

# PROGRAM DESCRIPTION I

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Program Title SUPERMASTERMIND  
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## Program Description, Equations, Variables

This program duplicates a logic game of the same name. The calculator chooses a random five digit number. Each digit is chosen from the numbers 0 through 7. Numbers may be repeated. The object is to determine the five numbers and their proper sequence. After each guess the calculator gives clues as to the number of correct digits out of sequence and the number of correct digits in the proper sequence. Using these clues, it is possible to determine the five digit number. A piece of paper and a pencil are helpful in keeping track of guesses and the subsequent clues. Skillful play can determine the number in five or less attempts every time.

Necessary Accessories none  
Operating Limits and Warnings none

Reference(s) Supermastermind by Invicta Plastics Ltd., 200, 5th ave,  
New York

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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**SOLUTION:**

Input	Function	Display	Comments
0.6859	fA	6.0	random number generated
1	A	1.0	select first digit
0	B	0.0	select second digit
4	C	4.0	select third digit
6	D	6.0	select fourth digit
5	E	3.0	select fifth digit, three of the five numbers are correct but none are in the correct sequence
7	A	7.0	enter second try
0	B	0.0	"
1	C	1.0	"
3	D	3.0	"
6	E	2.3	two numbers are correct but are in the wrong sequence, three numbers are correct and in the correct sequence

# USER INSTRUCTIONS

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SIZE: (HP-41C)				
STEP	INSTRUCTIONS	INPUT	FUNCTION	DISPLAY
1	Enter the program			
2	Enter a four place decimal as a random number seed	0.nnnn	f A	6.0
3	Choose first number ( 0 thru 7 )	a	A	a.0
4	Choose 2nd number (0 thru 7)	b	B	b.0
5	Choose 3rd number ( 0 thru 7 )	c	C	c.0
6	Choose 4th number ( 0 thru 7 )	d	D	d.0
7	Choose 5th number ( 0 thru 7 )	e	E	n.m
	n is the number of correct digits that are in the improper position			
	m is the number of correct digits that are also in the correct position			
8	to try again, return to Step 3 Note that a,b,c, and d can be keyed in without regard to sequence. e, however, initiates the comparison program.			
9	When the correct digits are guessed in their proper sequence, 0.5 will be displayed.			
10	For a new number GTO Step 3		f B	6.0

# PROGRAM LISTING

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
01	g LBL a	32 25 11	Random number generated and stored Reg 1-5	51	f GSB 3	31 22 03	digits in correct sequence
	CLR REG	31 43			RCL B	34 12	
	STO 8	33 08			RCL 2	34 02	
	1	01			f GSB 3	31 22 03	
	h Sto I	35 33			RCL C	34 13	
	g LBL b	32 25 12			RCL 3	34 03	
	RCL 8	34 08			f GSB 3	31 22 03	
	g → H.MS	32 74			RCL D	34 14	
	STO 8	33 08			RCL 4	34 04	
10	g FRAC	32 83		60	f GSB 3	31 22 03	
	EEX	43			RCL E	34 15	duplicate random number in secondary registers
	3	03			RCL 5	34 05	
	x	71			f GSB 3	31 22 03	
	g FRAC	32 83			1	01	
	1	01			1	01	
	0	00			h ST I	35 33	
	x	71			RCL 1	34 01	
	f INT	31 83			STO 1	33 24	
	7	07			f ISZ	31 34	
20	h x ≥ y	35 52		70	RCL 2	34 02	
	g x > y	32 81			STO 1	33 24	compare digit for digit for remaining correct numbers in improper sequence
	GTO b	22 31 12			f ISZ	31 34	
	STO 1	33 24			RCL 3	34 03	
	f ISZ	31 34			STO 1	33 24	
	h RCL 1	35 34			f ISZ	31 34	
	6	06			RCL 4	34 04	
	g x=y	32 51			STO 1	33 24	
	R/S	84			f ISZ	31 34	
	GTO b	22 31 12		80	RCL 5	34 05	
30	h RTN	35 22	5 digit guess stored Reg A-E		STO 1	33 24	
	f LBL A	31 25 11			1	01	
	STO A	33 11			1	01	
	h RTN	35 22			h STO I	35 33	
	f LBL B	31 25 12			f GSB 9	31 22 09	
	STO B	33 12			f GSB 4	31 22 04	
	h RTN	35 22			f GSB 9	31 22 09	
	f LBL C	31 25 13			f GSB 5	31 22 05	
	STO C	33 13			f GSB 9	31 22 09	
	h RTN	35 22			f GSB 6	31 22 06	
40	f LBL D	31 25 14		90	f GSB 9	31 22 09	
	STO D	33 14			f GSB 7	31 22 07	
	h RTN	35 22			f GSB 9	31 22 09	
	f LBL E	31 25 15			f GSB 8	31 22 08	
	STO E	33 15			RCL 6	34 06	
	0	00			1	01	
	STO 6	33 06	compare digit for digit for correct		0	00	
	STO 7	33 07			+	81	
	STO 9	33 09			RCL 7	34 07	
	RCL A	34 11			RCL 6	34 06	
50	RCL 1	34 01		00	-	51	

# PROGRAM LISTING

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
101	+	61		151	h RTN	35 22	
	h RTN	35 22			STO 9	33 09	
	f LBL 1	31 25 01	sum correct		1	01	
	1	01	digits in		7	07	
	STO + 6	33 61 06	correct sequence		CHS	42	
	h RTN	35 22			h ST I	35 33	
	f LBL 2	31 25 02	sum correct		GTO 1	22 24	
	h FO ?	35 71 00	digits in		f LBL 6	31 25 06	
	h RTN	35 22	improper		RCL 9	34 09	
110	h SF 0	35 51 00	sequence	160	h ST I	35 33	compare third
	9	09			RCL C	34 13	digit guess
	STO 1	33 24			RCL 1	34 24	with all
	1	01			g x=y	32 51	digits
	STO +7	33 61 07			f GSB 2	31 22 02	
	h RTN	35 22			f ISZ	31 34	
	g LBL 3	31 25 03	correct digit		1	01	
	g x=y	32 51	in correct		6	06	
	f GSB 1	31 22 01	sequence?		h RC I	35 34	
	h RTN	35 22			g x=y	32 51	
120	f LBL 4	31 25 04		170	h RTN	35 22	
	RCL 9	34 09	compare first		STO 9	33 09	
	h STO I	35 33	guess with all		1	01	
	RCL A	34 11	digits		7	07	
	RCL 1	34 24			CHS	42	
	g x=y	32 51			h ST I	35 33	
	f GSB 2	31 22 02			h RTN	22 24	
	f ISZ	31 34			f LBL 7	31 25 07	
	1	01			RCL 9	34 09	compare fourth
	6	06			h ST I	35 33	digit guess
130	h RC I	35 34		180	RCL D	34 14	with all
	g x=y	32 51			RCL 1	34 24	digits
	h RTN	35 22			g x=y	32 51	
	STO 9	33 09			f GSB 2	31 22 02	
	1	01			f ISZ	31 34	
	7	07			1	01	
	CHS	42			6	06	
	h ST I	35 33			h RC I	35 34	
	GTO 1	22 24			g x=y	32 51	
	f LBL 5	31 25 05			h RTN	35 22	
140	RCL 9	34 09	compare second	190	STO 9	33 09	
	h ST I	35 33	digit guess		1	01	
	RCL B	34 12	with all digits		7	07	
	RCL 1	34 24			CHS	42	
	g x y	32 51			h ST I	35 33	
	GSB 2	31 22 02			GTO 1	22 24	
	f ISZ	31 34			f LBL 8	31 25 08	
	1	01			RCL 9	34 09	compare fifth
	6	06			h ST I	35 33	digit guess
150	h RC I	35 34			RCL E	34 15	with all
	g x=y	32 51		200	RCL 1	34 24	digits

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**Note:** Refer to "HP-41C OWNER'S HANDBOOK AND PROGRAMMING GUIDE" for specific information on keystrokes. The Function Index is found at the very back of the Handbook. Refer to Appendix E in 67 or 97 "OWNER'S HANDBOOK AND PROGRAMMING GUIDE" for exact keystrokes.

