

# Program Description I

Program Title Mine Field

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Program Description, Equations, Variables The program works on a cartisian digram  
(rectangular coordinate)system. For every value of x (the first number in  
the pair ) therecan only be one bomb. N.B.In every coloum(verticle  
group) there is. one and only one bomb. eg if you hit a bomb at 5.1  
then there can not be another bomb in coloum five. Your direction square  
is a safe square as is 9.9,all the rest can be mined ,including 0.0.

Operating Limits and Warnings Do not attempt to leave the board area,for this is  
conidered illegal by the calculator,and will result in a return to the start .  
Since the field is generated at random it is possible to get an impassable  
mine field,(but these are rare). If you press accidentally the wrong  
direction button there is no recall,so be careful.N.B. If you reach the  
target square and hit a mine on the way to 9.9 you must come back via the  
target or at 9.9 you will be put back to 0.0 .

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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Sketch(es)

Sample Problem(s) SEED : (0.25863147)

A

AIM: To reach 9.9 via 0.4

Solution(s) (Readout) Keystrokes

(0.4) B (0.1) B (0.2) B (0.3) B (0.4) B (0.5) B (0.6) C (1.6) C (2.6) C (0.0...)  
(3.6) B (0.1) B (0.2) B (0.3) B (0.4) B (0.5) B (0.6) C (1.6) C (2.6) B (2.7)  
C (3.7) B (3.8) B (3.9) C (4.9) C (0.00...) (5.9) B (0.1) B (0.2) B (0.3)  
B (0.4) B (0.5) B (0.6) C (1.6) C (2.6) B (2.7) C (3.7) B (3.8) C (4.8)  
C (5.8) C (6.8) C (7.8) B (7.9) C (8.9) C (9.9) (41.0).....(4.5).

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Reference(s)



STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	f IBL 0	31 25 00	Random number generator subrouting		h STI	35 33	
	h π	35 73			RCL (i)	34 24	"is the target safe"
	RCL E	34 15			g x=y	32 51	
	+	61		060	GTO 1	22 01	"no try again"
	5	05			h RCI	35 34	"yes store in D"
	h y <sup>x</sup>	35 63			STO D	33 14	
	g FRAC	32 83			RS	84	
	STO E	33 15			f IBL B	31 25 12	Moving up
	3	03			h SF 1	35 51 01	
	g 10 <sup>x</sup>	32 53			RCL A	34 11	
010	x	71	Startup program "seed stored"		g FRAC	32 83	
	g FRAC	32 83			.	83	
	1	01			1	01	
	0	00		070	+	61	
	x	71			f INT	31 83	
	f INT	31 83			f x≠0	31 61	"is it possible"
	h RTN	35 22			GTO 9	22 09	"goto error "
	f IBL A	31 25 11			RCL A	34 11	
	STO E	33 15			.	83	
020	g IBL f a	32 25 11	Initial conditions setup subroutine for each new game		1	01	
	h SF 0	35 51 00			+	61	
	0	00			GTO 2	22 02	
	h STI	35 33			f IBL C	31 25 13	Moving across
	RCL E	34 15		080	h SF 1	35 51 01	
	g FRAC	32 83			RCL A	34 11	
	STO E	33 15			1	01	
	g IBL f b	32 25 12			+	61	
	f GSB 0	31 22 00			1	01	
	1	01			0	00	
030	0	00	Loop for positioning the bombs		g x<y	32 71	"is it possible"
	÷	81			GTO 9	22 09	"no goto error"
	h RCI	35 34			h x≤y	35 52	
	+	61			GTO 2	22 02	
	STO (i)	33 24		090	f IBL D	31 25 14	Moving down
	f ISZ	31 34			h SF 1	35 51 01	
	h RCI	35 34			RCL A	34 11	
	1	01			g FRAC	32 83	
	0	00			f x≠0	31 51	"is it possible"
	g x=y	32 61			GTO 9	22 09	"no goto error"
040	GTO f b	22 31 12	"continue " "all bombs in place"		RCL A	34 11	
	RCL 9	34 09			.	83	
	9	09			1	01	
	.	83			-	51	
	9	09		100	GTO 2	22 02	
	g x=y	32 51			f IBL E	31 25 15	Moving back
	.	83			h SF 1	35 51 01	
	2	02			RCL A	34 11	
	g FRAC	32 83			f INT	31 83	
	STO - 9	33 51 09			f x=0	31 51	"is it possible"
050	f IBL 1	31 25 01	Target square generation		GTO 9	22 09	"no goto error"
	f GSB 0	31 22 00			RCL A	34 11	
	1	01			1	01	
	0	00			-	51	
	÷	81		110	f IBL 2	31 25 02	Have you hit a mine
	f GSB 0	31 22 00			STO A	33 11	
	+	61			h CF 1	35 61 01	"made a legal move"

## REGISTERS

0 MINE	1 MINE	2 MINE	3 MINE	4 MINE	5 MINE	6 MINE	7 MINE	8 MINE	9 MINE
S0	S1	S2	S3	S4	S5	S6	S7	S8	S9
A YOUR POSITION			C		D TARGET SQUARE		E GOES SEED		I MINE LAYING

