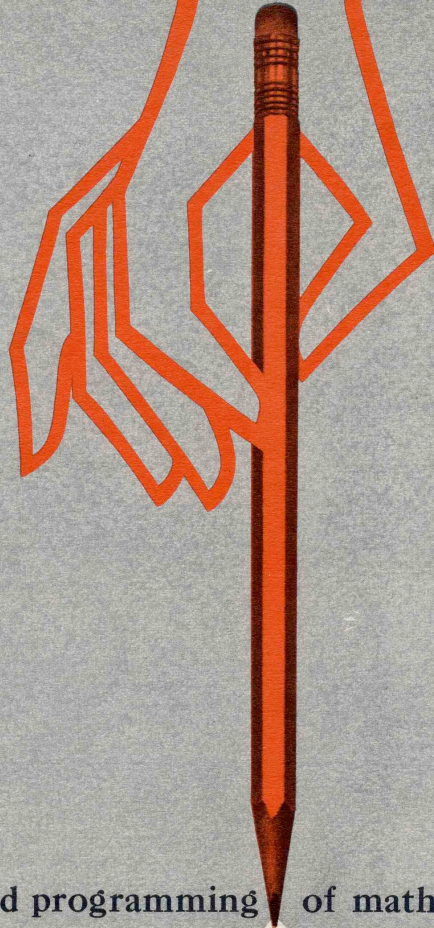


Announcing
UNIVAC **MATH-MATIC**
new coding shorthand
For Mathematicians • Engineers • Scientists



Fast, simplified programming of mathematical problems

$$Y = \frac{X^3(2+X)}{3 \cos A} \sqrt{P}$$



UNIVAC MATH-MATIC

High-speed expressway to faster, more simplified programming

UNIVAC Math-Matic Programming opens the way for programmers and non-programmers alike to a wide range of mathematical computer applications never before practical. It's easy to learn and eliminates the need to write detailed step-by-step coded computer instructions for UNIVAC I and UNIVAC II.

Now—with this shortcut programming—the problem is simply described in familiar English language sentences and algebraic equations. From this

statement of the problem the system generates *for itself* the various subroutines required to process the problem. Subroutines are assembled into a running program which will produce the desired results without any further human intervention.

Programmers are relieved from the burdensome details of storage allocation—keeping track of addresses—and segmenting re-usable overlays of the running tape.



- ▲ *frees skilled programmers from clerical drudgery*
- ▲ *simplifies and speeds training time*
- ▲ *increases program efficiency and accuracy*
- ▲ *assembles subroutines into a running program . . . automatically*
- ▲ *provides maximum programming flexibility*

provides these major programming advantages

- ▲ *reduces time needed to prepare and test a finished program*
- ▲ *concentrates the programming effort on the problem*
- ▲ *opens the way to many new computer applications*

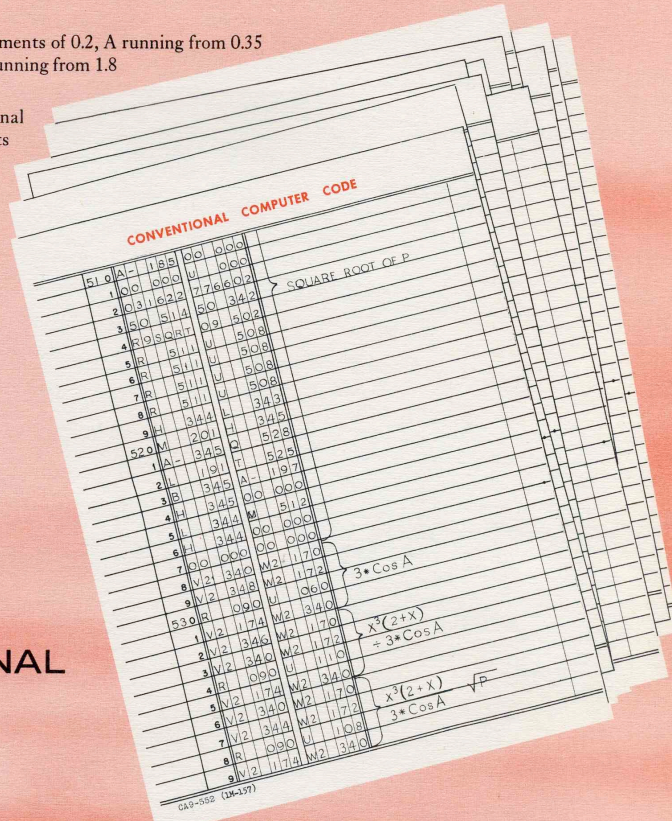
SAMPLE PROBLEM

Compare for yourself the tremendous programming savings of the UNIVAC Math-Matic Programming System for this typical sample problem.

Solve:
$$Y = \frac{X^3(2+X)}{3 \cos A} - \sqrt{P}$$

for P running from 0.2 to 0.8 in increments of 0.2, A running from 0.35 to 1.05 in increments of .175 and X running from 1.8 to 3.8 in increments of 0.5.

This problem coded in the conventional manner requires nearly a dozen sheets of instructions but with UNIVAC Math-Matic the same job can be programmed in six simple steps.



CONVENTIONAL PROGRAM

EFFICIENT, ACCURATE, ECON

Description	No. of Sentences	No. of Instructions Generated	PROGRAMMING & TESTING TIME		% SAVINGS
			MATH-MATIC	CONVENTIONAL	
Reilly's Law of Retail Gravitation	5	1320	1 hour	5 days	98%
Least Squares Solution	572	7560	40 hours	42 days	88%
Analysis of Stress	35	3600	8 hours	20 days	95%

TYPICAL USER COMMENTS:

"Math-Matic programming system's remarkable simplicity from the programmer's point of view, makes it particularly useful for the mass of scien-

tists and engineers of today who are faced with the evaluation of many complex problems—truly a significant achievement."

MATH-MATIC PROGRAMMING CODE

- (1) VARY P 0.2 (0.2) 0.8 SENTENCES 2 THRU 5.
- (2) VARY A 0.35 (0.175) 1.05 SENTENCES 3 THRU 5.
- (3) VARY X 1.8 (0.5) 3.8 SENTENCES 4 THRU 5.
- (4) $Y = X^3 * (2+X) / C3 * C_{05} A) - P^{1/2}$
- (5) WRITE AND EDIT Y X A P.
- (6) STOP.

MATH-MATIC PROGRAM

COMICAL SHORTHAND CODING



Description	No. of Sentences	No. of Instructions Generated	PROGRAMMING & TESTING TIME		% SAVINGS
			MATH-MATIC	CONVENTIONAL	
Numerical Integration	18	1680	4 hours	12 days	96%
Frictional Resistance	73	3360	12 hours	18 days	92%
Light Scattering	24	2280	6 hours	16 days	95%

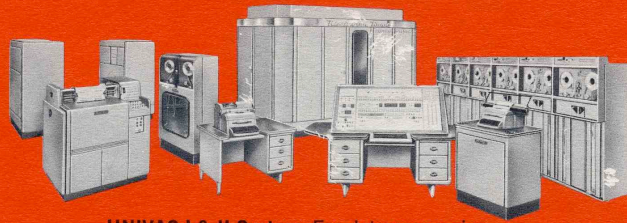
"Math-Matic Programming makes possible the use of our computer for many one-shot jobs, which up until now have been impractical to program."

"Program testing time on the computer has been drastically reduced with Math-Matic."

"Our programmers can now spend much more time on creative work — thanks to Math-Matic coding."

UNIVAC—first name in electronic computing

... a data-automation system for every need!



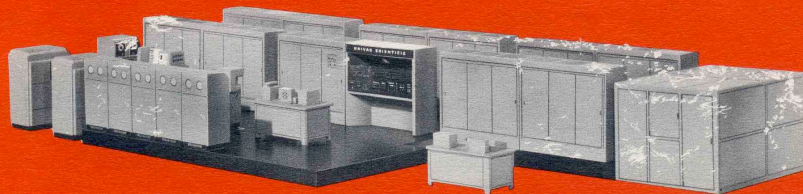
UNIVAC I & II System. For data-processing which involves large volume of input and output.



UNIVAC 60 & 120. For speeding and simplifying punched-card system procedures.



UNIVAC File-Computer. For instantaneous random access to large-scale storage.



UNIVAC 1105 System. For business applications and complex, intricate computations of engineering and research.

Remington Rand Univac

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