>x</sup></b>	<b>5</b>	<b>M+X<sup>2</sup></b>	DIGIT ENTRY KEY. COMPUTES THE ANTILOGARITHM OF DISPLAYED NUMBER FOR THE BASE 10	<b>.</b>	DECIMAL POINT ENTRY. ADD SQUARE OF DISPLAYED NUMBER IN MEMORY.
<b>X<sup>y</sup></b>	<b>6</b>	<b>DR</b>	DIGIT ENTRY KEY. EXPONENTIAL FUNCTION	<b>F</b>	CONDITIONS THE CALCULATOR TO INTERPRET THE SECONDARY FUNCTION (ABOVE KEYS) OF EACH KEY. RECALLS THE LAST NUMBER DISPLAYED.
<b>X-M</b>	<b>=</b>	<b>M+</b>	COMPUTES ANSWER TO ARITHMETIC OPERATIONS. DISPLAYS NUMBER IN MEMORY	<b>+</b>	ADDITION OPERATION; REPEAT; CONSTANT. ADD TO MEMORY
<b>X-M</b>	<b>+/-</b>	<b>M-</b>	CHANGES THE SIGN OF THE DISPLAYED NUMBER. STORE DISPLAYED NUMBER IN MEMORY (DESTROYS PREVIOUS NUMBER IN MEMORY)	<b>-</b>	SUBTRACTION OPERATION; REPEAT; CONSTANT SUBTRACT FROM MEMORY

## 63R

- BASIC ANSWER FEATURES
- FULLY ADDRESSABLE AND CHAINABLE MEMORY
- AUTOMATIC CONSTANT
- REGISTER EXCHANGE
- SIGN CHANGE
- RECIPROCALLS
- SQUARE ROOTS
- LOG FUNCTIONS
- ANTILOG FUNCTIONS
- TRIG FUNCTIONS
- INVERSE TRIG FUNCTIONS
- DEGREE/RADIAN SELECTION AND/OR CONVERSION
- POWERS
- PARENTHESIS
- FACTORIAL
- EXPONENTIAL ENTRY AND DISPLAY
- AC CHARGER AND CASE

**\$69<sup>95</sup>**

YOUR COST FROM US



<b>CF</b>	<b>CE</b>	<b>MC</b>	<b>MX</b>
CLEAR ENTRY CLEAR CALCULATOR CLEAR UNINTENTIONAL SECONDARY FUNCTION	CLOSE PARENTHESIS MEMORY CLEAR	<b>X</b>	MULTIPLICATION REPEAT; CONSTANT MEMORY MULTIPLY
<b>EE</b>	<b>IN X</b>	<b>÷</b>	DIVISION REPEAT; CONSTANT MEMORY DIVIDE
ENTER EXPONENT	<b>4</b>	<b>0</b>	DIGIT ENTRY KEY CONVERT FROM RADIANS TO DEGREE
<b>1/X</b>	<b>log X</b>	<b>.</b>	DECIMAL POINT ENTRY CONVERTS FROM DEGREES TO RADIANS
CHANGE SIGN RECIPROCAL	<b>5</b>	<b>π</b>	PI FACTORIAL
<b>F</b>	<b>√X</b>	<b>+</b>	ADDITION REPEAT; CONSTANT MEMORY ADD
CONDITIONS CALCULATOR TO INTERPRET SECONDARY FUNCTION (ABOVE KEYS) OF EACH KEY	<b>6</b>	<b>-</b>	SUBTRACTION REPEAT; CONSTANT MEMORY SUBTRACT
<b>ARC</b>	<b>RCL</b>	<b>12</b>	LARGE DIGITRON DISPLAY
PREPARES CALCULATOR FOR INVERSE TRIG FUNCTIONS (SIN, COS, TAN)	COMPUTES ANSWERS TO ARITHMETIC OPERATIONS RECALLS STORED NUMBER	<b>12345678-12</b>	
<b>e<sup>x</sup></b>	<b>X-M</b>		
DIGIT ENTRY KEY COMPUTES ANTILOGARITHM OF DISPLAYED NUMBER X <sup>y</sup> TO BASE e.	INTERCHANGES NUMBER IN DISPLAY WITH NUMBER IN Y WORKING REGISTER EX CHANGES NUMBER DISPLAYED WITH NUMBER IN MEMORY		
<b>10<sup>x</sup></b>	<b>SIN</b>		
DIGIT ENTRY KEY COMPUTES ANTILOGARITHM OF DISPLAYED NUMBER TO BASE 10	<b>1</b>		
<b>y<sup>x</sup></b>	<b>COS</b>		
DIGIT ENTRY KEY RAISES TO POWERS	<b>2</b>		
<b>STO</b>	<b>TAN</b>		
OPEN PARENTHESIS MEMORY STORE	<b>3</b>		



# Rockwell 31R

## Slide Rule Memory Electronic Calculator

Rockwell 31R combines all the features of the two lower priced models (12R and 21R), making it invaluable to anyone working with reciprocals, square roots and percentages. With rechargeable nickel-cadmium batteries (included), it delivers hours of efficient calculation.

### Features:

- 8 digits, 4 functions (+, -, ×, ÷)
- Percent key with automatic mark-on and discount
- Addressable memory — fully accessible and chainable
- Reciprocals
- Squares
- Square roots
- Sign change
- Algebraic logic (enter 5-3=, display answer, 2)
- Floating decimal (positions decimal point automatically)
- Dual clear entry/clear key
- Automatic clearing at turn-on
- Automatic constant for all functions
- Automatic repeat for all functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Overflow protection with wrap-around decimal
- Automatic leading zero suppression
- Automatic trailing zero suppression for multiply and divide calculations
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Contemporary, high-impact, molded plastic case
- Operates on rechargeable batteries or AC
- Rechargeable nickel-cadmium batteries, AC charger and vinyl carrying case included



ac adapter — optional 5.95

YOUR COST FROM US  
**\$36<sup>95</sup>**

Model 31R

Weight: calculator: 5.5 ounces  
recharger: 5 ounces  
shipping weight: 1.5 pounds (approx.)

Dimensions: length: 6.1 inches  
width: 3.0 inches  
height: 0.7 inch, slanting up to 0.9 inch



Rockwell

# 30R Full Featured Memory Electronic Calculator

This model has an addressable five function memory and calculates problems involving squares, square roots, reciprocals and percentages with impressive ease and speed.

### Features:

- 8 digits, 4 functions (+, -, ×, ÷)
- Percent key with automatic add-on and discount
- Addressable memory — fully accessible and chainable
- Reciprocals
- Squares
- Square roots
- Sign change and register exchange
- Algebraic logic (enter 5 - 3 =, display answer, 2)
- Floating decimal (positions decimal point automatically)
- Dual clear entry/clear all key
- Automatic clearing at turn-on
- Automatic constant for all functions
- Automatic repeat for all functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Wrap-around decimal
- Automatic leading and trailing zero suppression
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Contemporary, high impact, molded plastic case
- Operates on one 9-volt transistor radio battery or optional AC adapter
- Comprehensive instruction manual

YOUR COST FROM US  
**\$27<sup>95</sup>**

ac adapter — optional 5.95

Weight: calculator: 5.5 ounces  
shipping weight: 1 pound (approx.)

Dimensions: length: 6.1 inches  
width: 3.0 inches  
height: 0.9 inch



Model 30R

# Rockwell 8R

## Electronic Calculator With Percent

The 8R is especially invaluable to anyone who wants a calculator capable of handling problems involving percentages in addition to everyday figuring.

### Features:

- 8 digits, 4 functions (+, -, ×, ÷)
- Percent key with automatic add-on and discount
- Algebraic logic (enter 5-3=, display answer, 2)
- Floating decimal (positions decimal point automatically)
- Dual clear entry/clear all key
- Automatic clearing at turn-on
- Automatic constant for all functions
- Automatic repeat for all functions
- Chain calculations
- Floating negative indicator
- Indicator for improper operations
- Automatic underflow
- Automatic leading and trailing zero suppression
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Contemporary, high impact, molded plastic case
- Operates on one 9-volt transistor radio battery or optional AC adapter
- Comprehensive Instruction Manual

Display: Light Emitting Diode (LED) display shows up to 8 digits for positive numbers; 7 digits plus negative indicator for credit balances.

Keyboard: Positive feedback keyboard

### Specifications:

Power: 180 mw derived from one 9-volt carbon-zinc transistor radio battery (which delivers approximately 10 hours of operation)



ac adapter — optional 5.95

**\$15<sup>95</sup>**  
YOUR COST FROM US

Model 8R

Weight: calculator: 5.5 ounces  
shipping weight: 1 pound (approx.)

Dimensions: length: 6.1 inches  
width: 3.0 inches  
height: 0.9 inch

Options: AC adapter and vinyl carrying case

# Rockwell 18R

## Memory-Percent Electronic Calculator

A two-key store/recall memory as well as percentage capabilities including automatic add-on and discount make the 18R an outstanding value for both home and business.

### Features:

- 8 digits, 4 functions (+, -, ×, ÷)
- Percent key with automatic add-on and discount
- Two-key store/recall memory
- Algebraic logic (enter 5-3=, display answer, 2)
- Floating decimal (positions decimal point automatically)
- Dual clear entry/clear all key
- Floating negative indicator
- Automatic clearing at turn-on
- Automatic constant for all functions
- Automatic repeat for all functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Automatic leading and trailing zero suppression
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Operates on one 9-volt transistor radio battery or optional AC adapter
- Comprehensive Instruction Manual

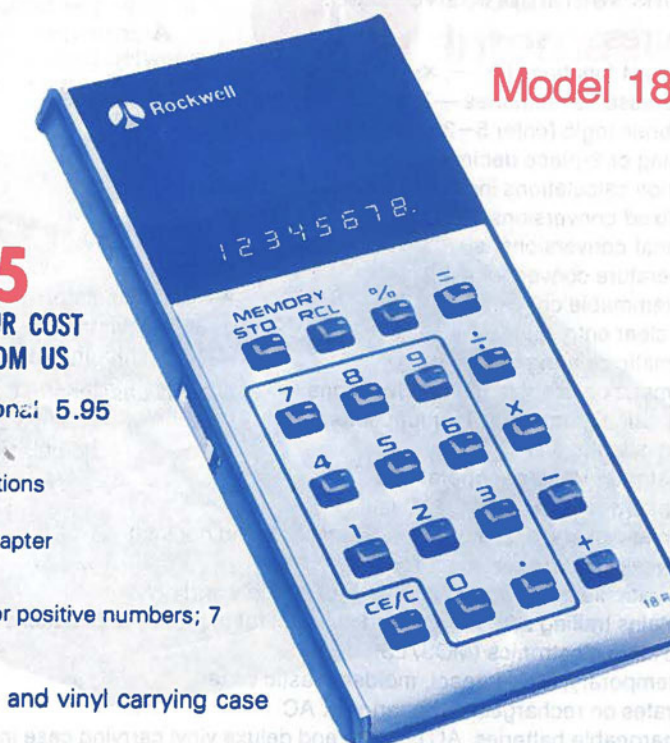
Display: Light Emitting Diode (LED) display shows up to 8 digits for positive numbers; 7 digits plus negative indicator for credit balances.

Dimensions: length: 6.1 inches  
width: 3.0 inches  
height: 0.9 inch

**\$18<sup>95</sup>**  
YOUR COST FROM US

ac adapter — optional 5.95

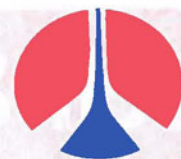
Options: AC adapter and vinyl carrying case



Model 18R



# The Rockwell 310



Rockwell  
International

## Features

**Easy-to-read display.** Numbers are big—as much as three times bigger than those on some mini calculators—and the green color is not only easy on the eyes but can be read without strain in any light.

**8-digit capacity.** With underflow to give you the 8 most significant digits when capacity is exceeded.

**Memory.** Automatically accumulates individual answers to a grand total.

**Add mode and flexible decimal system.** Add mode automatically positions decimal in addition and subtraction, but may be overridden when desired. In normal operation, decimal may be fixed with automatic roundoff, or floating.

**Automatic percentages.** Percent key makes fast work of all types of percentage problems—markups, discounts, taxes, distribution, etc.

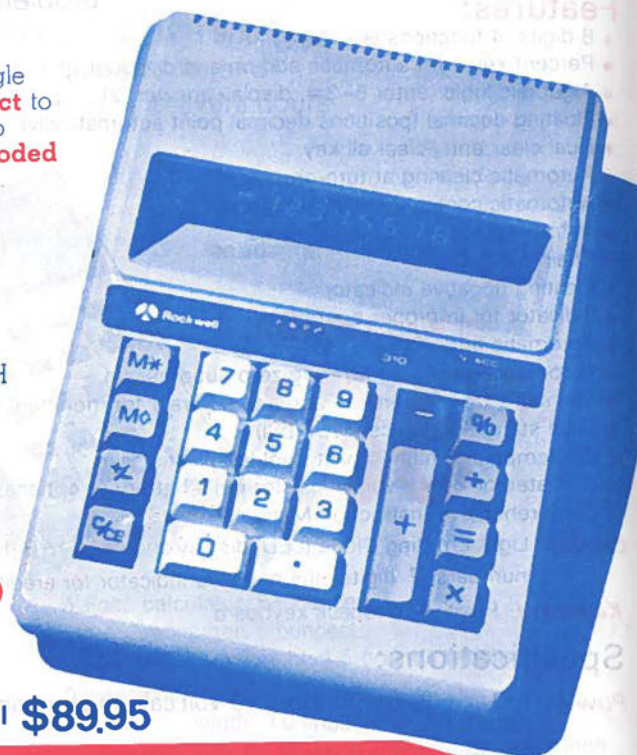
**Change sign key.** Changes the sign of a number from positive to negative and vice versa, speeds discounting, chain discounting, and other calculations.

**Other important features.** **Automatic constants** to speed multiplication and division. **Chain** calculations to mix any desired sequence of operations in a single sequence. **Repeat add/subtract** to speed repetitive data entry or to correct wrong entries. **Color-coded keyboard** to simplify operation.

## Specifications

Capacity: 8 digits  
Decimal: Floating  
Fixed at 2 or 4 places  
Add mode (\$)   
Dimensions: 6" W x 9" D x 2" H  
152mm W  
x 229mm D x  
51mm H  
Weight: 1.75 lbs. (79 kg)  
Components: MOS/LSI

**\$69<sup>95</sup>**  
YOUR COST FROM US  
Retail \$89.95



## Model 51R

### Universal Converter Electronic Calculator

Preprogrammed to perform 224 conversions (feet/meters/nautical miles/etc.), this model also handles any number of user-programmed conversions—such as converting foreign currencies to the U.S. equivalents. In addition, it can handle any calculation requiring a constant and two addressable memories and does fractions with impressive ease.

## Features:

- 8 digits, 4 functions (+, −, ×, ÷)
- 2 addressable memories—both fully accessible and chainable
- Algebraic logic (enter 5−3=, display answer, 2)
- Floating or 2-place decimal selection
- Fraction calculations including repeat and constant
- 224 fixed conversions (including metric/English/Imperial conversions; statute/nautical miles and temperature conversions)
- Programmable conversions
- Dual clear entry/clear key
- Automatic clearing at turn-on
- Automatic constant for all four functions
- Automatic repeat for all four functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Automatic overflow protection with wrap-around decimal
- Automatic leading zero suppression
- Automatic trailing zero suppression for multiply and divide
- Maintains trailing zeros in add and subtract for monetary calculations
- Solid state electronics (MOS/LSI)
- Contemporary, high-impact, molded plastic case
- Operates on rechargeable batteries or AC
- Rechargeable batteries, AC charger and deluxe vinyl carrying case included

Weight: calculator: 11 ounces  
recharger: 5 ounces  
shipping weight: 2 pounds (approx.)

Dimensions: length: 6.2 inches  
width: 3.3 inches  
height: 1.0 inch

**51R**

**\$74<sup>95</sup>**  
YOUR COST FROM US



# The Rockwell 415P

## Features

**Fast keyboard.** Designed for fast input and comfortable, almost effortless operation. Buffered to keep pace with the speediest operator.

**12-digit capacity.** With underflow to give you the 12 most significant digits when capacity is exceeded.

**Memory.** Separate  $\boxed{+}$  and  $\boxed{-}$  keys complete a calculation and add to or subtract from memory in one operation.

**Add mode and flexible decimal system.** Add mode automatically positions decimal in addition and subtraction, but may be overridden when desired. In calculator mode, decimal may be floating or fixed, with answers rounded or truncated.

**N Count.** Automatically counts additions and subtractions. Or multiplication and division accumulations. A great help in averaging, item counting, and other applications.

**Other important features.** **Automatic constants** to speed repetitive multiplication and division. **Percent key** for direct calculation of markup and discount. **Repeat add/subtract** to speed repetitive data entry or to correct wrong entries. **Non-add key** for reference notations. **Paper feed key** for automatic tape advance.

**Credit balance** with negative results printed in red. **Chain calculations** for mixing any desired sequence of functions in a single sequence. **A printer** that is totally silent between printing operations.

## Specifications

Capacity: 12 digits  
Decimal: Floating  
Fixed 0 to 7  
Add mode  
Print speed: 2.7 lines per second  
Paper: Standard roll, 2 1/4" (57mm) wide  
Ribbon: 2-color  
Dimensions: 9" W x 12" D x 3.5" H  
229mm W x 305mm D x  
89mm H  
Weight: 7 lbs. 2 oz. (3.23 kg)  
Components: MOS/LSI

For more information, contact  
Business Equipment Division,  
Rockwell International  
950 DeGuigne Drive, Sunnyvale  
California 94086.

YOUR COST FROM US

**\$159<sup>95</sup>**



Rockwell  
International

Suggested Retail Price \$249.95





# 60 The Rockwell 420P

Someday all printing calculators will have the performance and convenience features of the new Rockwell 420P—features that speed figurework and promote accuracy. The 420P has them now.

The keyboard is designed for high speed operation. With adding machine functions grouped on the right side. Calculating functions on the left side. And color-coded keys with just the right slope and placement for greatest operator convenience. The 420P's independent memory is outstanding—so powerful you can even calculate directly into it—and is totally separate from the adding machine portion of the calculator. With all of its other features, including one of the quietest printers available, automatic item counting, percentages—even optional square root—the 420P provides more performance at lower cost than any printing calculator on the market.

## Specifications

Capacity: 12 digits  
Decimal: Floating  
Fixed 0 to 7  
Add mode  
Print speed: 2.7 lines per second  
Paper: Standard roll, 2 1/4" (57mm) wide  
Ribbon: 2-color  
Dimensions: 9" W x 12" D x 3.5" H  
229mm W x 305mm D x 89mm H  
Weight: 7 lbs. 2 oz. (3.23 kg)  
Components: MOS/LSI

For more information, contact  
Business Equipment Division,  
Rockwell International  
950 DeGuigne Drive, Sunnyvale  
California 94086

## Features

**Fast keyboard.** Designed for fast input and comfortable, almost effortless operation. Buffered to keep pace with the speediest operator.

**12-digit capacity.** With underflow to give you the 12 most significant digits when capacity is exceeded.

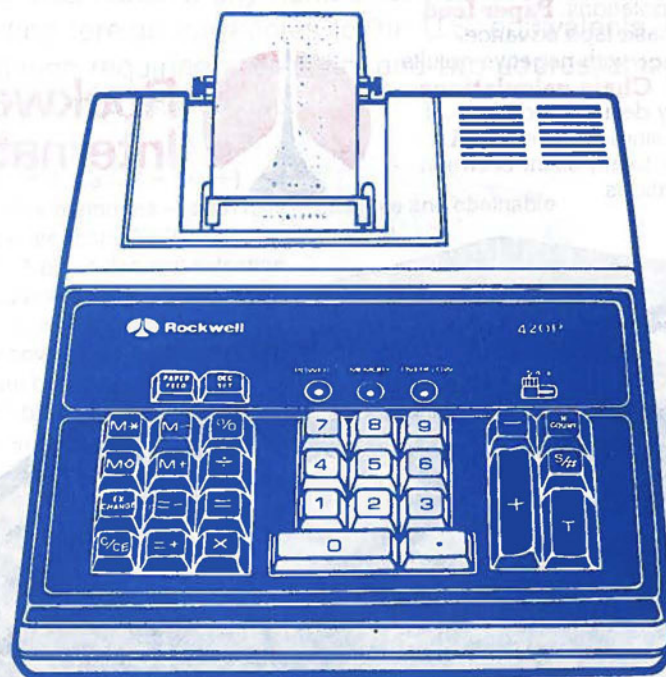
**Memory.** Fully addressable, with separate  $\boxed{=+}$  and  $\boxed{=-}$  keys that complete a calculation and add to or subtract from memory in one operation.

**Add mode and flexible decimal system.** Add mode automatically positions decimal in addition and subtraction, but may be overridden when desired. In calculator mode, decimal may be floating or fixed, with answers rounded or truncated.

**N Count.** Automatically counts additions and subtractions. Or multiplication and division accumulations. A great help in averaging, item counting, and other applications.

**Other important features.** **Automatic constants** to speed repetitive multiplication and division. **Percent key** for direct calculation of markup and discount. **Repeat add/subtract** to speed repetitive data entry or to correct wrong entries. **Non-add key** for reference notations. **Paper feed key** for automatic tape advance. **Credit balance** with negative results printed in red. **Chain calculations** for mixing any desired sequence of functions in a single sequence. **Exchange key** for exchanging register contents without manual re-entry. **Square root key** (optional in place of Exchange key). **A printer** that is totally silent between printing operations.

## Extra calculating power to speed your figurework.



YOUR COST FROM US  
**\$189<sup>95</sup>**



# 61 Model 82R 12-Digit Thermal Printer Electronic Calculator

This deluxe desk-top model with a 12-digit, 14-column thermal printer is invaluable for calculations requiring a written record. With two full four-key memories, an item counter and percent key with automatic mark-on and discount, it handles business computations easily.

## Features:

- 4 functions (+, -, ×, ÷)
- Thermal printer
- Percent key with automatic mark-on and discount
- Two full four-key memories (m+, m-, =+, =- recall and clear operations)
- Separate subtotal and total keys
- Item counter
- Commercial logic
- Floating, 0-8 place fixed or monetary decimal selection
- Dual clear entry/clear key
- Power on and memory busy indicators
- Automatic constant multiply and divide
- Automatic repeat for all functions
- Chain calculations
- Indicator for improper operations
- Automatic underflow
- Leading and trailing zero suppression
- True credit balance computations
- Non-add key for identifying tape
- Single or double space paper feed selection
- Electric paper feed • Vinyl dust cover
- Solid state electronics (MOS/LSI)
- Contemporary, high-impact, molded plastic case
- AC operation with 8 foot, 3 wire power cord

YOUR COST FROM US

**\$129<sup>95</sup>**  
Suggested Retail 169.95  
**82R**



Paper Rolls for the Rockwell Printers 80R and 82R will cost you \$1.95 for 3 roll pack.

Printing: Thermal printing system on  
Rockwell TT270 thermal paper or equivalent  
Paper dimensions: width: 2 1/4 inches  
length: up to 165 feet

Weight: calculator: 4 pounds, 13 ounces  
shipping weight: 7 pounds (approx.)

Dimensions: length: 12.2 inches  
width: 8.0 inches  
height: 2.0 inches, slanting up to 2.9 inches

# 204 Financier. Rockwell International

...where science gets down to business

## Features/Specifications.

- Logic selection switch: choose business or algebraic logic
- Four separate memories
- Chain calculations
- Automatic constants: + - ×
- Reciprocals
- Automatic percentage
- Automatic averages
- Square roots
- Sum of the squares
- Big, easy-to-read 8-digit digitron display
- Zero to seven decimal places
- Overflow indicator
- Negative number indicator
- Dimensions: 6 x 3 1/4 x 1 1/2 inches
- Weight: 12 ounces
- Power: Four AA Ni-Cad rechargeable batteries or alkaline batteries
- Temperature operating range: 5°C to 40°C (40°F to 104°F)

Suggested Retail \$149.50

YOUR COST FROM US  
**\$79<sup>95</sup>**



INCLUDING CHARGER

## Applications.

- Cost/margin/price calculations
- Present and future value
- Interest amount
- Loan payment
- Amortization
- Depreciation
- Annuities
- Trend lines
- Number of periods

The 204 is pre-programmed to make the job easier for everyone, from financial analyst to real estate salesman to the retail merchant.

It can solve anything from basic arithmetic to financial problems that normally require the use of tables, complex formulas or sophisticated data processing equipment.



the new **3M** BRAND

**"051"**  
can do it!

**DIMENSIONS:**

Height . . . . . 5½ inches  
Width . . . . . 18½ inches  
Depth . . . . . 12½ inches

let him, he's unbeatable at making  
black on white copies from all originals

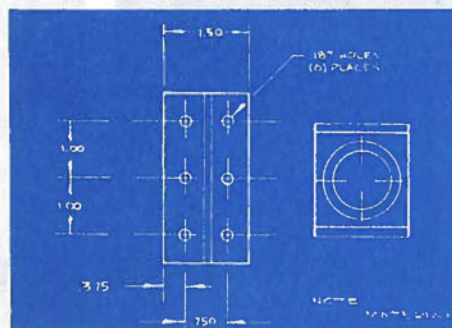


— no liquids, chemicals  
or powders. And, virtually service free.

he's completely dry and all electric

Small in size, the 3M Brand "051" Copier is designed for small offices that need only a few copies a day or for point of copy needs in larger offices. The "051" features 3M's exclusive Dual-Spectrum process for sharp black images on brilliant bond-weight paper.

Copies from letters, spec sheets, pages bound in books, halftones and all colors. Handles any original up to 8½" x 14" or copies larger documents in sections. The "051" makes overhead projection transparencies and addresses gummed labels. It's completely dry



**BLUEPRINTS**



**MAPS**

ished on the Golden State fertile valleys, volcanoes that still grumble, deserts of sculptured sand, warm green mountains, hills and plains that stretch to a romantic horizon, and a stupendous coastline, as at Point Lobos (right), gnashed at ceaselessly by the unappeased sea. Water is often scarce; fire and flood are ravaging enemies. Yet the sun, craved alike by old and young bones, pours down a divine warmth. In its diversity, California is a state of superlatives. It has the largest tree in the world, a towering sequoia 3,500 years of age; in Mount Whitney, the highest mountain (14,495 feet) in the U.S. outside of Alaska; in Death Valley, the lowest point in the country, 280

**BOOKS**

The 3M "051", has a hinged removable top that allows copying from originals of all colors, sizes and thicknesses. Copies **Heavy**, copies **light**. Inks, **STAMPS**, spirit copy, **Crayon**, **PENCIL**...virtually anything...without the use of toners, chemicals or drums!

Suggested Retail \$199.95

YOUR COST FROM US **\$169<sup>95</sup>**

# 3M BRAND "COPY-MITE" COPIER MODEL 157

The 3M "Copy-Mite" Copier features the exclusive Dual Spectrum process to make unbeatable black-on-white copies from all originals: pages bound in books, photographs, colors and ballpoint signatures. All on bond weight paper up to 14-inches. It even makes overhead projection transparencies and addresses pre-cut gummed labels.

The "Copy-Mite" is all electric, completely dry and easy to operate. Just as easy to maintain.

**DIMENSIONS:**

Height . . . . . 7 inches  
Width . . . . . 15¾ inches  
Depth . . . . . 18 inches

Weight: 37¼ pounds



Compact,  
desk-top size.  
Makes sharp,  
clean copies from any originals.

- Gives "original like" copies on white bond-weight paper.
- Copies from books and magazines.
- Copy quality equals those from any machine at any price!
- Also makes overhead projection transparencies.

**\$239<sup>95</sup>**

YOUR COST FROM US

**DRY** Requires only electric power and paper to make a copy. Needs no liquids, chemicals, or powder.

**QUALITY COPIES** Makes copies equal in quality to those from any machine at any price. Sharp black copies on white bond-weight paper. (A variety of these "Dual Spectrum" process copy papers are available from us.)

**ANY ORIGINALS** Makes copies from letters, memoranda, photographs, pages from bound books and magazines — even copies from originals in all colors.

**LARGE COPYING** AREA Maximum copy size is 8½ x 14 inches (216 mm x 356 mm). Also copies larger documents in segments.

**PAPER COST**

Model	No. of Sheets	Retail Price	Size	Your Cost
263	100	10.24	8½x11	8.70
264	200	18.60	8½x11	15.90
265	500	41.85	8½x11	35.90
263-14	100	12.52	8½x14	10.90
264-14	200	22.94	8½x14	19.80
265-14	500	53.30	8½x14	45.90



**3M BP 16 STAND**

Finished in Danish Walnut with an almost indestructible plastic laminate surface, the BP 16 offers years of dependable service.

**BUSINESS MACHINE STAND**

The unique business machine stand . . . expertly designed to enhance the decor of today's office.

Its large 16 x 24 surface area accommodates nearly all small and medium sized copiers plus built-in storage for paper or paper dispensers. Height 30", Weight 23 lbs.

YOUR COST FROM US

**\$27<sup>95</sup>**

**WARRANTY:** all 3M copiers (051) (157) (257) are guaranteed by the 3M company for the period of six months on all parts only. In the event of malfunctioning during the period of warranty, please take or ship the malfunctioning unit to one of the 200 3M servicing stations located within the USA and the proper repair will be performed for a slight labor charge. You can purchase from any 3M service center a one year service contract for less than \$50.00 per year which will include all parts and all labor with service rendered at the customer's place of business.



# The new **3M** BRAND "257" COPIER IS A GENTLEMAN!

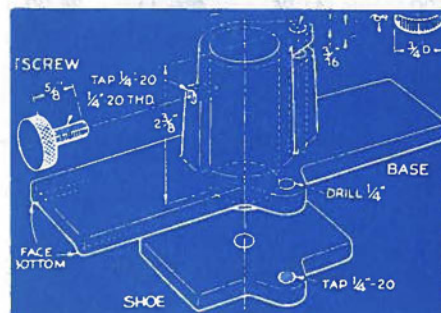
The desk top 3M "257" Copier copies book pages, photographs, letters . . . makes transparencies . . . addresses gummed labels . . . reproduces its own copies, spirit copies, too! . . . cuts the cost of low-volume copying, yet produces quality copies expected only from expensive high-volume machines!

Height . . . . . 5½ inches  
Width . . . . . 18½ inches  
Depth . . . . . 12½ inches

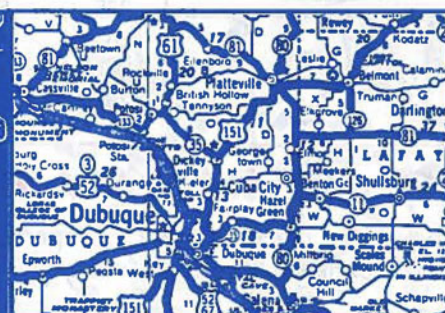
Weight: 19 pounds

He's quick to remove his hat when the situation calls for it!

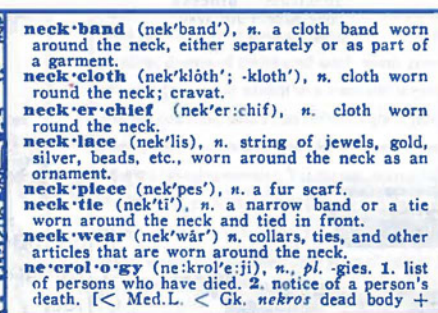
And the situation does call for it if you ever have to copy from such items as



**BLUEPRINTS**



**MAPS**



**BOOKS**

The gentlemanly **3M Brand "257" Copier** has a hinged removable top that allows copying from originals of all colors, sizes and thicknesses. Copies **Heavy**, copies light. Inks, **STAMPS**, spirit copy, **Crayon**, **PENCIL**...virtually anything...without the use of toners, chemicals or drums!

YOUR COST FROM US

**\$329<sup>95</sup>**

# SMITH CORONA

MODEL	CARRIAGE	SPECIFICATIONS	SUGGESTED RETAIL	YOUR COST FROM US
7000	13"	Compact office typewriter for heavy work at home or in the office, with the new revolutionary SCM CARTRIDGE SYSTEM which allows you to change ribbon in a few seconds from Fabric to carbon to any color ribbon you wish including eraser cartridge, full tabulation, automatic return carriage	\$390.50	\$269.50
7000	15"	Same as the above 7000-13" but with 15" carriage	422.50	294.50
7000	13"	Carry case optional	50.00	35.00
7000	15"	Carry case optional	60.00	39.50
2200	12"	The most sold electric typewriter, 12" carriage, fully automatic return carriage, equipped with the famous SCM CARTRIDGE SYSTEM, full tabulation, half space etc. Including Heavy duty carry case and one cartridge.	309.95	239.50
1200	12"	The new model 1200 replaced the old 120, equipped with the CARTRIDGE SYSTEM, fully electric except for the manual return carriage, has many features, including carrying case.	233.00	189.50
SUPER 12	12"	Promotional model with automatic return carriage, 12" including carry case, similar to the SCM 2200 but does not have as many features as the 2200, equipped with cartridge.	279.50	197.90
ELECTRA	10"	This new SCM model is to become one of the best sellers, 10" carriage, with manual return carriage but fully electric otherwise including a soft carry case, repeat keys, beautiful unit for the price. Comes with the regular fabric ribbon system. Similar to the old best seller the Coronet 10.	169.95	119.95
CLASSIC 12	12"	The Classic 12 is a manual portable typewriter which has been a terrific seller for many years, half space, two color ribbon, full keyset tabulation, 12" carriage, metal construction, including carry case and many other features.	160.50	127.95
ELECTRA SS	12"	Poweriter 12" carriage, fully electric with manual return, will operate on regular 115 volts or at the flip of a switch will operate at 240 volts or can operate with power pack battery. Battery is optional at	233.00	189.50
CARTRIDGES		Fabric ribbon any color	2.95	2.25@
		Carbon ribbon any color or Eraser cartridge	3.95	2.75@

## SPECIAL TYPES

There is no extra charge for the following type faces: Pica 01 - Elite 66 - Presidential Pica 78 - Presidential elite 77 Classic Pica 85 - Regency 80 - Artistic script 75SR. For any other type faces, please add \$30.00 per unit on the models: 2200 - Classic 12 - Super 10 and Super 13 - 7000.

## COLORS

Model 7000 comes in: Oyster White and Golden Brown - Norwegian Grey and Oyster White - Viking Blue and Oyster White - Silvermist and Black. Model 2200 comes in: Coppertone and Oyster White - Icelandic White and Aegean Blue - Norwegian Grey and Black - Icelandic White and Terra Cota.

CLASSIC 12 comes in Charcoal Grey, Metallic Blue and Metallic Green.

SUPER 12 and SUPER 10 come in: Aztec Blue and White Seamist - Yellow Mist and Sunsand - Cypress Brown and Adobe.

## GUARANTY

Smith Corona Co. guaranties all units for the period of ninety days labor and warranty the parts for one year. For service please take the SCM products to the closest SCM service center.



SMITH-CORONA®

# Coronamatic™ 2200

electric portable typewriters

## with Coronamatic Cartridge Ribbon System

**Page Gage™** shows (inches) remaining on page; insures consistent bottom margins.

**Half-Space Key**—makes corrections easy and permits right margin justifying.

**Impression Control** regulates typing force for number of copies being made.

**Wide Carriage**—for large envelopes and oversize paper. Takes letter paper the long way.

**Removable Platen**—snaps out for easy cleaning.



**Quick-Set™ Visible Margins**—a finger's touch sets left and right margin stops.

**Full Range Tabulation** for subheadings, indents and statistical typing.

**On/Off Indicator**—and Signal Light

**Powered Carriage Return**—smooth and quick.

**Personal Touch Selector**—from soft to firm.

**Changeable Type™** can be attached to special type bars; add signs, symbols, accents and special marks.

**Electric Repeat Actions**—on hyphen, underline, crossout (x) and dot.

**Power Space on space bar**—fast repeat for forms and statistical work.

### Specifications:

**Paper Capacity:** 8ELA—12.1" • 8ES—9.5"

**Writing Line:** 8ELA—11.1" • 8ES—8.4"

**Keyboard:** American electric, 44-key, 88 character office size keyboard.

**Type Styles:** Wide selection of distinctive executive and special-purpose type faces available.

**Vertical Line Spacing:**

One, one-and-one-half, two, two-and-one-half and three line spacing from standard 48-tooth ratchet. Six, four, three or two lines to a vertical inch.

**Automatic Actions:** space, hyphen, underline, crossout (x) and dot keys.

**Motor:** 117-volt, 60-cycle AC.

**Net Weight:** 8ELA—19 lbs., 3 ozs. • 8ES—18 lbs., 10 ozs.

**Shipping Weight:** 8ELA—30 lbs. • 8ES—28 lbs., 4 ozs.

**Colors:** Coronamatic 2200: Icelandic White with Aegean Blue, Coppertone with Oyster White, Norwegian Gray with Black and Icelandic White with Terra Cotta.



#### Cartridge Ribbons:

In Carbon Film, Nylon Fabric, a variety of colors in both film and fabric and correction tape in handy film cartridges.



#### Carrying Case:

Coronamatic has impact resistant, double walled case to cushion machine against travel hazards.

Suggested Retail \$309.95

YOUR COST FROM US

# \$239<sup>50</sup>

# Coronamatic™ 7000

PRECISION ELECTRIC OFFICE TYPEWRITER

CHANGEABLE CARTRIDGES:

• CARBON FILM • NYLON FABRIC • CORRECTION TAPE

SMITH-CORONA  
SCM CORPORATION

Paper injector (Injectomatic)

Five position line spacing

Variable line spacing

Page-Gage™ End of page indicator

Two Changeable Type™

Half spacing for corrections

Repeating back space

Up-front impression control



New double insulation

Full range tabulation

Repeating dots, dashes, underlines and X's

Fast, smooth power return

Power spacing at a touch

Up-front personal touch selector

Full size (Bema standard) keyboard



### SPECIFICATIONS

#### Colors:

Oyster White and Golden Brown  
Norwegian Gray and Oyster White  
Viking Blue and Oyster White  
Silvermist and Black

**Carriage Length:** 12"

**Writing Line:** 11.1"

**Net Weight:** 19.6 lbs.

**Shipping Weight:** 24.5 lbs.

#### Keyboard:

American #1063 Standard; wide selection of special keyboards available on order.

#### Typestyles:

Eight typestyles in stock. Others on special order.

**Power:** 120 V a-c

**Linespacing:** 1, 1½, 2, 2½, 3

#### Cartridges

- Carbon Film
- Nylon Fabric
- Correction Tape
- Red, Blue, Green and Brown

CASE OPTIONAL \$35.00



### in three seconds

you can change ribbon cartridges, without touching the ribbon. Choose and change as often as you like, from **FABRIC RIBBON** for routine work, to **CARBON FILM** for executive correspondence, and for work to be copied, duplicated, printed or microfilmed. Use **COLOR CARTRIDGES** for accent, emphasis and individuality. Color can make ordinary letters... extraordinary. With the **CORRECTION CARTRIDGE** you can remove errors without erasing, quickly and neatly. The **CORONAMATIC 7000** is a full featured office typewriter with a broad range of time-saving, work-saving conveniences. It is built for reliable day-to-day service and carries the Smith-Corona five year parts warranty.

13"

# \$269<sup>50</sup>

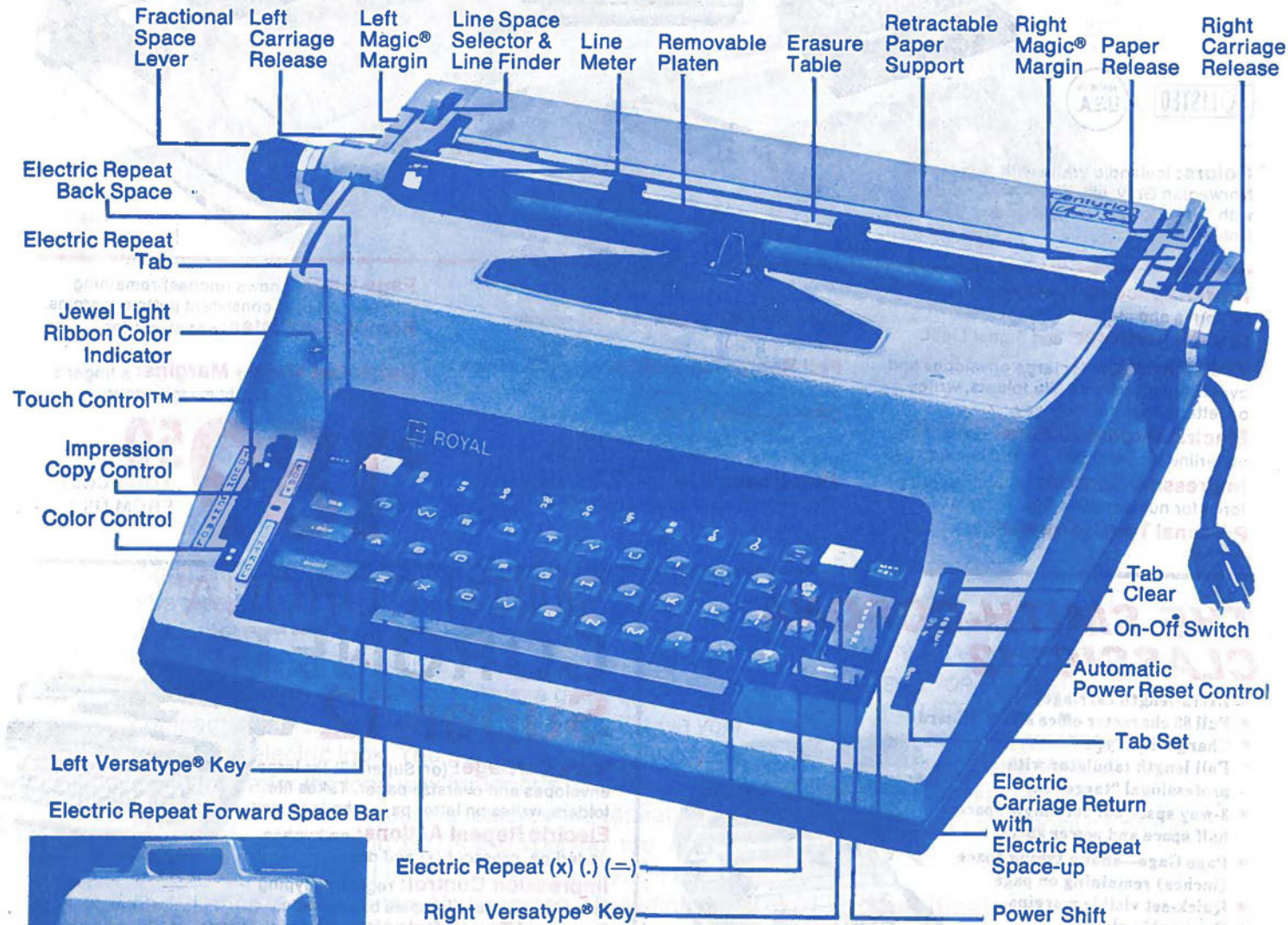
YOUR COST FROM US





ROYAL CENTURION

# THE TOTAL-ELECTRIC PORTABLE WITH WIDE 12" CARRIAGE FOR HOME AND OFFICE



## Physical Dimensions:

- 19" wide, 15 1/4" deep, 6" high
- Weight with impact-resistant carrying case, 40 1/2 lbs.
- Extra-long 8 ft. cord
- Wide 12" Carriage
- 12 3/4" Paper capacity
- 12 3/32" typing line
- Choice of Pica or Elite type styles

Suggested Retail  
Price \$289.95

- Choice of Colors: Royal Bronze/Florida Sand; Midnight Blue/Royal Blue.

YOUR COST FROM US **\$199<sup>90</sup>**

**ROYAL FIVE-YEAR GUARANTEE.** Royal Typewriter Company, a division of Litton Business Systems, Inc., guarantees replacement at no charge, other than labor and shipping, of any defective part (except rubber parts or rubber substitute parts, ribbons, or parts damaged by accident or misuse) within five years of purchase. No labor charge within first 90 days. Guarantee covers only the original purchaser. (Motors of electric models are guaranteed for one year.)



ROYAL CUSTOM III

Featuring Royal's famous quick, responsive touch and the full range of exclusive Royal typing conveniences.



Suggested Retail  
\$124.50

**\$89<sup>90</sup>**

## Royal Caravan Portable Typewriter



**\$77<sup>90</sup>**

Suggested Retail  
\$109.50



72 **SMITH-CORONA**  
**Electra** The Affordable  
 Electric Portable



High schoolers, college students, career girls—everyone who types school work, business work, and letters—now your new typewriter can be electric, an electric that's yours alone. Electra is built and priced so you don't have to settle for something less than this: a good quality, compact electric. It has everything you need to give your writing the electric look. You get a wide carriage to hold standard paper the long way for reports, charts, and graphs. There are time-saving features like repeating dots, dashes, underlines, and X's. Power spacing, too. And even though it's one of the lightest electrics you'll ever find, it grips your desk-top. No bouncing. No sliding. Look at all of the features—and if you really want your writing to have that special electric look, don't settle down with a manual. Discover Electra. You'll like its looks. You'll like its price. It will like you.

YOUR COST FROM US **\$119<sup>95</sup>**

INCLUDING SOFT CARRYING CASE  
 PICA OR ELITE ONLY

Suggested Retail \$169.95

Also...

END-OF-PAPER INDICATOR  
 ON/OFF SIGNAL LIGHT  
 PAPER SUPPORTS  
 ERASURE TABLE  
 PERSONAL TOUCH CONTROL  
 SELECTOR FOR RED, BLACK,  
 OR STENCIL  
 ONE, ONE AND A HALF, AND  
 DOUBLE LINE SPACING  
 NON-SKID FEET GRIP THE DESK  
 MODERN LOW-PROFILE STYLING

Specifications

Keyboard (ANSI American  
 Electric Standard)  
 MACHINE WEIGHT: 14.7 LBS.  
 PACKAGE WEIGHT: 17.6 LBS.  
 MAXIMUM PAPER LENGTH: 11.7"  
 MAXIMUM WRITING LINE: 10.5"  
 POWER: 110 VOLTS AC  
 UNDERWRITER'S  
 LABORATORY LISTED  
 MFG. CODE #3LMA

73 **SMITH-CORONA**  
**Coronamatic 1200**  
 with Coronamatic Cartridge Ribbon System

Carrying Case:

Impact resistant,  
 double walled, to  
 cushion machine against  
 travel hazards.



Colors: Icelandic White with Aegean Blue,  
 Norwegian Gray with Black, Icelandic White  
 with Terra Cotta and Sandalwood Beige with  
 Golden Brown.

**Power Space on space bar:** fast repeat  
 for forms and statistical work.

**On/Off Indicator:** and Signal Light.

**Wide Carriage:** for large envelopes and  
 oversize paper. Takes file folders, writes  
 on letter paper the long way.

**Electric Repeat Actions:** on hyphen,  
 underline crossout (x), dot and backspace.

**Impression Control:** regulates typing  
 force for number of copies being made.

**Personal Touch Selector:** from soft  
 to firm.

**Manual Carriage Return:** smooth  
 action, padded lever.

**Full Range Tabulation:** for subheadings,  
 indents and statistical typing.

**Changeable Type:** attach to special type  
 bars; add signs, symbols, accents  
 and special marks.

**Half-Space Key:** makes corrections easy  
 and permits right margin justifying.

**Page Gage:** shows (inches) remaining  
 on page; insures consistent bottom margins.

**Removable Platen:** snaps out for  
 easy cleaning.

**Quick-Set Visible Margins:** a finger's  
 touch sets left and right margin stops.

**\$189<sup>50</sup>** YOUR COST  
 FROM US

**THE SMITH-CORONA®**  
**CLASSIC™ 12**

- Extra-length carriage
- Full 88 character office size keyboard
- Changeable Type™
- Full length tabulator with  
 professional "target bar"
- 3-way space bar for single space,  
 half space and power space
- Page Gage—shows typing space  
 (inches) remaining on page
- Quick-set visible margins
- Removable platen
- Transparent line indicator
- Cushioned carriage return lever
- De-jammer key
- Forward-glide top deck
- Carriage lock lever
- Retractable paper support arms
- Erasure table
- Push-variable line spacing
- 5-year parts guarantee
- Colors: Metallic Charcoal Grey,  
 Metallic Blue, Metallic Green
- Carrying Case—Flight-styled,  
 all metal, vinyl clad
- Made in U.S.A.
- Shipping weight 22.8 lbs.



**\$127<sup>95</sup>**

Suggested Retail  
 151.50

**SMITH-CORONA®**  
**CORONET®**  
**Super 12**

**Wide Carriage:** (on Super 12) for large  
 envelopes and oversize paper. Takes file  
 folders, writes on letter paper the long way.

**Electric Repeat Actions:** on hyphen,  
 underline, crossout (x) and dot.

**Impression Control:** regulates typing  
 force for number of copies being made.

**Personal Touch Selector:** from soft to firm.

**Powered Carriage Return:** smooth and  
 quick, at the touch of a key.

**Full Range Tabulation:** for subheadings,  
 indents and statistical typing.

**Power Space on space bar:** fast repeat  
 for forms and statistical work.

**Changeable Type:** two, attach to special  
 type bars; add signs, symbols, accents and  
 special marks.

**Page Gage:** shows inches remaining  
 on page; insures consistent bottom margins.

**Removable Platen:** snaps out for  
 easy cleaning.

**Quick-Set Visible Margins:** a finger's  
 touch sets left and right margin stops.

**\$197<sup>90</sup>** YOUR COST  
 FROM US





# OLIVETTI Typewriters

MODEL	SPECIFICATIONS	SUGGESTED RETAIL	YOUR COST FROM US
LETTERA 25	Small portable typewriter, two color ribbon	\$79.95	\$59.95
LETTERA 32	Portable typewriter, metal const. two color ribbon, tabulator including carry case, A Fantastic Seller. Heavy Duty.	99.50	72.50
STUDIO 45	Large heavy duty portable, large platen, tabulation, two color ribbon, hard carrying case. A Good Seller.	114.50	79.50
STUDIO 46	Heavy duty portable 12 inch carriage, all metal const. including carry case, two color ribbon, tabulation, well built.	149.50	114.95
LETTERA 36	Electric portable 10" carriage, automatic return, includes carry case, tabulation, error free key, compact	229.95	159.50
PRAXIS 48	12" electric compact typewriter for office use or home use, one of the best units on the market, metal construction, tabulation, two color ribbon, error free key and many other features, half space, Carry case for Praxis optional	315.00 45.00	239.95
EDITOR 2	Office electric typewriter, heavy duty for heavy office work, 13" carriage, full tabulation, half space, two color ribbon and many other features. Available with either fabric or carbon ribbon, same price	425.00	279.50
EDITOR 2	17" carriage Available either fabric or carbon ribbon	445.00	289.50

Please add \$15.00 for any foreign language as Spanish, French, Portuguese. Add \$30.00 for Arabic, Hebrew, Greek. The model 25 comes in pica or elite only. Studio 45 and 46 in pica, elite or script. The Lettera 36 in pica or elite. The Praxis 48 comes in pica, elite, esteem elite and wide Victorian elite, Editor 2 in pica or elite. All Olivetti, typewriters and adding machines as well as calculators come with a 90 days warranty directly from Olivetti, when the purchaser either takes or ships the defective unit to Olivetti's closest service center. The warranty is between Olivetti and the final purchaser or user.



**OLYMPIC  
SALES CO**

216 SOUTH OXFORD AVE.  
LOS ANGELES, CALIFORNIA, 90004

POST OFFICE BOX 74545 TELEX NUMBER 673477 CABLE ADDRESS OLYRAV  
CALL LOS ANGELES, CALIFORNIA (213) 381-3911 or 381-6031

## Praxis 48

Retail Price

316.00

YOUR COST  
FROM US

**\$239<sup>95</sup>**

Widely used in offices and homes. Pica-Elite, Esteem Elite, Wide Victorian Elite, Spanish keyboard, etc. 12" Carriage - Electric



CASE OPTIONAL \$29.50

## OLIVETTI STUDIO 46



**\$114<sup>95</sup>**

Suggested Retail \$149.95

**12" Carriage all metal  
2 Color ribbon TABULATOR**

## STUDIO 45

MANUAL



**FEATURES**  
43-key keyboard  
Adjustable touch tuning  
3-position ribbon control  
Automatic line-finder with a memory  
Push-button variable  
Spring steel keys  
Hidden paper supports  
Easy-change ribbon mechanism  
Automatic ribbon reversal  
4-position line space lever  
Full-size carriage  
Adjustable paper guide  
Erasure table

Suggested Retail

\$114.50

**\$79<sup>50</sup>**

YOUR COST FROM US

## LETTERA 25

YOUR COST FROM US

**\$59<sup>95</sup>**

Suggested  
Retail \$79.50



Like all other portable typewriters the Lettera 25 made by Olivetti, features type segment shift insuring perfect alignment. The segment moves up and down not the carriage when shifting to capital letters.

**Dimensions** Width 13 in; length 14 in; height 3 3/4 in; net weight 9 lbs 4 oz; with case 12 lbs 10 oz.

**Features**

Segment shift • Memory line finder  
• 2 color ribbon and stencil selection • Line space selector • Easy set visible margins • Margin release key • Carriage lock • Automatic paragraph indentation • Horizontal and vertical half spacing • Paper release lever • Back space key • Attractive carrying case included.

Spanish Keyboard  
Additional \$5.00



78

OLIVETTI

ADDING MACHINES AND CALCULATORS

MODEL	SPECIFICATIONS	SUGGESTED RETAIL	YOUR COST FROM US
PRIMA 20	Manual, 10 key adder, list 10 columns (\$99,999,999.99) Totals 11 columns (\$999,999,999.99), two color ribbon CREDIT BALANCE. A very good Seller, Black and Blue.	\$109.50	\$79.50
QUANTA "T"	10 key, Electric, list seven columns (\$99,999.99) totals eight columns (\$999,999.99), with CREDIT BALANCE Blue and Black.	115.50	74.95
QUANTA 20	Electric, 10 key large capacity, list 10 columns (\$99,999,999.99) totals 11 columns (\$999,999,999.99) with CREDIT BALANCE, an old best seller in the Olivetti line of products. Blue and Black.	149.50	99.95
E - 20	ELETTROSUMMA 20 is a very fast adding machine 10 key, list 10 columns (\$99,999,999.99) totals 11 columns (\$999,999,999.99) with CREDIT BALANCE. High speed of 215 cycles per minute, side controls for faster use, heavy duty for hard work. Grey and Black.	179.50	129.50
481	Electronic printing calculator, 12 digits, start/stop motor, buffered keyboard, add mode, accumulating memory, auto constant, item counter, percent key, 2 color ribbon, impact printer.	219.95	179.50
MULTI-SUMMA (M20)	Times Equal MULTIPLIER, very fast, automatic, list 10 columns (\$99,999,999.99) totals 11 columns or (\$999,999,999.99). Fully automatic multiplier, one of the best selling units in the world. Grey and Black. 12 x 12 = 144, fast unit 215 cycles per minute.	209.00	159.50

CALCULATORS, FOUR FUNCTIONS (+ - X divide)

D 24	DIVISUMMA 24, calculator, a well established model for more than 20 years, heavy duty a real work horse. List 12 columns (\$9,999,999,999.99) totals 13 columns or (\$99,999,999,999.99), with constant, memory and many good features electric calculator. Printing.	299.00	219.95
581	Electronic Printer, 12 digits, full MEMORY, constant, decimal Buffered keyboard, item counter, round up and round off, Add Mode.	299.50	199.95
582	Electronic Printer with Display combination, 12 digits, buffered keyboard, ad mode, item counter, full MEMORY, constant, decimal	319.50	239.50
560	The Famous Logos 560, unique on the market, 16 digits capacity up to 7 decimal places, minus sign, cartridge ribbon snaps in and out. FIVE REGISTERS, Two independent registers for addition, subtraction, accumulation and storage of constants with a capacity of 16 digits plus decimal point and THREE operation registers. Two constants, ad mode, buffered keyboard, maximum operation speed	425.00	349.95
E 24 CR (simplex)	Posting machine simplex, single total, excellent for light bookkeeping, easy to operate. Heavy Duty.	895.00	699.50
E 24 CR (duplex)	DUPLEX posting machine with two totals, Heavy Duty.	1,095.00	879.50

90 Days Service by Olivetti

OLIVETTI

79

Operating Controls Of The Underwood 581

- Single zero key
- Double zero key
- Decimal point key  
Floating in fixed out system with choice of 2, 3, 4, and 6 digit decimal positions and add mode.
- 1-9 numerical entry keys
- Plus and equal key
- Subtotal and non add key
- Multiplication key
- Total key

- Item counter key  
Number of plus and minus entries are counted.
- Constant key  
Retains first factor in multiplication and second factor in division as a constant.
- Round-off key (rounds off in addition, subtraction, multiplication, percentages and division)
- Percentage key  
Enables the operator to calculate percentages.
- Division key
- Minus and negative multiplication equal key
- Overflow signal  
When the capacity of the calculator is exceeded, the OVF signal will glow and error symbol (E) will print. Touch clear key and light will go out.
- Memory Signal  
When memory register is in use, the MEMlight will glow.
- On Signal  
When power is on light will glow.

- Add mode selection  
When lever is set on A, the machine will automatically convert to dollars and cents for addition (2 decimal places).
- Decimal place selection  
Lever will select 2, 3, 4 or 6 decimal places.
- Clear memory key  
Depress this key to clear memory register.
- Paper advance key
- Recall memory key  
Recalls accumulated contents of the memory register.
- Clear entry key
- Memory minus and equal key
- Clear key  
Clears all calculations except memory register.
- Memory plus and equal key



UNDERWOOD 581

\$199<sup>95</sup>

Electronic Printing Calculator

YOUR COST FROM US

Addition, subtraction, multiplication, division, repeat addition and subtraction, chain multiplication and division, constant multiplication and division, mixed calculations, discount, add-on, and percentage calculations, item counter, non add key, credit balance, round off, zero supression, add mode and direct access accumulating memory.



# OLIVETTI CALCULATORS QUANTA 20

**QUANTA "T"**

Electric Deluxe 7-8  
10 Key — Subtraction

**\$99<sup>95</sup>**

Suggested Retail  
\$149.50



Suggested Retail  
\$115.50

YOUR COST  
FROM US

**\$74<sup>95</sup>**

## FEATURES

Standard 10-key keyboard with single (0) and double (00) zero keys to speed zero entry  
7-column listing, 8-column total capacity (999,999.99)  
Direct subtraction  
Calculates at 160 cycles per minute  
Clearing, non-add and repeat keys  
Totals and subtotals in red  
Column indicator with decimal and columnar punctuation  
Multiplication by repeat addition  
Attractive carrying case available (at additional cost)

Credit Balance



1. Standard 10-Key Keyboard with single (0) and double (00) zero keys to speed zero entry.
2. 10 Column Listing, 11 Column Total Capacity (999,999,999.99).
3. Direct Subtraction and Automatic Credit Balance with Credit Balance Indicator.
4. Cycles 160 times per minute.
5. Back-space, clearing, non-add and repeat keys or levers.
6. Totals, Sub-Totals and negative balances in red.
7. Column Indicator with decimal and columnar punctuation.
8. Multiplication by repeat addition.
9. Negative multiplication with Subtract key.

**ELECTROSUMMA 20** Electric Deluxe  
10 Key with Credit Balance  
**SPECIAL LOW PRICE**

**\$129<sup>50</sup>**



Suggested Retail  
\$179.50

## SPECIAL CHARACTERISTICS

- 1 Standard 10-key keyboard with single (0) and double (00) zero keys to speed entry of even dollar amounts.
- 2 10 column listing, 11 column total capacity (99,999,999.999).
- 3 Operates at 212 cycles per minute.
- 4 Multiplication by step-over repeat addition.
- 5 Back-space, clearing and non-add keys.
- 6 Credit balance indicator.
- 7 Constant can be retained on keyboard after total or subtotal is printed.
- 8 Rotary printing.
- 9 All factors printed on tape and clearly identified; totals and subtotals in red.

# OLIVETTI

The new Multiplier Multisuma 20  
(M20)

with TIMES, EQUAL  
MULTIPLICATION  
same specifications as the  
**Multisuma 20**

Electric—Ten Key  
List 10 Totals 11  
Credit Balance with  
Times Equal, Multiplication  
Compact and Fast 215 cycles per  
minute. Two tone grey.  
Same size as the Quanta



**\$159<sup>50</sup>**  
your cost  
from us

## OUTSTANDING FEATURES OF THE OLIVETTI MODEL 600

- 1 Standard 10-key keyboard with single (0) and double (00) keys to speed zero entry.
- 2 10-column listing, 11-column total capacity.
- 3 Product of multiplication can be carried out to 11 digits.
- 4 Automatic accumulation of products.
- 5 Compact, attractive design with light, positive keyboard action.
- 6 Direct negative and positive multiplication with automatic products.
- 7 Automatic recall of totals for multiplication.
- 8 Constant can be retained on keyboard during subtotalling.
- 9 Column indicator with decimal and columnar punctuation.
- 10 All factors printed on tape and clearly identified; totals and subtotals in red.

Retail Price

# STANDARD OFFICE TYPEWRITER Olivetti Editor-2 NEW MACHINES Electric



BRAND NEW IN  
ORIGINAL FACTORY CARTONS

<b>Fabric Ribbon</b>	<b>Carbon Ribbon</b>
13" Distinctive Pica	13" Distinctive Pica Heavy Face
13" Distinctive Elite	13" Distinctive Elite Heavy Face
17" Distinctive Pica	17" Distinctive Pica Heavy Face
17" Distinctive Elite	17" Distinctive Elite Heavy Face

There are also some other type faces subject to availability  
Customer is protected by a 90 days service parts and labor.

Suggested Retail 375.00

**13" CARRIAGE \$279<sup>50</sup>**  
YOUR COST FROM US  
Add \$10.00 for 17" carriage.

# OLIVETTI CALCULATORS NEW OLIVETTI D24 HARD TO BEAT

THE NEW 1973 MODELS  
DIRECT FROM THE OLIVETTI FACTORIES

Divasomma 24 Printing Calculator

Current Model. New  
High Serial Number  
Adds—Subtracts  
Times Equal  
Multiplication  
Division  
Printing Calculator  
with memory, constant  
12-13 capacity

**SPECIAL**  
YOUR COST FROM US

**\$219<sup>95</sup>**

Retail Price \$299.50



**OLYMPIC  
SALES CO**

216 SOUTH OXFORD AVE.  
LOS ANGELES, CALIFORNIA, 90004

POST OFFICE BOX 74545 TELEX NUMBER 673477 CABLE ADDRESS OLYRAV  
CALL LOS ANGELES, CALIFORNIA (213) 381-3911 or 381-6031



# VICTOR

## ADDING MACHINES AND CALCULATORS

MODEL	SPECIFICATIONS	SUGGESTED RETAIL	YOUR COST FROM US
7 - 83 - 54	Electric 10 key list 8 columns, totals 9 columns with CREDIT BALANCE, ten key adder. Brown color, good seller	\$119.50	\$74.95
<b>IMPERIAL LINE</b>			
17 - 83 - 54	Electric 10 key, list 8 columns, totals 9 columns CREDIT BALANCE side controls for fast operation, (\$9,999,999.99) Brown, great	149.95	99.95
17 - 85 - 54	Electric 10 key, list 10 columns (\$99,999,999.00) totals 11 columns (\$999,999,999.99) with CREDIT BALANCE, preferred by accountants for heavy work, side controls, reliability. Great Unit. Brown.	159.95	109.95
<b>ELECTRONIC CALCULATORS</b>			
311	New Electronic PRINTER 12 digit, full memory, see picture and specifications on this book, great unit, One Year Guaranty.	279.95	199.95
121	Electronic printer, one of the best Victor sellers, 12 digit, Good.	249.95	149.95
302	The Famous model 302, full access memory, buffered keyboard 12 digits, ad mode a fantastic unit and heavy duty. See specifications.	325.00	199.90
203	Desk top calculator digital, 12 digits, Uni Plane display, exchange key, percentage key, sequential math, full memory, Good Unit.	119.95	73.90
MEC 223	Hand held 12 large digits in line, with punctuation, full access memory, with charger, uniplane display, auto-constant, percent system, grand total, tactile keyboard, fixed and floating decimal.	119.50	84.90
VIC 95	Hand held 8 digits including the AC adapter, has constant.	39.95	24.95
VS - 230	Scientific desk calculator, 10 large green digit display, Parentheses, Degree Conversion, Coordinate Conversion, Change sign, Exchange functions, Pi Key, Power raising, Exponential, Squaring, Square Root, Trigonometric Functions, Degree/Grad/Radian, Logarithmic functions, Arithmetic Functions, Zero Suppression, Scientific Notation, 8 digit mantissa and 2 digit exponent provides operating range of 10 - 99 to 9.9999999x10 <sup>99</sup> , Algebraic Logic, Three key-memory. And many other features, Please See Page 89	199.95	139.95
302 PD	12 digits PRINTING AND DISPLAY COMBINATION, accumulating memory, large display, two color ribbon, non print mode, constant multiplication and constant division, round off switch, variable decimal selection, percent key, Add Mode, non add key, double cipher key, Item counter, large keyboard. Please see picture on page 87	329.50	229.95
104 - 106	and 107. Hand held calculators new line yb Victor please see page 91		
104 - 107	Hand held calculators new line by Victor please see page 91		

All Victor products are fully guaranteed by the Victor Comptometer Corporation on all parts and labor.

## Introducing The Brand New VICTOR ELECTRONIC CALCULATOR

### Victor Champion Model 121

#### ELECTRONIC PRINTING CALCULATOR

- One Memory
- 12 Digit capacity

#### FEATURES

**MODERN STYLING**—The compact Model 121 is styled in a custom non-glare, two-tone aspen green finish. The highly impact resistant case provides strength with a minimum of weight.

Size: 4<sup>3</sup>/<sub>4</sub>" x 9<sup>1</sup>/<sub>2</sub>" x 11<sup>1</sup>/<sub>4</sub>" Weight 8 lbs.

**12 DIGIT CAPACITY**—Problem solutions to 12 digit accuracy make high total figuring convenient and trouble-free.

**VARIABLE DECIMAL SELECTION**—Allows choice of three different decimal settings, 2, 3 and floating.

**OVERFLOW PROTECTION**—Guarantees retention of previous entries and results when overflow occurs.

**UNDERFLOW**—Assures accuracy in large addition and multiplication. Retains 12 most significant digits.

**AUTOMATIC CONSTANT MULTIPLICATION**—The first factor of any multiplication problem is automatically retained as a constant which can then be multiplied.

**AUTOMATIC CONSTANT DIVISION**—The second factor (divisor) is automatically retained as a constant which can then be divided into other amounts.

**AUTOMATIC CONSTANT ADDITION OR SUBTRACTION**—Any amount can be repeatedly added or subtracted by merely touching the add or subtract bar.

**ADD MODE**—Position of decimal selection switch sets decimal automatically when add mode key is engaged.

**ACCUMULATING MEMORY**—Stores any calculated result at a touch of a key for use when needed.

**ROUND OFF SWITCH**—Provides automatic round off or truncation.

**NON-ADD KEY**—Causes an indexed number to be printed with an identifying symbol for non-addition of such items as dates and invoice numbers.

**INDICATOR LIGHTS**—Power, memory and error indicator lights signal operator the status of machine.

**TWO COLOR RIBBON**—Credit balance totals printed in red.

**AUTOMATIC TAPE ADVANCE**—Moves tape up at the touch of a key.

Convenient grouping of function keys respond instantly to the slightest touch. Smartly styled and eye-appealing, the keys are color-coded for immediate operator recognition and function control.



Scientifically engineered for fast and accurate operation.

YOUR COST  
FROM US

# \$149<sup>95</sup>

retail \$299.50

ONE YEAR GUARANTEE ON PARTS AND LABOR



# VICTOR ELECTRONIC CALCULATOR

## MODEL 302

### FEATURES

**MODERN STYLING**—The compact Model 302 is styled in a custom non-glare, two-tone aspen green finish. The highly impact resistant case provides strength with a minimum of weight.

Size: 4" x 9" x 12" Weight 9 lbs.

**12 DIGIT CAPACITY**—Problem solutions to 12 digit accuracy make high total figuring convenient and trouble-free.

**VARIABLE DECIMAL SELECTION**—Allows choice of four different decimal settings, 1, 2, 4 and 6.

**OVERFLOW PROTECTION**—Guarantees retention of previous entries and results when overflows occurs.

**TWO COLOR RIBBON**—Negative numbers printed in red. Tape provides highly visible minus quantities.

**AUTOMATIC CONSTANT MULTIPLICATION**—The first factor of any multiplication problem is automatically retained as a constant which can then be multiplied.

**AUTOMATIC CONSTANT DIVISION**—The second factor (divisor) is automatically retained as a constant which can then be divided into other amounts.

**ADD MODE**—Position of decimal selection switch sets decimal automatically when add mode key is engaged.

**PERCENT KEY**—Versatile feature that short cuts percentage calculations and reduces possibility of errors. Further simplifies obtaining net amounts by eliminating re-entry of results.

**ACCUMULATING MEMORY**—Stores any calculated result at a touch of a key for use when needed.

**ROUND OFF SWITCH**—Provides automatic round off at a touch.

**NON-ADD KEY**—Causes an indexed number to be printed with an identifying symbol for non-addition of such items as dates and invoice numbers.

**INDICATOR LIGHTS**—Power, memory and error indicator lights signal operator the status of machine.

Convenient grouping of function keys respond instantly to the slightest touch. Smartly styled and eye-appealing, the keys are color-coded for immediate operator recognition and function control.



Scientifically engineered for fast and accurate operation.

YOUR COST FROM US **\$199<sup>90</sup>**

## HARD TO BEAT

# VICTOR Model 302 PD Electronic Print/DISPLAY CALCULATOR

**ACCUMULATING MEMORY**—Stores any calculated result for use when needed.

**12-DIGIT CAPACITY**—Solves a wider range of calculating problems with added accuracy and convenience.

**LARGE DISPLAY**—Green, eye-ease fluorescent display with leading zero suppression.

**TWO COLOR RIBBON**—Negative numbers printed in red; positive numbers printed in black.

**NON-PRINT MODE**—Suppresses printing of entries and results when only display is desired.

**CONSTANT MULTIPLICATION**—The second factor of any multiplication problem automatically is retained as a constant which then can be multiplied.

**CONSTANT DIVISION**—The second factor of any division problem (divisor) automatically is retained as a constant which then can be divided into other amounts.

**ROUND OFF SWITCH**—When set, automatically rounds off any result ending in 5 or more. When off, result will be truncated to your decimal setting.

**VARIABLE DECIMAL SELECTION**—Allows choice of four different decimal settings; 0, 2, 4 and 6.

**PERCENT KEY**—Shortcuts percentage calculations in multiplication and division, reduces chance of error.

**ADD MODE**—Position of decimal selection switch sets decimal automatically when add mode key is engaged.

**NON-ADD KEY**—Causes an indexed number to be printed with an identifying symbol for non-addition of such items as dates and invoice numbers.

**DOUBLE CIPHER KEY**—Allows entry of double zero in one step.

**ITEM COUNT**—Prints and displays exact number of addition or subtraction entries up to 999.

**MEMORY INDICATION**—Display signals memory in use.

**OVERFLOW PROTECTION**—Display indicates when capacity is exceeded, but accumulated result is retained in memory.

**AUTOMATIC REPEAT PAPER FEED**—Paper advances one line each time key is depressed. When key is held down, paper continues to advance.

**CLEAR KEYS**—"CE" key clears entry; "C" key clears register.

**MODERN STYLING**—High impact Noryl® case designed for heavy duty desktop service.

**LARGE KEYBOARD**—Keys respond to slightest touch, color-coded for immediate recognition of function.

**ONE YEAR GUARANTEE**

This Victor Model 302PD electronic print/display calculator is guaranteed to the original purchaser for one full year for all parts and labor, providing repair work is performed in an authorized Victor Service Center. Guarantee excludes transportation to and from service centers.

Any guarantee, statutory or otherwise, does not include service and/or replacement or repair of parts when damage or defect is a result of accident, abuse or the elements.



YOUR COST FROM US  
**\$229<sup>95</sup>**

Suggested Retail Price \$329.50



# Victor Model 311 Electronic Printing Calculator

**ACCUMULATING MEMORY**—Stores any calculated result at a touch of a key for use when needed.

**12-DIGIT CAPACITY**—Solves a wider range of calculating problems with added accuracy and convenience. 12-digit capacity in calculating and memory registers.

**AUTOMATIC REPEAT ADDITION OR SUBTRACTION**—Accomplished simply by repeatedly touching the add or subtract key.

**GRAND TOTAL**—The accumulation of individual results (negative/positive) in addition, subtraction, multiplication and division in the accumulating memory register.

**SEQUENTIAL MATH**—Reduces key entries and simplifies the calculation of such problems as  $2 \times 3 \times 4$ .

**PERCENTAGE KEY**—Points off percentage answers automatically.

**VARIABLE DECIMAL SELECTION**—Allows choice of six different decimal settings, 0, 1, 2, 3, 4, and 6.

**CONSTANT SWITCH**—Automatically activates "constant" function for increased calculating flexibility.

**ROUNDING SELECTOR**—Three position setting allows rounding of numbers 5 and above, round up of any non-zero decimal digit beyond the selected amount,

or drop off of any decimal digits beyond the selected amount.

**NON-ADD KEY**—Allows printing of numbers on the tape without affecting the total.

**EXCHANGE EQUALS KEY**—Exchanges an entry with the constant currently in the calculating register, and completes the multiplication or division operation with a simple key depression.

**DOUBLE CIPHER KEY**—Allows entry of double zero in one step.

**OVERSIZED ADD & SUBTRACT KEYS**—Allows more convenient and faster touch operation.

**ADD MODE SELECTOR**—Automatically prints a decimal point at the position indicated by the decimal selector.

**INDICATOR LIGHTS**—Show when power is on, memory in use and overflow.

**AUTOMATIC PAPER ADVANCE**—Moves tape up at the touch of a key.

**MODERN STYLING**—The compact 311 is attractively color coordinated. Durable, high impact Noryl case with a non-glare stipple finish, Champagne color. Size:  $3\frac{7}{8} \times 8\frac{3}{4} \times 13\frac{1}{8}$ . Weight: 8 lbs.

COLOR CODED,  
SCIENTIFICALLY SEQUENCED  
VICTOR KEYBOARD

Convenient grouping of function keys respond instantly to the slightest touch. Smartly styled and eye-appealing, the keys are color coded for immediate operator recognition and function control.



YOUR COST FROM US

**\$199<sup>95</sup>**

Suggested Retail Price \$299.95

ONE YEAR GUARANTEE

This Victor Model 311 Electronic Printing Calculator is guaranteed to the original purchaser for one full year for all parts and labor, providing repair work is performed in our branch service center or authorized dealer service department. Guarantee excludes transportation or travel to and from either service center.

Any guarantee, statutory or otherwise, does not include service and/or replacement or repair of parts when damage, or defect is a result of accident, abuse or the elements (complete details in warranty).

# VICTOR VS-230 Electronic Calculator

**PARENTHESES**—Automatically executes sub-problems and storage of intermediate results within two levels of parentheses.

**DEGREE CONVERSION**—Converts Degrees-Minutes-Seconds to Decimal Degrees and vice-versa.

**COORDINATE CONVERSION**—Converts Polar to Rectangular Coordinates and vice-versa.

**CHANGE SIGN**—Changes the positive or negative sign of entries or results.

**EXCHANGE FUNCTION**—Exchanges the contents of the entry and working registers for maximum speed in certain calculations.

**PI KEY**—Enters the value of Pi automatically into the entry register.

**POWER RAISING**—Raises the entered value,  $a$ , to an  $x$  power.

**EXPONENTIAL**—Raises the value of  $e$  to an  $x$  power. Raises 10 to an  $x$  power.

**SQUARING**—Automatically squares an entered value.

**SQUARE ROOT**—Automatically calculates the square root of any entered number.

**TRIGONOMETRIC FUNCTIONS**—Automatically calculates sine, cosine, tangent, arc sine, arc cosine and arc tangent.

**DEGREE/GRAD/RADIAN**—Angles can be expressed as Degrees, Grads or Radians by position of selection switch.

**LOGARITHMIC FUNCTIONS**—Automatically calculates common or natural log of entered value.

**ARITHMETIC FUNCTIONS**—Addition, subtraction, multiplication and division...each with constant operation.

**LARGE 10-DIGIT DISPLAY**—Green, eye-ease fluorescent display with leading zero suppression.

**SCIENTIFIC NOTATION**—8 digit mantissa and 2 digit exponent provides operating range of  $10^{-99}$  to  $9.9999999 \times 10^{99}$ .

**ALGEBRAIC LOGIC**—for fast solutions to complex problems.

**THREE-KEY MEMORY**—with full accumulating capability.

**AUTOMATIC SEQUENTIAL MODE**—Reduces key depressions, quickens calculations of mixed and chain arithmetic functions.

**DUAL PURPOSE CLEAR KEY**—Single depression clears entry; double depression clears function.

**FULL FLOATING DECIMAL**—with underflow assures display of most significant digits in result.

**OVERFLOW INDICATION**—Automatic symbolic indication and keyboard lockout when calculating capacity is exceeded, eliminating possibility of calculating with incorrect results.

**NEGATIVE INDICATION**—for negative entries or results.

**HIGH IMPACT CASE**—Stylish Noryl® case designed for heavy duty desktop service.

**LARGE KEYBOARD**—Keys respond to slightest touch, color-coded for immediate recognition of function.

ONE YEAR GUARANTEE

This Victor Model VS-230 Electronic Calculator is guaranteed to the original purchaser for one full year for all parts and labor, providing repair work is performed in an authorized Victor Service Center. Guarantee excludes transportation or travel to and from Service Centers.

Any guarantee, statutory or otherwise, does not include service and/or replacement or repair of parts when damage or defect is a result of accident, abuse or the elements.

YOUR COST FROM US

**\$139<sup>95</sup>**

Suggested Retail Price \$119.95





# VICTOR

## Victor Electronic Model 203

One Memory — 12 Digit Capacity  
Modern styling  
Uniplane Display, easier to read  
Accumulating memory register  
Automatic repeat — addition — subtraction  
Grand Total  
Clear Keys  
Exchange Function  
Sequential Math  
Percentage Key  
Round off switch  
Underflow  
Variable decimal selection  
Memory Indicator  
Constant switch  
AC only



**\$73<sup>90</sup>**  
YOUR COST FROM US

Suggested Retail \$119.95

## Victor MEC 223

- Accumulating Memory Register
- Four Function
- Flexible Decimal System

Accumulating Memory Register  
Four Function  
Flexible Decimal System

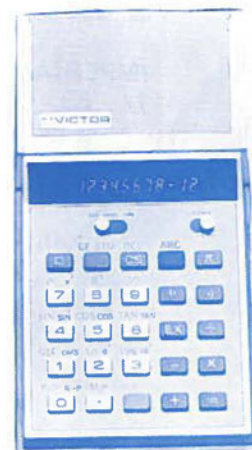
Suggested Retail \$119.95

**\$84<sup>90</sup>**  
YOUR COST FROM US



12 Digits in line, large digits  
Modern Styling—Uniplane Display  
MOS/LSI Circuitry  
Accumulating Memory Register  
Automatic Constant  
Automatic Repeat addition-subtraction  
Grand Total  
Tactile keyboard  
Clear Keys  
Percentage Key  
Sequential Math  
Underflow and Overflow protection  
Automatic Punctuation  
Including ni-cad batteries and charger

## Victor VS-107 Electronic Calculator



**\$79<sup>95</sup>**

YOUR COST FROM US

Suggested Retail \$119.95

Hand held, 8 digits, large green digit display, 2 digit exponent  
Scientific notations, Parentheses, Converts from Degrees, Minutes Seconds to Decimal Degrees and vice versa, change sign, Exchange function, Power Raising, a to an X power, Exponential, square root, squaring, Degree/Grad/Radian, Logarithmic functions, Pi, (large 10 digit green display), Algebraic logic. Three key memory, automatic sequential mode, dual purpose clear key, full floating decimal, overflow indicator, negative indication, large keyboard, battery/ac operation, complete with ni cad batteries and charger/adaptor. High impact case. One year guaranty. Coordinate conversion, converts from Polar to rectangular and vice versa.

## Victor VS-106 Electronic Calculator

Hand held, 8 large digit (green) display with leading zero suppression Change sign, exchange function, power raising, exponential, reciprocal Square root, trigonometric functions, Degree/Radian, Logarithmic functions, Arithmetic functions, algebraic logic, four key memory, auto. sequential mode, dual purpose clear key, full floating decimal, overflow protection, negative indication, large keyboard, including ni cad batteries and adapter charger, high impact case. One Full Year Guaranty by Victor.

Suggested Retail \$79.95

YOUR COST FROM US

**\$59<sup>95</sup>**



## Victor VS-104 Electronic Calculator



Hand held, 8 large green digit display, squaring, percentage, square root, reciprocal, arithmetic functions, arithmetic logic, four key memory summation switch, full floating decimal, overflow protection, negative indication, including ni cad batteries and charger/adaptor, high impact case includes One Year Guaranty by Victor.

Suggested Retail \$59.95

YOUR COST FROM US

**\$47<sup>95</sup>**







# MINI CONVERTERS FOR FOREIGN TRAVEL

TRANSFORMS FOREIGN ELECTRIC POWER from 220/240V AC down to U.S. 110/ 120V AC

## FRANZUS



**CONVERTER**  
**Model 18/21**  
YOUR COST  
FROM US  
**\$11<sup>95</sup>**

For use with:

- ALL HEATING APPLIANCES UP TO 1,000 WATTS  
HAIR SETTERS/CURLERS  
ELECTRIC IRON/CLOTHES STEAMERS  
COFFEE BREWER/HEATING PADS  
BLANKETS/TOASTERS/BLENDERS  
SOFLENS ASEPTORS
- MOST PORTABLE HAIR STYLERS/ DRYERS ELECTRIC RAZORS
- Travel case included.



YOUR COST  
FROM US  
**\$11<sup>95</sup>**

**CONVERTER- Model F11**  
For use with:

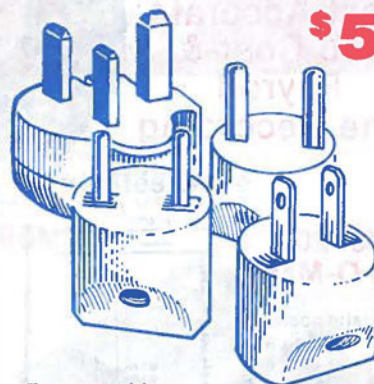
- ALL MOTORIZED EQUIPMENT UP TO 50 WATTS  
ALL ELECTRIC RAZORS  
CALCULATORS/RADIOS/RECORD STEREO/CASSETTE and TAPE PLAYERS  
MOUTH HYGIENE APPLIANCES
- The following up to 90 watt capacity:  
FLASH GUNS/STROBES  
RECHARGERS/CADIUM  
DRY CELL BATTERY PACKS
- Travel case included.

**Model 500**

**ADAPTER PLUGS**

YOUR COST  
FROM US

**\$5<sup>95</sup>**



For use with:

- Kit will adapt to most electrical wall outlets around the world.  
Includes:  
2 LONG, THIN, PIN ADAPTERS  
3 FLAT PRONG BLADE ADAPTERS  
2 SHORT, THICK, PIN ADAPTERS  
2 FLAT BLADE ADAPTERS
- Travel case included.

TRANSFORMS FOREIGN ELECTRICAL  
POWER FROM 220-240 VOLTS AC DOWN  
TO 110-120 VOLTS AC—50 OR 60 CYCLES

YOUR COST  
FROM US

**\$14<sup>95</sup>**

**CONVERTER**  
**Model 1600**



**Model 1600**  
all heating  
appliance up  
to 1600watts

For use with:

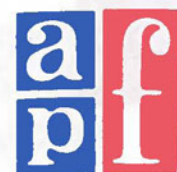
- HAIR SETTERS/CURLERS  
ELECTRIC IRON/CLOTHES STEAMERS  
COFFEE BREWER/HEATING PADS  
BLANKETS/TOASTERS/BLENDERS  
SOFLENS ASEPTORS
- MOST PORTABLE HAIR STYLERS/ DRYERS ELECTRIC RAZORS/SHAVERS
- Travel case included.

## MODEL #TK7 KIT CONTAINS:

- 1 CARRYING CASE
- 1 MODEL F11 CONVERTER (For motorized appliances up to 50 watts)
- 1 MODEL 18-21 CONVERTER (For heating appliances up to 1,000 watts)
- 4 WALL ADAPTORS (fit most outlets around the world)

YOUR COST  
FROM US

**\$26<sup>95</sup>**



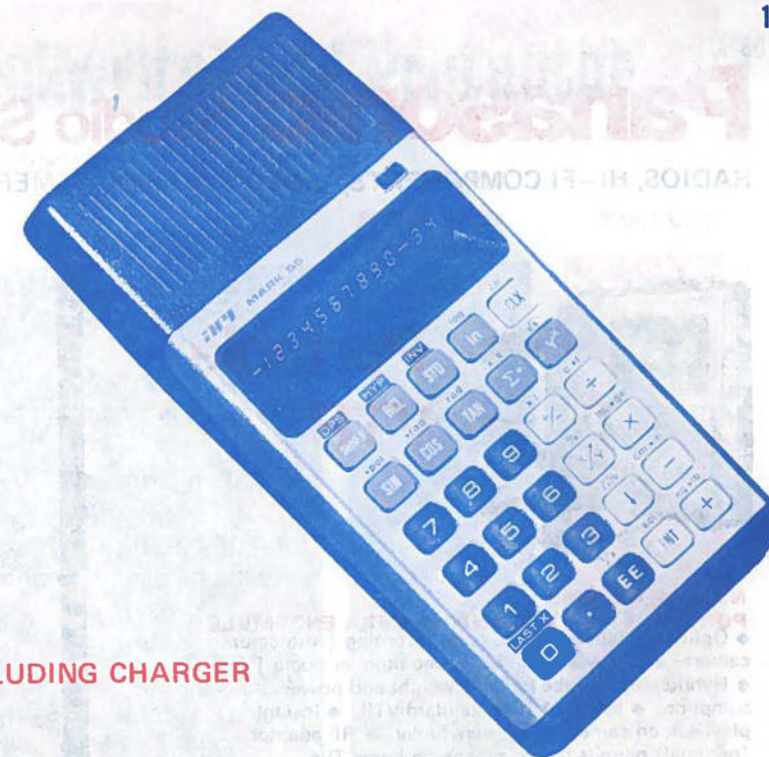
**APF**  
ELECTRONICS, INC.

**MARK 55**

SPECIAL LOW PRICE

**\$68<sup>95</sup>**

ONE YEAR GUARANTY



INCLUDING CHARGER

## COMPARISON OF ADVANCED SCIENTIFIC CALCULATORS

FEATURES	APF Mark 55	T.I. SR 51	HP 45	FEATURES	APF Mark 55	T.I. SR 51	HP 45
Retail Price	\$79.00	\$149.00	\$225.00	Vector Addition/ Subtraction	Yes	No	Yes
Type of Display	LED	LED	LED	No. Memories	9	3	9
Digits in Display	14	14	14	Memory Exchange	Yes	Yes	No
Fixed Decimal	to 9 places	to 8 places	to 9 places	Permutations	No	No	No
Rechargeable	Yes	Yes	Yes	Scientific Notation	Yes	Yes	Yes
type of Logic	RPN	Algebraic	RPN	II	Yes	Yes	Yes
No. Keys	30	40	35	Change Sign	Yes	Yes	Yes
+, -, X, ÷	Yes	Yes	Yes	Stack Operation	Yes	No	Yes
Trig	Yes	Yes	Yes	Rotate Stack	Yes	No	Yes
Inverse Trig	Yes	Yes	Yes	Recall Last x	Yes	No	Yes
Range of Trig	Full Circle	Full Circle	Full Circle	CONVERSIONS			
Lgo x, LN x	Yes	Yes	Yes	Degrees — Radians	Yes	Yes	No
e <sup>x</sup>	Yes	Yes	Yes	Degrees — Grads	No	Yes	No
10 <sup>x</sup>	Yes	Yes	Yes	Polar — Rectangular	Yes	Yes	Yes
Hyperbolic Functions	Yes	Yes	Yes	Deg/Min/Sec — Decimal	No	Yes	Yes
Degrees/Radians	Yes	Yes	Yes	Liters — Gallons	Yes	Yes	Yes
Grads	No	No	Yes	Centigrade — Fahrenheit	Yes	Yes	No
Y <sup>x</sup>	Yes	Yes	Yes	Centimeter — Inches	Yes	Yes	Yes
$x \sqrt{y}$	Yes	Yes	No	Kilograms — Pounds	Yes	Yes	Yes
$x^2 \sqrt{x}$	Yes	Yes	Yes	Mils — Microns	No	Yes	No
x!	Yes	Yes	Yes	Feet — Meters	No	Yes	No
x ex y	Yes	Yes	Yes	Yards — Meters	No	Yes	No
%, Δ %	Yes	Yes	Yes	Miles — Kilometers	No	Yes	No
Gross profit margin	Yes	No	No	Miles — Nautical Miles	No	Yes	No
$\sum + \sum -$	Yes	Yes	Yes	Acres — Ft. <sup>2</sup>	No	Yes	No
Mean/standard deviations	Yes	Yes	Yes	Fluid Oz. — Liter	No	Yes	No
Variance	No	Yes	No	Fluid Oz. — CC	No	Yes	No
Random No. Gen	No	Yes	No	Ounces — Grams	No	Yes	No
Linear Regression	No	Yes	No	Short Ton —	No	Yes	No
Slope/Intercept	No	Yes	No	Metric Ton			
				BTU — Calories	No	Yes	No
				Voltage Ratio — DD	No	Yes	No