

00216A

Program Description I

Program Title Mastermind Deluxe

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Program Description, Equations, Variables

The calculator is the codemaker.

After stating the number of holes (digits) and colors to be played with, the calculator generates a corresponding code. The combinations of holes and colors usually played with are as follows:

no. of Holes	no. of colors		Digits used
4	5	easy	1, 2, 3, 4, 5
4	6		1, 2, 3, 4, 5, 6
4	7		1, 2, 3, 4, 5, 6, 7
5	7		1, 2, 3, 4, 5, 6, 7
5	8		1, 2, 3, 4, 5, 6, 7, 8
5	9	hard	1, 2, 3, 4, 5, 6, 7, 8, 9

After inputting your own guess, the calculator will tell you how many of your colors are correct and in the correct position. → BLACK PEGS
the wrong position. → WHITE PEGS Here are some Examples:

Your guess:	3464	3114	2255	1215	77651	44265	47637	37477	37467
The code:	1215	1215	1215	1215	37467	37467	37467	37467	37467
Black Pegs:	0	1	2	4	1	1	2	4	5
White Pegs:	0	1	0	0	2	1	3	0	0
				WINNER					WINNER

Operating Limits and Warnings The number of colors must not exceed 9. The number 0 is not considered a color. The number of holes is inputted as 2H-2. Thus for 4 holes, store 6 in R_A ; for 5 holes, store 8 in R_A .

This program has been verified only with respect to the numerical example given in Program Description II. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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User Instructions

MASTERMIND DELUXE

1

HOLE (2M-2)

GO → B.W

(4)

COLORS

SEED

2

START → CODE

[illegible]

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	F LBL E	31 25 15	Determine code # of code digits (holes)	57	STO + 7	33 61 07	New guess
2	RCL A	34 11		58	RCL 0	34 00	Place computer code in primary register
3	h ST I	35 33		59	STO 0B	33 12	
4	g LBL c	32 25 13		060	RCL 2	34 02	
5	RCL E	34 15		61	RCL 4	34 04	
6	h Ti	35 73		62	RCL 6	34 06	
7	+	61		63	RCL 8	34 08	
8	g x ²	32 54		64	F P ↔ S	31 42	
9	g frac	32 83		65	STO 8	33 08	
010	STO E	33 15	New seed	66	h R↓	35 52	
11	RCL D	34 14	# of possible colors	67	STO 6	33 06	
12	X	71		68	h R↓	35 53	
13	1	01		69	STO 4	33 04	
14	+	61		070	h R↓	35 53	
15	f INT	31 83	Random color	71	STO 2	33 02	
16	STO(i)	33 24		72	RCL B	34 12	
17	h RCL	35 34		73	STO 0	33 00	
18	f x=0	31 51	Entire code completed?	74	RCL A	34 11	
19	GTO f d	22 31 14	Yes - Leave Loop.	75	1	01	
020	2	02	No - get another color	76	+	61	
21	-	51		77	h ST I	35 33	
22	h ST I	35 33		78	f LBL 0	31 25 00	Black Peg check.
23	GTO f c	22 31 13		79	RCL(i)	34 24	Guessed Code color
24	g LBL d	32 25 14		080	h RCL	35 34	
25	CLX	44		81	1	01	
26	STO 7	33 07	set # guesses to 0	82	-	51	
27	F P ↔ S	31 42		83	h ST I	35 33	
28	h RTN	35 22		84	CLX	44	
29	f LBL A	31 25 11		85	RCL(i)	34 24	Computer code color
030	RCL A	34 11		86	g x ≠ y	32 61	A Match of color and position
31	1	01		87	GTO 1	22 01	No - Reset
32	+	61		88	F P ↔ S	31 42	Yes - Add 1 Black peg
33	h ST I	35 33		89	1	01	
34	h x ↔ y	35 52	Guessed code	090	STO + 9	33 61 09	
35	g LBL a	32 25 11		91	F P ↔ S	31 42	
36	1	01		92	CLX	44	
37	0	00		93	STO(i)	33 24	Zero out colors in Both codes
38	÷	81	isolate a color	94	f 152	31 34	
39	Enter ↑	41		95	STO(i)	33 24	
040	g frac	32 83		96	f DSZ	31 33	
41	f x=0	31 51	ALL colors isolated?	97	f LBL 1	31 25 01	Reset
42	GTO f b	22 31 12	Yes - Leave Loop.	98	h RCL	35 34	
43	1	01	No - store color.	99	f x=0	31 51	ALL colors checked for Black, Yes - Go to white peg check.
44	0	00		100	GTO f c	22 31 15	No
45	X	71		101	f DSZ	31 33	Check next colors.
46	STO(i)	33 24		102	GTO 0	22 00	white peg check.
47	f DSZ	31 33		103	g LBL e	32 25 15	
48	f DSZ	31 33		104	RCL A	34 11	
49	h R↓	35 53	Remaining code	105	1	01	
050	f INT	31 83		106	+	61	
51	GTO f a	22 31 11		107	STO B	33 12	
52	g LBL b	32 25 12		108	f LBL 2	31 25 02	
53	F P ↔ S	31 42		109	h ST I	35 33	
54	CLX	44		110	RCL(i)	34 24	Guessed code color
55	STO 9	33 09	Clear B.W register	111	STO C	33 13	
56	1	01		112	f x=0	31 51	Zeroed out?

REGISTERS

0	1 Guessed Code - 1	2	3 Guessed Code - 2	4	5 Guessed Code - 3	6	7 Guessed Code - 4	8	9 Guessed Code - 5
S0 Computer Code - 1	S1	S2 Computer Code - 2	S3	S4 Computer Code - 3	S5	S6 Computer Code - 4	S7 # Guesses	S8 Computer Code - 5	S9 B.W
A # Holes (2H-2)	B Guessed Code - Register Counter	C Guessed Code for white Peg check	D # Colors	E Seed	F	G	H	I Register counter	

LABELS					FLAGS	SET STATUS		
A	B	C	D	E		FLAGS	TRIG	DISP
A → B				E → CODE	0	ON OFF		
a ✓	b ✓	c ✓	d ✓	e ✓	1	0 ☐ ☐	DEG ☒	FIX ☒
0 ✓	1 ✓	2 ✓	3 ✓	4 ✓	2	1 ☐ ☐	GRAD ☐	SCI ☐
5 ✓	6 ✓	7	8	9	3	2 ☐ ☐	RAD ☐	ENG ☐
						3 ☐ ☐		n <u>1</u>