TITLE: Print one number in a <u>Parameter Set</u> layout   (SADOI Only)

TYPE: Closed

NUMBER OF WORDS: 24

TEMPORARY STORAGE: 0, 1

ACCURACY: Prints to n decimal digits with approximate roundoff.

DURATION: Determined solely by punch speed $\sim$ 25 characters/seconds.

PARAMETERS: S3

Content of 3 before input of routine -- 00bF $D_1 D_2 d_3$ F.

DESCRIPTION: A is printed as a sign followed by D_1 digits, space, D_2 digits, space, d_3 digits, two spaces, and is approximately rounded off before being printed. The number added for roundoff will lie between
$$.36 \text{ and } .69 \times 10^{-(D_1+D_2+D_3)}.\qquad .5 \times 10^{-(D_1+D_2+D_3)}.$$
The numbers are printed in a layout consisting of C columns. These are grouped into blocks each containing b numbers, the blocks being separated by 2 line feeds.

NOTES:
1. Locations 3, 4, 5 are used during the input of the routine.

2. The carriage is reset during the input of the routine.

3. By putting address 1023 into the left hand address digits of the 23rd word of the routine, a new block will be started with the next word printed.

4. If any of $D_1 D_2$ or D_3 = 0, the corresponding space or spaces are omitted.

5. The number of characters which can be printed on one line is less than 71.

EXAMPLE: If the pseudo-order pair which constitutes the preset parameter S3 was 04 14F, 33 3F, the numbers would be printed in the following arrangement:

$$D_1 \quad D_2 \quad D_3$$

+763 812 321 -162 713 651 +812 587 776 -123 811 512

+812 563 440 +462 871 567 +011 223 668 +102 110 611

+117 512 713 -446 871 060 -000 010 001 -000 001 176

+600 200 111 -612 510 610

+712 . . . second block begins here.

All following blocks will be the same shape as the first one.

RT: 1/23/59		
DATE July 18, 1952		
CODED BY D. J. Wheeler		
CHECKED BY S. F. Best		
APPROVED BY J. P. Nash		

LOCATION	ORDER	NOTES — PAGE 1
	00 K(P5)	
	26 1000N	
0	40 1F	Plant argument
	L5 12L	
1	S4 (b-1)F By 6	Interlude Plant link.
	42 20L	Interlude follows
2	40 F 00 3322	$(\log_2 10)/4$
	0000 0000 J	
3	00 F	Constant used to reset D.O.I.
	00 2L	after interlude.
4	41 4F Entry	
	09 1F	
5	10 19F	b=1 to 1L
	L4 3F	
6	46 1L	
	10 3?F	$c \times 2^{-39}$ to 4F to be used as
7	42 4F	preset parameter.
	00 1?F	Split off D_1.
8	01 4F	
	40 4L	
9	01 4F	Split off D_2.
	40 5L	
10	01 12F	Split off D_3
	40 6L	
11	L4 5L	
	L4 4L	$4(D_1+D_2+D_3) \times (\log_2 10)/4$ to 5F to
12	10 37F	be used as S3 parameter during
	75 2L	the rest of the input.
13	40 3F	
	50 13L	Set 2^{+1} of R_2 to 1.
14	L1 6L	
	36 16L	$-D_3$ to R_2; skip if $D_3 = 0$.
15	10 4F	
	11 1F	Set 2^{-1} of R_2 to 0.
16	L1 5L From 14'	
	36 18L	$-D_2$ to R_2; skip if $D_2 = 0$
17	10 4F	

LOCATION	ORDER		NOTES
	11 1F		Set 2^{-1} of R_2 to 0.
18	L1 4L	From 16'	
	36 20L		$-D_1$ to R_2; skip if $D_1 = 0$.
19	10 4F		
	11 1F		Set 2^{-1} of R_2 to 0.
20	01 40F	From 18'	Digit layout number to 5F to be
	40 5F		used as preset parameter.
21	92 129F		Carriage return and line feed.
	L5 3L		
22	22 1014F		Return to D.O.I.
	26 4L		Start interlude.
	26 1N		End of interlude.
2	L5 23L		
	L4 12L		
3	32 4L		
	92 129F		Carriage return and line feed.
4	L1 1L		
	46 23L	From 3	
5	42 23L		Reset block and column tally.
	00 9F		
6	00 20F		
	32 8L		Test 2^{-29}
7	92 129F		Carriage return and line feed.
	L1 16L		
8	42 23L	From 6'	
	92 961F		Space
9	L5 1F		
	36 11L		
10	92 706F		– sign
	22 11L		
11	92 642F	From 9'	+ sign
	19 S3		
12	L6 1F		Generate roundoff $\simeq 1/2$
	40 1F		$.10^{-(D_1+D_2+d_3)}$
13	L5 22L		

Notes on right: "Carriage return and line feed." bracketed as **Block Tallying**. "Reset block and column tally." through "Carriage return and line feed." bracketed as **Column Tallying**.

LOCATION	ORDER		NOTES
	40 F	From 18',20	Set digit tally
14	50 1F		
	75 21L		Times 10
15	00 36F		Print one decimal digit.
	82 4F		
16	10 40F		
	S5 S4	C stored here	
17	40 1F		
	19 3F		
18	L4 F		
	32 13L		
19	92 961F		Space
	00 6F		Sum of 5 shifts left.
20	32 13L		
	22 ( )F	By 1'	Link
21	00 F		
	00 10F		Constant
22	00 F		
	00 S5		Digit tally number.
23	89 (4095)F	By 4'	
	00 ( )F	By 5, 8	Tally for block and column.