

UNIVERSITY OF ILLINOIS  
DIGITAL COMPUTER

Aux.  
ILLINOIS CODE T 3 - 77

TITLE Arctangent in Degrees (SADOI or DOI)  
TYPE Closed  
NO. OF WORDS 15  
TEMPORARY STORAGE 0, 1, 4  
ACCURACY Depends entirely on arctan routine used.  
DURATION 2 milliseconds  
RAR Negligible  
PARAMETERS Preset. S3 - contents of 3 - 00 F 00 nF where n is address of first word of a closed arctan routine.  
Program: N(4) is positive or negative depending on whether the angle or its complement is desired.  
DESCRIPTION This routine is to be used in conjunction with a closed arc tangent routine to obtain an angle in degrees. The result of using the subroutine is to replace  $N(R_1)$  by  $\arctan 2N(R_1)$  or  $\arccot 2N(R_1)$  depending upon whether N(4) is positive or negative respectively. The result may be directly converted and printed or combined linearly with other angles before printing. The decimal point follows the 3rd decimal digit so that angles  $100^\circ$  or greater in absolute value may be formed before printing.

ENTRY

p		50 P
p+1		26 (T3)

Rt: 9/23/59

Date	<u>March 12, 1953</u>
CODED BY	<u>D.R.Clutterham</u>
CHECKED BY	<u>Machine</u>
APPROVED BY	<u>J.P.Nash</u>

LOCATIONS	ORDERS	NOTES
	OOK (T3)	
0	40 F	Store argument
	S5 F	
1	44 9L	
	42 12L	Plant link
2	19 38F	Adjust to remove possible
	10 F	overflow.
3	00 1F	
	50 3L	
4	26 S3	$N(3) = 2^{-319}$ address of arc tan
	40 F	routine.
5	50 F	
	7J 14L	
6	40 F	
	L5 4F	
7	36 9L	Transfer if tangent desired.
	L5 13L	
8	L2 F	complement if cotangent desired.
	22 9L	
9	L7 F	From 7
	40 1F	
10	L5 F	
	36 12L	Transfer if angle is positive
11	11 1F	
	22 12L	
12	L5 1F	From 10
	22 ( )F	By 1,
		From 11
13	00F 00 090	
	000 000 000J	90°
14	NOF 00 442	
	704 220 444J	180°/100w