

M1T

Display



(HP-41CX, Hewlett Packard 1983 and DM41X, [SwissMicros](#) 2020)

Overview¹

The M1T program can multiply 1st order polynomial terms, e.g.:

$(x+2)(x+3)$ which is $x^2 + 5x + 6$.

(The mathematical calculations center, [Quick Math](#), of Ben Langton can help to solve expressions.)

Examples

Please note that my default FIX 5 setting which can be replaced by your preferred number of decimals at line 53 or for program execution at line 46.

KEYSTROKES	DISPLAY	COMMENTS
[XEQ] [ALPHA]M1T[ALPHA]	$\{a,b \leq 7$	Enter first term: $(ax+b)$, e.g. $x+5$
1 [ENTER] 5 [R/S]	$\{a,b \leq 7$	Enter second term, e.g. $x+6$
1 [ENTER] 6 [R/S]	$\{a,b \leq 7$	Press R/S to complete data entry for 2nd order polynomial: $f(x) = a_2x^2 + a_1x + a_0$
[R/S]	$a_2 \leq 1,000$	Coefficient a_2
[R/S]	$a_1 \leq 1,000$	Coefficient a_1
[R/S]	$a_0 \leq 3,000$	Coefficient a_0
[R/S]		Try this one: $(x-4)(2x-3)(3x+6)(4x-7)$
[R/S]	$\{a,b \leq 7$	Enter first term ($x-4$)
1 [ENTER] -4 [R/S]	$\{a,b \leq 7$	Enter second term ($2x-3$)
2 [ENTER] -3 [R/S]	$\{a,b \leq 7$	Enter third term ($3x+6$)
3 [ENTER] 6 [R/S]	$\{a,b \leq 7$	Enter fourth term ($4x-7$)
4 [ENTER] -7 [R/S]	$\{a,b \leq 7$	Press R/S to complete data entry
[R/S]	$a_4 \leq 24,000$	Coefficient a_4
[R/S]	$a_3 \leq -126,000$	Coefficient a_3
[R/S]	$a_2 \leq 27,000$	Coefficient a_2
[R/S]	$a_1 \leq 498,000$	Coefficient a_1
[R/S]	$a_0 \leq -504,000$	Coefficient a_0
[R/S]		Run again for another combination of terms

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Program Listing

The listing of M1T is given below. The registers R00-Rxx are only used to store the calculated coefficients. The calculation itself is carried out only by using the stack registers in the loop around LBL04.

01■LBL "M1T"	16 X<>Y	31 PSIZE	46 FIX 03
02 CLRG	17 ST* Y	32 DSE X	47 ARCL IND X
03 CLST	18 X<>Y	33 CLA	48 PROMPT
04 "0"	19 ST+ IND T	34 ARCL X	49 DSE X
05 1	20 RDN	35 >":a,b=?"	50 X<0?
06 STO 00	21 DSE L	36 CF 22	51 X=0?
07 +	22 LBL 00	37 PROMPT	52 GTO 03
08 CF 29	23 DSE Z	38 FS? 22	53 FIX 05
09 FIX 00	24 GTO 04	39 GTO 04	54 SF 29
10■LBL 04	25 ST* 00	40 LASTX	55 END
11 RCL IND L	26 SIZE?	41■LBL 03	
12 X<> Z	27 2	42 FIX 00	
13 ST* Z	28 ANUM	43 "a"	
14 X<> Z	29 +	44 ARCL X	
15 X<> IND T	30 X>Y?	45 > "="	(103 bytes)

Registers, Labels and Flags

REGISTERS	COMMENTS
R00-Rxx	Coefficients a0 through a _{xx}

LABELS	COMMENTS
LBL00	Dummy
LBL01	-
LBL02	-
LBL03	Show coefficient values
LBL04	Entry and immediate updates

FLAGS	COMMENTS
22	Check for keyboard input

Downloads

The RAW/TXT format of the program is available via the website: [M1T](#) (in zip file).