



3105

Program Description I

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Program Title INVERSE MASTERMIND

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Program Description, Equations, Variables

Inverse Mastermind is played against your HP. Having chosen a four-digit number (with digits chosen from [1,9]), Mac will find this number from clues given after each "try". A normal clue (r, g) has to be given, if Mac "tries" a number in DSP1. The integers r and g resp. give the number of right or good digits in Mac's try. A digit is called right if it is correct and on the correct place. It is only called good, if it is correct but not on the right place. As soon as Mac gives its tries in DSP0, you'll only furnish r as clue. After no more than 3+m clues (m being the highest digit in your four-digit number), Mac will have found your number-and show it in DSP5.

Data for a datacard are given on page 3.

Operating Limits and Warnings

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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[illegible]

Solution(s).

Reference(s)

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[illegible]

LOC	KEY ENTRY	KEY CODE	COMMENTS
001	*LBLA	GTO5	
	DSP1	3	
	0	STI	
	STO1	10 ^x	
	*LBL4	STOx0	
	EX	0	
	3	GSBa	
	+	GSBb	
	*LBL3	GSBd	
010	EX	GSBc	
	2	RS	
	+	B	
	*LBL2	GSBd	
	1	070	
	0	GSBb	
	+	GSBa	
	*LBL1	GSBc	
	1	RS	
	+	B	
020	STO+1	GSBd	
	RCL1	GSBb	
	RS	GSBc	
	x==y	GSBa	
	STOO	RS	
	4	080	
	x/y?	B	
	GTOO	RCL3	
	RCL1	RCL4	
	GTO8	CFO	
030	*LBLO	x=y?	
	-	SFO	
	+	0	
	CHS	C	
	STI	1	
	0	C	
	x/y?	090	
	GTOi	9	
	DSP0	C	
	3	9	
040	STI	0	
	*LBL5	C	
	ISZ	0	
	RCL1	C	
	1	EX	
	0	100	
	:	2	
	INT	F?0	
	STO1	STO-0	
	LSTX	8	
050	FRAC	9	
	1	0	
	0	CHS	
	*	C	
	STOi	1	
	DSZ	1	
	DSZ	110	
		C	
		EX	
		2	

Start here

First part in DSP1:
finding the digits

key in r ent g RS

i = 4 - r - g

not yet all digits found?

Second part: putting
the digits in good order!
Just the digits are placed
in sto 1-2-3-4
say d₁, d₂, d₃, d₄

1000

Mac tries d₁d₂d₃d₄
key in r only

Now try d₄d₂d₁d₃
key in r only

And last d₄d₂d₃d₁
key in r only

From this moment on
Mac will find your
number by
consulting the
information of
the data card.
This card translates
four last r-values
into correct answer!!

↓
⋮

REGISTERS

0	used	1	used	2	used	3	used	4	used	5		6		7		8		9	
S0		S1		S2		S3		S4		S5		S6	data card	S7		S8		S9	
A		B		C		D		E		F		G		H		I	used	J	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	F?0				LSTX		
	STO+0			170	FRAC		
	2				1		
	0				0		
	CHS				x		
	C				STI		
	1				RCLi		
120	9				↑		
	*LBLC				+		
	STO-0				1		
	2				0		
	1			180	:		
	2				GTO7		
	1				*LBLO		
	RCLO				↓		
	x>y?				EX		
	RTN				4		
130	EX				x		
	3				GTO8		
	x==y				*LBLa		
	x>y?				RCL1		
	SF2			190	GTOO		
	1				*LBLb		
	0				RCL2		
	ENT				GTOO		
	5				*LBLc		
	F?2				RCL3		
140	+				GTOO		
	STI				*LBLd		
	*LBL6				RCL4		
	RCLO				*LBLO		
	RCLi			200	x==y		
	INT				1		
	x=y?				0		
	GTOO				x		
	x>y?				+		
	RTN				RTN		
150	ISZ				*LBLB		
	GTO6				4		
	*LBLO				x==y		
	LSTX				x=y?		
	FRAC			210	GTOO		
	EX				DSZ		
	4				SPACE		
	x				RCI		
	STOO				10 ^x		
	0				x		
160	*LBL7				STO+0		
	RCLO				0		
	x=0?				RTN		
	GTOO				*LBLO		
	1			220	-		
	0				+		
	:				*LBL8		
	INT				DSP5		
	STOO				RS		

Heart of program!
 Can be consulted
 up to 9 times

Mac makes a
 four-digit number
 to "try".

Mac remembers
 your x-clues

end of game -
 ready for a new
 game

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