

01650D Program Description I

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Program Title Random Sequence of Numbers

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Program Description, Equations, Variables Program utilizes all of the numbers between one and N and randomly selects them, without repeating any numbers. Numbers can be selected in any of four ways:

1. One number at a time ("Next #")
2. All N numbers called out automatically. Using "Repeat", will repeat the same sequence of numbers with reduced cycle time. Program stops the sequence when all N numbers have been displayed.
3. Less than all N numbers can be called out automatically by keying-in the quantity Q, before calling for "All #'s". When the Q numbers have been displayed, the sequence stops. Note: Q can be larger than N, so if you wanted three sets of 10 number sequences, key in 30 before pressing "All #'s".
4. Because the "Repeat" call out more rapidly displays the numbers, an alternate function has been included that recalls all numbers without the one second pause to display each, which then is followed by displaying the sequence quite rapidly using "Repeat". This is particularly convenient if $N > 20$. Less than all N numbers can also be displayed this way by keying in the quantity Q, as above.

Operating Limits and Warnings

1. $1 \leq N \leq 100$
2. Once N is keyed in, it is retained until another N is entered.
3. If Q N, i.e. if more than one sequence of numbers is called for at the same time, only the last sequence generated will be displayed when the "Repeat" function is used.

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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01650D Program Description II

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Sketch(es)

Sample Problem(s)

1. Randomly sequence the numbers 1 through 8, calling them out automatically.

Output: 6, 4, 2, 1, 5, 8, 7, 3, then 0 showing end of sequence

2. Repeat the same sequence.

Output: 6, 4, 2, 1, 5, 8, 7, 3, then 0

3. In Keno, 20 balls are randomly selected from a set of 80. Select 20 numbers from a random sequence of 80. Enter the following seed at first: .1234554321

Output: 7, 64, 14, 22, 74, 73, 6, 25, 35, 34, 44, 36, 26, 32, 72, 10, 30, 15, 11, 27, 0 (end of sequence)

Solution(s) Keystrokes

1. 8 (C) → 8

(B) → 6, 4, 2, 1, 5, 8, 7, 3, 0 (end of sequence)

2. (E) → 6, 4, 2, 1, 5, 8, 7, 3, 0

3. 80 (C) → 80

.1234554321 (R/S) → $1.234554321 \times 10^{-1}$

20 (B) → 7, 64, 14, 22, 74, 73, 6, 25, 35, 34, 44, 36, 26, 32, 72, 10, 30, 15, 11, 27, 0 (end)

Reference(s) Program utilizes part of the H-P program, "The Dealer", no. 00188D.

NEXT # ALL #'S N; SEED SHUFFLE REPEAT

[illegible]

REGISTERS									
0 .0001+	1 .0506+	2 .1011+	3 .1516+	4 .2021+	5 .2526+	6 .3031+	7 .3536+	8 .4041+	9 .4546+
S0 .5051+	S1 .5556+	S2 .6061+	S3 .6566+	S4 .7071+	S5 .7576+	S6 .8081+	S7 .8586+	S8 .9091+	S9 .9596+
A used	B seed	C used	D used	E used	F used	G used	H used	I hole	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	9	09			2	02	
	7	07		170	X	71	
	9	09			INT	31 83	
	8	08			GSB 5	31 22 05	.....
	9	09			1	01	Stop sequence
	9	09			X=Y	32 51	when all
	STO 9	33 09			GSB 1	31 22 01	no's displayed
120	P=S	31 42			X>Y	35 52	Display no's
	*LBL 7	31 25 07			PAUSE	35 72	.....
	+	61			RCL C	34 13	Where Q < N,
	STO(i)	33 24			RCL D	34 14	is review
	DSZ	31 33		180	1	01	complete?
	GTO 7	22 07			-	51	
	+	61			STO D	33 14	
	STO 0	33 00	.....		X=Y	32 61	Display last
	.	83	Store		GTO 4	22 04	value when
	5	05	initial		R↓	35 53	Q < N
130	2	02	seed		R↓	35 53	Set flag to
	8	08			RTN	35 22	pause for no's
	4	04			*LBL B	31 25 12	.....
	1	01			SF 0	35 51 00	Was Q entered?
	6	06		190	*LBL 3	31 25 03	.....
	3	03			F? 3	35 71 03	
	STO B	33 12	.....		GTO 8	22 08	
	GSB D	31 22 14	Shuffle		RCL A	34 11	
	RCL A	34 11	Recall N and		FRAC	32 83	
	EEX	43	display it		EEX	43	
140	3	03			3	03	If not,
	X	71			X	71	recall N
	RTN	35 22			*LBL 8	31 25 08	
	STO B	33 12			RCL A	34 11	
	CF 3	35 61 03	If seed input,	200	FRAC	32 83	
	RTN	35 22	store it.		+	61	
	*LBL E	31 25 15	.....		STO A	33 11	
	CF 1	35 25 01	Set registers		GSB A	31 22 11	
	RCL C	34 13	for review		F? 0	35 71 00	Display numbers
	GSB D	31 22 14	of numbers		PAUSE	35 72	automatically
150	R↓	35 53	selected		RCL A	34 11	
	RCL C	34 13			INT	31 83	When all N
	STO D	33 14			1	01	(or Q, if used)
	X>Y	35 52			-	51	displayed, stop
	STO C	33 13	.....	210	X > 0	31 81	
	*LBL 4	31 25 04			GTO 8	22 08	
	RCL D	34 14	Recall		RTN	35 22	.....
	5	05	numbers in		*LBL b	32 25 12	Eliminate
	+	81	order		CF 0	35 61 00	pause during
	ST I	35 33	previously		GTO 3	22 03	call out
160	FRAC	32 83	selected for		*LBL 2	31 25 02	
	1	01	display		CLX	44	
	0	00			R/S	84	
	X	71			*LBL 1	31 25 01	.....
	10 ^x	32 53		220	F? 1	35 71 01	Used to stop
	RCL(i)	34 24			GTO 2	22 02	cycle when all
	X	71			SF 1	35 51 01	N numbers
	FRAC	32 83			RTN	35 22	repeated
	EEX	43					

LABELS					FLAGS	SET STATUS		
A Next #	B All #'s	C N; seed	D Shuffle	E Repeat	0 X	FLAGS	TRIG	DISP
a	b No pause	c	d	e	1 X	ON OFF		
0	1 X	2 X	3 X	4 X	2	0 ☐ ☒	DEG ☒	FIX ☒
5 X	6	7 X	8 X	9	3 X	1 ☐ ☒	GRAD ☐	SCI ☐
						2 ☐ ☒	RAD ☐	ENG ☐
						3 ☐ ☒		n 0