


TECHNICAL DATA FEB. 1972



MATHEMATICAL FUNCTIONS

The Model 11221A Mathematics Plug-in Block (Math Block) increases the Model 20's power and usefulness by providing additional mathematical functions. These include single-key functions: sine, cosine, tangent, pi, natural log (ln), log₁₀ raising a number to a non-integer power (D), and integer. You can shift to the inverse mode using the  key to obtain the arcsine, arc cosine, arctangent, absolute value, and the inverse log functions.

The TABLE N key allows you to work in the circular argument you want -- degrees, grads, or radians. It also provides a simple means of clearing the R () registers, the alpha registers and all of the flags.

INSTALLATION

The Math Block can be plugged into any one of the three numbered slots in the top of the Model 20. It assigns specialized mathematics func-

tions to the correspondingly numbered keyblock on the left of the keyboard. An overlay snaps in place over the defined keys to label their assigned functions.

SIMPLE OPERATION

Each of the Math Block's mathematical functions is operated either from the keyboard or by a program statement. Keyboard operation does not require any special programming knowledge. The Math Block merely extends the algebraic language to provide more functions with single-keystroke ease. These functions become a part of the calculator, just as the square root function is a part of the basic Model 20.

INTERNAL MEMORY

The Model 20's memory is effectively increased by the presence of the Math Block. Since this has its own internal memory, it does not use any of the calculator's memory to perform its functions.

TABLE OF FUNCTIONS

FUNCTION TYPE	MNEMONIC	RANGE OF ARGUMENT	REMARKS
Logs and Inverse $\ln x$ e^x $\log_{10} x$ Antilog ₁₀ x	LN EXP Log TN↑	$x > 0$ $-227.95 \leq X \leq 230.25$ $x > 0$ $ x < 10^{99}$	
Circular and Inverse Set desired units	TBL		TBL 1 Sets Degrees TBL 2 Sets Radians TBL 3 Sets Grads TBL 0 Shows current units
Sin x Arcsin x	SIN ASN	$ x \leq 1 \times 10^{11}$ $ x \leq 1$	Calculates principle value only; $-90^\circ \leq \theta \leq 90^\circ$.
Cos x Arccos x	COS ACS	$ x \leq 1 \times 10^{11}$ $ x \leq 1$	Calculates principle value only; $0^\circ \leq \theta \leq +180^\circ$.
Tan x Arctan x	TAN ATN	$ x \leq 1 \times 10^{11}$ $ x < 10^{99}$	Calculates principle value only; $-90^\circ \leq \theta \leq +90^\circ$.
Miscellaneous Integer x	INT		Eliminates fractional part of value; does not affect sign or integer part.
Absolute value of x (X)	ABS		Sets value positive without other- wise affecting it.
Exponentiate ("raise to the power")	↑		Power can be a non-integer value.
Pi	π		
Clear data registers and flags	TBL		TBL 4 clears all available R registers TBL 5 clears A, B, C, X, Y, Z registers TBL 6 clears flags 0 through 15.

GENERAL SPECIFICATIONS

Power:
 Supplied by Model 20 Calculator

Temperature:
 0° C to 45°

Dimensions:
 2.56 in (6,5 cm) wide,
 4.48 in. (11,4 cm) long,
 .81 in. (2,05 cm) deep

Weight:
 3 oz. (85 g.)

PURCHASE PLANS

Check with one of the Hewlett-Packard world-wide sales and service offices for specific prices and plans in your area.

Service Contracts Available

For more information, call your local HP Sales Office or East (201) 265-5000 * Midwest (312) 677-0400 * South (404) 436-6181 * West (213) 877-1282. Or write: Hewlett-Packard, Calculator Products Division, P.O. Box 301, Loveland, Colorado 80537. In Europe, 1217 Meyrin-Geneva, Switzerland.