

SBC

DPC

$\phi, + \text{alpha}$
 $0, 1 \text{ numeric}$

Program Jack Bresenham

1401/1410 AUTOCODER CODING SHEET

Estimate # 76 of 80

Programmed by _____

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Date 1/6/62

Line	Label	Operation	OPERAND
3	56	15 16 20 21	25 30 35 40 45 50 55 60 65 70
0.1	DECODE	SBR	DECODX+3 SAVE RETURN LINKAGE
0.2		MCW	IX1, JSVE1
0.3		MCW	IX2, JSVE2
0.4		LCA	JLPC, IX1 LOAD INDEX 1 WITH LOCATION
0.5		BCE	JEXPS, JTYPE, E Q. EXPONENTIAL - BRANCH YES
0.6	JSET2	LCA	IX1, IX2 SET INDEX 2 FOR LATER USE
0.7		SBR	JRST+6, RBUF+5+X1 SET RESTOR 6, RIGHT PRIOR EXIT
0.8		MCW	RBUF+5+X1, JTEMP SAVE 6 POSITIONS TO RIGHT AND
0.9		SBR	RBUF+5+X1, 0 REPLACE WITH 6 ZEROS
1.0		SBR	
1.1		CW	JDEC SET DECIMAL INDICATOR ON
1.2		BCE	JSKIP1, JTYPE, I Q. INTEGER - BRANCH YES
1.3		SW	JDEC IF NOT INTEGER SET DECIMAL OFF
1.4	JSKIP1	ZA	+05, JDISC INITIALIZE DIGIT COUNT
1.5		A	+2, JEXPC FOR LATER MOVE ANS BY INDEX ADD 2 TO EXP
1.6		ZA	*-6, JANS ZERO ANSWER
1.7	JZONE	BWZ	JBLNK, RBUF-1+X1, 2 Q. ZONE BITS PRESENT - BRANCH NO-
1.8		BCE	JSEDEC, RBUF-1+X1, 0 Q. DECIMAL POINT - BRANCH YES-
1.9		MZ	JM+7, JDEC SET SIGN MINUS
2.0	JM	BCE	JCT5, RBUF-1+X1, - Q. NEGATIVE - BRANCH YES-
2.1	JP	MZ	JM, JDEC NOT NEG SO SET SIGN PLUS
2.2	JCT5	MCW	@ @, RBUF-1+X1 BLANK 1 LEFT FOR LATER TESTING
2.3		C	JDISC, +05 Q. FOUND AT LEAST ONE DIGIT
2.4		BE	JRST - BRANCH NO-
2.5		C	JEXPC, -00 Q. EXPONENT COUNT NEGATIVE ZERO

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3	56	15 16 20 21	25 30 35 40 45 50 55 60 65 70
0.1		BE	JSKIP2 -BRANCH YES-
0.2		BM	JRST, JEXPC IF NEG AND NOT ZERO, THEN TOP SMALL
0.3	JSKIP2	BCE	JTLGE, JTYPE, I 0. INTEGER -BRANCH YES-
0.4		SW	RBUF+1+X1 IF NOT INTEGER SET WM 2 TOP RIGHT
0.5		MZ	+2, JEXPC FORCE PLUS SIGN IN EVENT NEG ZERO
0.6		SBR	JTLGE+6, RBUF-1+X2 SET UP BLANK TEST FOR SIZE
0.7		C	JEXPC, JDIGC 0. SCALED EXPONENT TOP LARGE
0.8		BL	JTLGE -BRANCH YES-
0.9		M	JSC4, RBUF+2+X2 MULTIPLY BY 2 DIGIT SCALE FACTOR
1.0		A	JEXPC, IX1
1.1		MCW	RBUF-1+X1, JANS PLACE RESULT IN ANSWER
1.2		SAR	JTLGE+6 SET UP BLANK TEST FOR SIZE
1.3		MCS	RBUF-1+X2 REMOVE WM AND SET UP BLANK TEST FOR SIZE
1.4	JTLGE	BCE	JRST, 0 CHECK TOP SEE IF RESULT TOP LARGE
1.5		MCW	@99*9@, JANS THE * SIGNALS TOP LARGE
1.6	JRST	MCW	JTEMP, 0 RESTORE 6 DIGITS RIGHT
1.7		MZ	JDEC, JANS SET ANSWER SIGN
1.8		MCW	JVE1, IX1
1.9		MCW	JVE2, IX2
2.0	DECODX	B	0 EXIT DECODE AND SCALE
2.1			
2.2	JDEC	DCW	#1 DECIMAL FOUND INDICATOR AND SAVE SIGN
2.3	JTYPE	DCW	#1 E EXPONENTIAL, I INTEGER, F FLOAT PT
2.4	JLOC	DCW	#3 LOCATION IN RECORD OF RIGHTMOST POS
2.5	JSC4	DCW	#2 INTEGER SCALE FACTOR
2.6	JEXPC	DCW	#2 EXPONENT OF SCALE FACTOR (SIGNED)
2.7	JANS	DCW	#4 ANSWER FOR DECODED, SCALED RESULT
2.8	JDIGC	DCW	#2 NUMBER OF DIGITS FOUND COUNT
2.9	JTEMP	DCW	#6 HOLD 6 POSITIONS RIGHT
3.0	RBUF	DA	IX138.G USE ONLY 132 SINCE NEED 6 RIGHT

✓
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Zero?
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0?

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Line	Label	Operation	OPERAND
3	56	15 16 20 21	25 30 35 40 45 50 55 60 65 70
0.1	JEXPS	A	@I9F@, IX1 - 3, XI DECREMENT LOCATION BY 4
0.2		BM	JNEXP, RBUF+1+XI Q. NEGATIVE EXPONENT
0.3		A	RBUF+3+XI, JEXP IF POS EXP ADD
0.4		B	JSET2
0.5	JNEXP	S	RBUF+3+XI, JEXP IF NEG EXP SUBTRACT
0.6		B	JSET2
0.7			
0.8	JBLNK	BCE	JP, RBUF-1+XI, Q. BLANK - BRANCH YES-
0.9		A	@I9I@, IX1 DECREMENT BY 1 TO SET UP NEXT
1.0		A	*-6, JDISC INCREMENT DIGIT COUNT
1.1		BWM	JZONE, JDEC Q. FOUND DECIMAL YET - BRANCH NO-
1.2		A	*-6, JEXP INCREMENT EXPONENT COUNT
1.3		BCE	JZONE, JTYPE, I Q. INTEGER - BRANCH YES
1.4		MN	RBUF+XI, RBUF+1+XI SHIFT RIGHT ONE
1.5		B	JZONE
1.6			
1.7	JSDC	CW	JDEC SET DECIMAL INDICATOR ON
1.8		A	@I9I@, IX1 DECREMENT BY 1 TO SET UP NEXT TEST
1.9		B	JZONE
2.0			
2.1	JSVE1	DCW	#3 SAVE INDEX REGISTER 1
2.2	JSVE2	DCW	#3 SAVE INDEX REGISTER 2
2.3			
2.4	IX1	EQU	89
2.5	IX2	EQU	94
0.1			IX1, JEXP

Program _____

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Line	Label	Operation	OPERAND
3	56	15 16 20 21	25 30 35 40 45 50 55 60 65 70
0.1	RREAD	SBR	REXIT+3 SAVE RETURN LINKAGE
0.2	RRT	RT	RTAPE, RBUF READ TAPE
0.3		BEF	REF \emptyset . END OF FILE
0.4		C	HEADC, HEADR \emptyset . JUST READ HEADER
0.5		BU	HEAD1 -BRANCH YES-
0.6		BER	RER \emptyset . REDUNDANCY
0.7	RADD	A	*-6, DATAC INCREMENT DATA RECORD COUNT
0.8		C	DATAC, DATA \emptyset . LAST DATA RECORD OF A GROUP
0.9		BU	REXIT -BRANCH NO-
1.0		MCW	@000@, HEADC ZERO HEADER COUNT
1.1		MCW	@000@, DATAC ZERO DATA COUNT
1.2	REXIT	B	0 EXIT READ DATA TAPE
1.3			
1.4	HEAD1	A	*-6, HEADC INCREMENT HEADER RECORD COUNT
1.5		B	RRT \emptyset READ NEXT RECORD
1.6			
1.7	RER	A	*-6, RERC#1 INCREMENT ERROR COUNT
1.8		BAV	RHLT TRY TEN TIMES
1.9	RBSP	BSP	RTAPE
2.0		B	RRT
2.1	RHLT	H	
2.2		BIN	RADD, D D -UP- ACCEPT REDUNDANCY
2.3		B	RBSP OTHERWISE TRY AGAIN
2.4	HEADC	DCW	#2, HEADER RECORD COUNT
2.5	DATAC	DCW	#3, DATA RECORD COUNT
011		S	RERC#1 ZERO ERROR COUNT
26	REF	MCW	@*@, HEADC THE * SIGNALS END OF FILE
27		B	REXIT