



5 2 1 1 2 Program Description I

Program Title

Palindromic numbers

Contributor's Name

Guido Petz

Address

Östervägen 24

City

Solna

Country

Sweden

Postal Code

17133

Program Description, Equations, Variables

The program reverses the order of the digits of an integer and checks whether the integer equals the reversed one. If not the two integers are added and the sum is reversed again and so on until the number becomes a palindrom. It is also possible to search an interval for the integer ~~with~~ which needs the greatest number of additions. However when the ever growing sum exceeds 10 digits the routine stops.

Don't try 196!! This integer has been run on large scale computers without becoming a palindrom after thousands of additions. Even other integers as 89 and 286 can't be handled by this program (surely even other smaller integers) because ~~their~~ the number of digits of their palindrom exceeds 10. A pause option

Operating Limits and Warnings

permits to watch the added integers

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)

① ☐ → 1.00

② ☐ → 0.00

276 ☐

948 PAUS

1797 - u -

9768

18447

91 ☐ 97 → 97 ***

44044 ***

6

8836886388

15

Solution(s)

Reference(s)

Palindromic numbers

 $a \rightarrow$

$a \uparrow b$ Watch?

Watch?

[illegible]



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Program Listing I

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STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	*LBLC	312513	Test of in- tegers in an interval		0	00	
	CLREG	3143			X	71	
	STOC	3318			INT	3183	
	X<Y	3552		060	STO+1	336101	
	STO9	3309			1	01	
	*LBL8	312508			0	00	
	RCL9	3409			STOX1	337101	
	GSB7	312211			ISZ	3134	
	RCL8	3408			RCLC	3415	
010	XSY	3552			RCT	3534	
	X>Y	3281			XSY	3271	
	GSB7	312207			GTO1	2201	
	1	01			RCL1	3401	
	STO+9	336109		070	1	01	
	RCLC	3413			0	00	
	RCL9	3409			÷	81	
	X<Y	3271			STO1	3301	
	GTO8	2208			RCL2	3402	
	RCL7	3407			X≠Y	3261	
020	-X-	3184			GTO2	2202	
	RCL6	3406			RCL0	3400	
	-X-	3184			1	01	
	RCL8	3408			-	51	
	RTN	3522		080	RTN	3522	
	*LBL7	312507			*LBL2	312502	
	STO8	3308			+	61	
	RCL9	3409			STO2	3302	
	STO7	3307			F20	357100	
	RCL1	3401			PAUSE	3572	
030	STO6	3306			RCL8	3412	
	RTN	3522			X<Y	3271	Loop again or stop when more than 10 digits
	*LBLH	312511			R15	84	
	STO2	3302			XSY	3552	
	0	00		090	GSBE	312215	
	STO0	3300			GTOB	2212	
	EEX	43			*LBLF	312515	
	1	01			STOA	3311	
	0	00			1	01	
	ENT	41			STI	3533	
040	1	01			*LBL0	312500	Digitcount
	-	51	Main routine		ISZ	3134	
	STO8	3312			RCLH	3411	
	RCL2	3402			RCT	3534	
	GSBE	312215		100	10X	3253	
	*LBLB	312512			÷	81	
	0	00			1	01	
	STI	3533			X<Y	3271	
	STO1	3301			GTO0	2200	
	ISZ(i)	3234			RCT	3534	
050	*LBL1	312501			STOE	3315	
	RCL2	3402			RTN	3522	
	RCT	3534			*LBLD	312514	
	10X	3253			F20	357100	
	+	81			GTO9	2209	
	FRAC	3283		110	SFO	355100	
	1	01			1	01	

REGISTERS

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



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Program Listing II

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STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
	RTN	3522					
	*L829	312509		170			
	CFO	356100					
	0	00					
	RTN	3522					
120							
				180			
130							
				190			
140							
				200			
150							
				210			
160							
				220			

LABELS					FLAGS	SET STATUS		
Go	^B used	^C Interval	^D watch?	^E used	⁰ watch	FLAGS	TRIG	DISP
^a	^b	^c	^d	^e	¹	ON OFF	DEG ☒	FIX ☒
⁰	¹	²	³	⁴	²	0 ☐ ☒	GRAD ☐	SCI ☐
⁵	⁶	⁷	⁸	⁹	³	1 ☐ ☒	RAD ☐	ENG ☐
						2 ☐ ☒		n <u>0</u>
						3 ☐ ☒		