

# Program Description I

Program Title	EXTERMINATOR		
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**Program Description, Equations, Variables** YOU MUST RID AN AREA OF GOPHERS. EVERY THREE SECONDS ONE WILL APPEAR AND REMAIN VISIBLE FOR ABOUT ONE SECOND, DURING WHICH IT MUST BE HIT (AND KILLED!). THE CALCULATOR WILL DISPLAY THE LOCATION OF THE VARMINT AS

R.C	NN	WHERE
C = COLUMN	$1 \leq C \leq 3$ ,	
R = Row	$1 \leq R \leq 3$ ,	
NN = NUMBER OF GOPHERS REMAINING FOR THE ROUND.		

YOU MUST ENTER THE PROPER SQUARE NUMBER (SEE SKETCH NEXT PAGE) DURING THE PAUSE IN ORDER TO HIT IT. A ROUND LASTS FOR TEN GOPHERS. AFTER EACH ROUND THE CALCULATOR WILL DISPLAY (PRINT ON THE HP-97) YOUR SCORE FOR THE ROUND AND YOUR OVERALL KILL RATIO. A NEW ROUND THEN STARTS.

**Operating Limits and Warnings**

IF YOU MISS THE "PAUSE WINDOW" THE PROGRAM WILL HALT. IN THIS CASE YOU HAVE MISSED. SIMPLY PRESS [R/S] TO CONTINUE.

THE SEED CAN BE ANY NUMBER AS LONG AS  $|SEED| < 10^{50}$ . ZERO AND NEGATIVE NUMBERS WILL WORK.

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)	COLUMNS →	1	2	3
ROWS ↓	1	7	8	9
	2	4	5	6
	3	1	2	3

A DISPLAY OF 2.3 02  
MEANS 2nd Row, 3rd Column,  
2 MORE TO GO FOR THIS ROUND.  
YOU MUST ENTER THE SQUARE  
DESIGNATION (IN THIS CASE,  
IT'S 6) DURING THE PAUSE.

## Sample Problem(s)

WE WILL START WITH A SEED OF 21.76.

NOTE THAT THE SQUARE DESIGNATIONS CORRESPOND WITH THE  
LOCATIONS OF THE NUMBER KEYS ON THE KEYBOARD.

Solution(s)	DISPLAY	ENTRY			
		21.76 [A]	3.1	03	1
	3.1 10	1	1.3	02	9
	2.1 09	4	1.2	01	8
	1.2 08	8	9.	***	HITS
	1.1 07	7	0.900	***	KILL RATIO
	2.3 06	2 (oops, MISSED)	1.2	10	NEW ROUND
	2.1 05	4	...		
	2.3 04	6			

Reference(s) CASIO FX-501P/FX502P PROGRAM LIBRARY, THICK EDITION,  
PP 201-202, "GOPHER GAME."

(ANYTHING AN "ALGEBRAIC" CALCULATOR CAN DO, A RPN CALCULATOR  
CAN DO!)



STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	*f LBL A	31 25 11	BEGIN		RCL 3	34 03	
	STO 0	33 00	STORE SEED		f FIX	31 23	
	CLx	44			DSP 0	23 00	HITS THIS
	STO 4	33 04	INITIALIZE	060	f -x-	31 84	ROUND
	STO 5	33 05	TOTALS		STO + 4	33 61 04	
	*f LBL 0	31 25 00			EEX	43	
	CLx	44			I	01	
	STO 3	33 03			STO + 5	33 61 05	
	g SCI	32 23	SET DISPLAY		RCL 4	34 04	
010	DSP 1	23 01			RCL 5	34 05	
	EEX	43	SET COUNTER		÷	81	
	I	01			DSP 3	23 03	
	h STI	35 33			f -x-	31 84	OVERALL
	*f LBL 1	31 25 01		070	GTO 0	22 00	SCORE
	RCL 0	34 00	RANDOM				
	h $\pi$	35 73	NUMBER				
	+	61	GENERATOR				
	g $x^2$	32 54					
	g FRAC	32 83					
020	STO 0	33 00					
	g	09					
	x	71					
	f INT	31 83					
	STO 1	33 01	CONSTRUCT	080			
	3	03					
	÷	81	CLUES				
	f INT	31 83					
	3	03					
	-	51					
030	CHS	42					
	STO 2	33 02					
	RCL 1	34 01					
	3	03					
	÷	81					
	g FRAC	32 83		090			
	3	03					
	x	71					
	EEX	43					
	STO + 1	33 61 01					
040	+	61					
	.	83					
	I	01					
	x	71					
	STO + 2	33 61 02		100			
	h RCI	35 34					
	g $10^x$	32 53					
	STO x 2	33 71 02					
	RCL 2	34 02					
	h PAUSE	35 72	SHOW LOCATION				
050	RCL 1	34 01	HIT?				
	gx = y?	32 51	YES: ADD 1.				
	I	01	NO: ADD 0.				
	.	83					
	STO + 3	33 61 03		110			
	f DSZ	31 33					
	GTO 1	22 01					

## REGISTERS

0 SEED	1 LOCATION	2 DISPLAY	3 HITS	4 TOTAL HITS	5 ATTEMPTS	6	7	8	9
S0	S1	S2	S3	S4	S5	S6	S7	S8	S9
A	B	C	D	E	1 COUNTER				