

PROGRAM TITLE/PURPOSE EQUATION OF A LINE
PROGRAMMER J. PARSONS
DATE 11-08-78 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

ENTER COORDINATES x_i, y_i, \dots ;

x_n, y_n FOR POINTS $P_1; P_2; \dots; P_n$

AND FIND SLOPE, INTERCEPT,

AND CORRESPONDING Y VALUE

FOR ANY X VALUE.

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
1.	ENTER PROGRAM	
2.	FOR EACH RUN, PRESS 2^{nd} INV C.T. RST R/S	
3.	ENTER NUMERATOR OF x_i , R/S, DENOMINATOR OF x_i , R/S	DISPLAY x_i , NUMERATOR 1. GOES TO ZERO
4.	REPEAT FOR EACH x_n AND y_n	NOTE. IF COORDINATE IS INTEGER, ENTER COORD. AND R/S R/S
5.	SBr 1 FOR SLOPE SBr 2 FOR INTERCEPT SBr 3 FOR Y VALUE OF X VALUE ENTERED	

FLOW CHART/NOTES

EXAMPLE - $[(2, \frac{3}{2}); (4, \frac{5}{2})]$

- A. PROGRAM ENTERED
 B. 2nd INV C.t RST R/S
 C. 2 R/S R/S
 D. 3 R/S 2 R/S
 E. 4 R/S R/S
 F. 5 R/S 2 R/S etc.
 G. SBr 1 (SLOPE)
 H. SBr 2 (INTERCEPT)
 I. SBr 3 (Y VALUE)
 REPEAT B

KEY	LOC	CODE	COMMENTS
1	00	01	
GTO 6	01	32 6	
CUR	02	15	
R/S	03	81	
2nd(LBL5)	04	86 5	
SBr 9	05	61 9	
XDT	06	22	
CUR	07	15	
R/S	08	81	
SBr 9	09	61 9	
2ndΣ+	10	88	
CUR	11	15	
R/S	12	81	
GTO 5	13	51 5	
2nd(LBL9)	14	86 9	
÷	15	45	
RCL 6	16	33 6	
R/S	17	81	
=	18	85	
INV SBr	19	-61	
2nd(LBL1)	20	86 1	
RCL 5	21	33 5	
÷	22	45	
RCL 0	23	33 0	
-	24	65	
2nd X	25	89	
X	26	55	
2nd INV X	27	-89	
=	28	85	
÷	29	45	
2nd INV Σ	30	-80	
=	31	85	
INV SBr	32	-61	
2nd(LBL2)	33	86 2	
SBr 1	34	61 1	

MEMORIES

LABELS

0	Dsz	n	0	—
1		Σy	1	SLOPE
2		Σy ²	2	Y-INTERCEPT
3		Σx	3	Y VALUE
4		Σx ²	4	(DEPENDING
5	(AOS)	Σxy	5	ON X)
6	(AOS)	1	6	—
7	(t)	Xn	7	—

RADIO SHACK
003 EC-4000
CAT. NO. 65-650

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CUSTOM MF'd. IN USA FOR RADIO SHACK
A DIVISION OF TANDY CORPORATION, FORT WORTH, TX 76102

X	35	55
2nd INV X	36	-89
+/-	37	84
+	38	75
2nd X	39	89
=	40	85
INV SBr	41	-61
2nd(LBL3)	42	86 3
GTO 7	43	32 7
SBr 1	44	61 1
2nd Prd7	45	39 7
SBr 2	46	61 2
SUM 7	47	34 7
RCL 7	48	33 7
INV SBr	49	-61

LRN
2nd FIX.2

PROGRAM TITLE/PURPOSE MISC. PROG. INFORMATION

PROGRAMMER J. PARSONS

DATE 11-78

RADIO SHACK EC-4000

PROGRAM RECORD

PROGRAM DESCRIPTION

CONVERTING TO ANOTHER BASE -

STO 6	8 nd LBL 1	STO 6	RCL 1	and INV X = t
R/S	CLR	X	4^x	GTO 2
STO 1	STO 2	RCL 5	RCL 4	*INV SBR
R/S	STO 4	=)	
STO 5	2 nd LBL 2	STO 7	=	ENTER NO.
2 nd FIX 8	RCL 6	+/-	EE	AND THEN
*SBR 1	STO 3	+	INV EE	ITS BASE
2 nd INV FIX	÷	RCL 3	SUM 2	AND THEN
RCL 2	RCL 5	=	1	THE BASE
R/S	=	X	SUM 4	TO WHICH IT
RST	2 nd INT	(CLR	WILL BE CHANGED.

HOW TO USE IT:

STEP	PRESS	SUM OF TWO PRIMES	DISPLAY/COMMENTS
1	STO 4	2 nd X = t and LBL 3	NOTE ON PROG. I: IF BEGINNING DIVIDEND CONTAINS 5 + X DIGITS, THEN INTEGER PART OF FIRST QUOTIENT MUST HAVE 2 + X DIGITS.
1	GTO 1	2 nd INV DZ	
2	STO 6	RCL 6 INVSBR	
2	2 nd LBL 1	2 nd PAUS 2	
2	A	RCL 3 SUM 5	
3	SUM 6	R/S RCL 3	
3	RCL 6	RST +	OTHERWISE, ERROR WILL RESULT IF PROG. CONTINUES.
3	SBR 2	2 nd LBL 2 RCL 5	
3	2 nd X = t	STO 3 =	
4	GTO 1	✓X STO 7	SECTION A MAY BE UP
4	RCL 4	STO 0 2 nd INT	TO ELEVEN STEPS -
4	-	2 2 nd X = t	
5	RCL 3	2 nd INV PRIMES INVSBR	ENTER A NO. / R/S AND
5	=	1 GTO 3	2 PRIMES WILL SHOW THAT
5	SBR 2	STO 5 →	ADD TO THE NO. - SBR 1 FOR MORE

FLOW CHART/NOTES

$$\text{QUAD.EQ. } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\text{FORMULAS} - (2mn)^2 + (m^2 - n^2) = (m^2 + n^2)$$

$$(3a^2 + 5ab - 5b^2)^3 + (4a^2 - 4ab + 6b^2)^3$$

$$+ (5a^2 - 5ab - 3b^2)^3 \pm (6a^2 - 4ab + 4b^2)^3$$

$$(4x^4 - y^4)^4 + (4x^3y)^4 + (4x^3y^3)^4 +$$

$$(2xy^3)^4 + (2xy^3)^4 = (4x^4 + y^4)^4$$

REVISED BASE PROGRAM -

STO 6	SBR 1	2nd INT	INN EEE
R/S	and INN FIX	STO 6	Sum 2
STO 1	R/S	X	1
R/S	RST	RCL 5	Sum 4
STO 0	and RCL 1	=	and INN X ²
2nd FIX 8	CLR	STO 7	GTO 2
1	STO 2	INN SUM 3	RCL 2
0	STO 4	RCL 3	INN SBR
STO 5	and RCL 2	X	
SBR 1	RCL 6	RCL 1	
STO 6	STO 3	y^x	
RCL 6	\div	RCL 4	
and EXC 5	RCL 5	=	
STO 1	=	EE	

MEMORIES

LABELS

	Dsz	n	0	I-DIVISION	KEY	Loc	CODE	COMMENTS
1		Σy	1	ALGORITHM*	STO 6	00	3 2 6	STO 3
2		Σy^2	2	II-EUCLID	2nd RCL 1	01	8 6 1	STO 5
3		Σx	3	ALGORITHM	=	02	8 5	R/S
4		Σx^2	4	III-CHRONOMETER	STO 5	03	3 2 5	STO 4
5 (AOS)		Σxy	5	* I IS FOR	STO 1	04	0 2	STO 6
6 (AOS)			6	THE EVALUATION	and INN INT	05	-1 8	2nd BUI
7 (t)			7	OF INTEGRAL	STO 7	06	3 2 7	RCL 6
RADIO SHACK				+/-	(X)	07	0 6	\div
005 EC-4000				+	and INN LOC	08	-1 8	RCCL 5
CAT. NO. 65-650				=	STO 4	09	3 2 4	=
pcjs.org					and RCL 3	10	8 6 3	2nd INT
					RCL 5	11	3 3 5	X
					and INT	12	4 9	RCCL 5
					and INN RCL	13	-7 6	=
					GTO 2	14	5 1 2	+/-
					1	15	0 1	+
					and INN LOC	16	-1 8	RCCL 6
					and PRO 7	17	3 9 7	=
					and INN INT	18	-3 9 4	2nd EXC 5
					GTO 3	19	5 1 3	STO 6
					and RCL 2	20	8 6 2	RCL 5
					RCL 5	21	3 3 5	X ² t
					X	22	5 5	CLR
					RCL 4	23	3 3 4	INN and X ² t
					=	24	8 5	GTO 1
					and INT	25	4 9	RCCL 6
					\div	26	4 5	R/S
					RCL 4	27	3 3 4	RST
					X	28	5 5	2nd RCL 2
					R/S	29	8 1	RCL 3 \div
					RCL 6	30	3 3 6	RCL 1
					=	31	8 5	= PAUS
					STO 7	32	3 2 7	PAUS RCL 4
					and INT	33	4 9	\div RCL 6
					and INN RCL	34	-6 6	= R/S
					GTO 4	35	5 1 4	RST
					RCL 5 (a ₀)	36	3 3 5	
					SBR 8	37	6 1 8	-FLASH-
					and RCL 4	38	8 6 4	III
					RCL 7	39	3 3 7	CHRONOM.
					and INN INT	40	-4 9	RCL 2
					+/-	41	8 4	SUM 1
					+	42	7 5	RCL 1
					1	43	0 1	2nd INN DMS
					=	44	8 5	15 NOPs
					X	45	5 5	RST
					RCL 4	46	3 3 4	AT LOC. 19.
					\div	47	4 5	STORE
					RCL 6	48	3 3 6	.01 and DMS
					GTO 1	49	5 1 1	IN MEM 2

PROGRAM TITLE/PURPOSE FACTORIAL / COMBINATIONS
PROGRAMMER J. PARSONS
DATE 11-78 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

CALCULATES n^C_r
n THINGS TAKEN r
AT A TIME

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
①	ENTER n <u>R/S</u>	FINDS n!
②	ENTER r <u>R/S</u>	FINDS $\frac{n!}{(n-r)!r!}$
	NOTE: WHEN USING ALTERNATE SECTION A, USE: QND LBL 5 1 SUM 4 RCL 4 R/S RST FOR SECTION E	= NO. OF COMBINATIONS

FLOW CHART/NOTES

FORMULA $\frac{n!}{(n-r)!r!}$

FOR: $\binom{n}{r}$

SECTION B - CLEARS
(SUPERFLUOUS) ACCUMULATOR 4 AUTOMATICALLY.

SECTION C - FOR A "3BR8"-
(SUPERFLUOUS) ALLOWS ENTERING
OTHER R'S FOR
SAME N.

SECTION D - ELIMINATES
(SUPERFLUOUS) ERROR WHEN N=R

SECTION A - DISPLAYS ACCUM. &
NORMALLY:
~~R/S RST~~ (0A) SUM 4 (30) 1
(01) SUM 6 (30) RCL 6
(33) GTO 8

SECTION E - NECESSARY FOR
(SUPERFLUOUS) SECTION D

MEMORIES				LABELS			
0	D ₅₂	n	0	—			
1	n!	ΣY	1	3UBRT.			
2	r!	ΣY^2	2	FACTORIAL RT.			
3	(n-r)!	ΣX	3				
4	SUM	ΣX^2	4				
5	(AOS) n	ΣXY	5				
6	(AOS) r		6				
7	(t) COMP.		7				
RADIO SHACK			8				
006 EC-4000			9				
CAT. NO. 65-650							

KEY	LOC	CODE	COMMENTS
STO 5	00	325	
CUR	01	15	
STO 4	02	324	{ B
RCL 5	03	335	
SBR 2	04	612	
STO 1	05	321	
R/S	06	81	
2nd CBL8	07	868	C
STO 6	08	326	
SBR 2	09	612	
STO 2	10	322	
RCL 5	11	335	
—	12	65	
RCL 6	13	336	
=	14	85	
SBR 2	15	612	
STO 3	16	323	
X > t	17	22	
CUR	18	15	{ D
2nd X=t	19	66	
SBR 5	20	515	
RCL 1	21	331	
÷	22	45	{ RCL 3
(23	43	X
RCL 3	24	333	{ RCL 2
X	25	55	÷
RCL 2	26	332	{ RCL 1
)	27	44	=
=	28	85	
SUM 4	29	344	
RCL 4	30	334	{ A
R/S	31	81	
R/T	32	71	
2nd CBL2	33	862	
STO 0	34	320	
2nd CBL1	35	861	
RCL 0	36	330	
X	37	55	
2nd D ₅₂	38	56	
GTO 1	39	511	
1	40	01	
=	41	85	
INVISBR	42	-61	
2nd CBL5	43	865	{ E
1	44	01	
STO 3	45	323	{ NOT
INVISBR	46	-61	R/S
—	47	865	NOT NEEDED
—	48	323	"
—	49	01	"

PROGRAM TITLE/PURPOSE PRIME - COMPOSITE / FACTOR PROG.
PROGRAMMER J. PARSONS
DATE 12-78 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

ENTER X AND RUN
AND
FACTORS WILL
BE DISPLAYED.

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
(1)	ENTER PROGRAM <u>[CRN]</u> <u>[RST]</u>	NOTE: FOR 000 NOS.
(2)	ENTER X, <u>[RIS]</u>	
(3)	REPEAT (2) FOR EACH X.	NOTE: DISPLAY ROUTINE MAY BE UP TO 13 STEPS. CAN BE MORE - UP TO 20 STEPS.

FLOW CHART/NOTES

TEST FOR SUFF.
NOS.

LOC. 36 LBL 2

RCL 4
STO 7
RCL 6
INV 2nd X $\geq t$
SBR 8
R/S
RST

TEST FOR DEF.
NOS.

LOC. 36 LBL 2

RCL 6
STO 7
RCL 4
2nd X $\geq t$
GTO 3
RCL 6
SBR 8
2nd LBL 3
RCL 6
R/S
RST

FOR SIMPLE

PRIME/COMPOSITE

CITICIC - ELIMINATE

STEPS 23-35

EXCEPT FOR : CLR EFFICIENCY WITH

SBR 8

AND DISPLAY

WILL FLASH IF

NUMBER COMPOS.

FOR MORE
ODD NUMBERS,
USE ALTERNATE
STEPS IN RIGHT
COLUMN.

MEMORIES

LABELS

0	D _{S2}	n	0	—
1		Σy	1	SUBROUTINE
2		Σy^2	2	DISPLAY
3	No. OF FAC.	Σx	3	
4	SUM OF FAC	Σx^2	4	STEPS 23-35
5	(AOS) D _{NISUR}	Σxy	5	FACTOR ROUTINE
6	(AOS) n		6	
7	(t)		7	

RADIO SHACK

001

EC-4000

CAT. NO. 65-650

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KEY	LOC	CODE	COMMENTS
2nd INT	00	49	
STO 6	01	32 6	
1	02	0 1	
STO 5	03	32 5	
STO 4	04	32 4	Σf
STO 3	05	32 3	NO. f
RCL 6	06	33 6	
\sqrt{x}	07	2 4	STO 0
2nd INT	08	49	2 2
STO 0	09	32 0	MAIN PROGRAM
and LBL 1	10	86 1	and LBL 1
2nd INV DSZ	11	-56	etc....
GTO 2	12	51 2	
1	13	0 1	}
SUM 5	14	345	2
RCL 6	15	336	
\div	16	45	
RCL 5	17	335	
=	18	85	
STO 7	19	327	
2nd INT	20	49	
2nd INV XET	21	-66	
GTO 1	22	511	
1	23	0 1	Σ
SUM 3	24	343	
RCL 5	25	335	
2nd PAUS	26	36	
SUM 4	27	344	Σf
and X = t	28	66	
GTO 1	29	511	
RCL 7	30	337	
2nd PAUS	31	36	
SUM 4	32	344	Σf
1	33	0 1	
SUM 3	34	343	
GTO 1	35	511	
2nd LBL 2	36	862	
CLR	37	15	
R/S	38	81	
RST	39	71	
	40		
COUNTER	41		
FOR STPS.	42		
BETWEEN	43		
12 & 13	44		
RCL 0	45		
\sqrt{x} 2nd INT	46		
EE INV LOG	47		
Nop Nop	48		
INV EE	49		

PROGRAM TITLE/PURPOSE PROGRESSIONS
PROGRAMMER J. PARSONS
DATE 2-23-79 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

ALLOWS PROGRAMMER TO EXAMINE
TERMS AND SUMS OF TERMS
OF ARITHMETIC AND GEOMETRIC
PROGRESSIONS.

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
	FOR ARITHMETIC PROG:- MEM. 1 - FIRST TERM " 2 - LAST TERM " 3 - DIFFERENCE	
	FOR GEOMETRIC PROG - MEM. 0 - NO. OF TERMS MEM. 1 - FIRST TERM " 2 - NONE " 3 - RATIO	
	THEN PRESS SBr 1 FOR ARITH. PROG. AND SBr 2 FOR GEO. PROG.	



FLOW CHART/NOTES

KEY

LOC

CODE

COMMENTS

LBL 1
 CLR 01
 STO 02
 LBL 03
 RCL 04
 SUM 05
 XDT 06
 RCL 07
 $X = t$ 08
 GTO 09
 RCL 10
 SUM 11
 GTO 12
 LBL 13
 CLR 14
 STO 15
 LBL 16
 RCL 17
 SUM 18
 MUL DSZ 19
 GTO 20
 RCL 21
 PCD 22
 GTO 23
 LBL 24
 RCL 25
 R15 26
 RST 27
 28
 29
 30
 31
 32
 33
 34

MEMORIES

LABELS

0	Dsz	n	0	
1		ΣY	1	
2		ΣY^2	2	
3		Σx	3	
4		Σx^2	4	
5	(AOS)	Σxy	5	
6	(AOS)		6	
7	(t)		7	
RADIO SHACK		8		
EC-4000			47	
CAT. NO. 65-650		9	48	
			49	

PROGRAM TITLE/PURPOSE MISC. PROGRAM INFORMATION
 PROGRAMMER J. PARSONS
 DATE MARCH 6 1979 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

GENERAL QUADRATIC PROG. $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$

327	75	85	334	332
611	333	46	75	44
23	55	65	331	44
65	337	611	55	-61
43	75	85	337	
43	335	81	44	
330	44	71	45	
55	45	861	43	
337	332	43	2	
23	44	43	55	

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
	PALEONOMIC CONVERTER/ ADDER	
STO 3	01	and INT STO 4
CLR	ΣSUM 1	STO 0 INV INT
STO 1	GTO 3 01	X
LBL 3	CBL 4 ΣSUM 0 RCL 0	
RCL 3	XDT CLR and INV INT	
INV FIX	RCL 1 STO 2 =	
PAUSE	XDT CBL 2 ΣSUM 2	
FIX 8	INV FIX RCL 4 and 0.52	
STO 7	GTO 8 and INT GTO 2	
SBR 1	RSF ± RCL 2	
XEQ	LBL 1 01 INV SBR	
GTO 4	STO 4 00	
Sum 3	and INT =	



FLOW CHART/NOTES

REVISED PARAPROGRAM Program

STO 3	SUM 5	MEM. 1 COUNTER
STO 2	DSZ	" 2 ORIG. NO.
CLR	GTO 2	" 3 ACCUMULATOR
STO 1	RCL 5	
RCL 3*	X=t	GTO AND 36
FIX 8*	GTO 3	15 STEP
CBL 1	SUM 3	TO ALTER FOR
STO 7	1	ADDITION /
STO 4	SUM 1	SUBTRACTION
IX1	RCL 3	
END LOG	INN FIX	FOR SEARCHES,
END INT B	PAUSE	AFTER SECTION A
STO 0	FIX 8	TO : 1
	GTO 1	SUM 2
SUM 0	LBL 3	CLR
CLR	INN FIX (25)	STO 1
SOS 5	GTO 8	RCL 2
CBL 2	RST	STO 3
RCL 4	(46 STEPS)	FIX 8
END INT		(WITH THIS, 49 STEPS)

ALSO, INSERT
SECTION B
AFTER LBL 1
AND OMIT *
STEPS IF
DESIRED.

KEY	LOC	CODE	COMMENTS
IX1	00		$f(x); x=0$
STO 0	01		
CUR	02		
RIS	03		GOESS
JNDLOG	04		
STO 5	05		
GTO 0	06		
LBL 1	07		
IX1	08	CLEAR ALL	
STD 7	09	MEMORIES	
EXC 0	10	BEFORE	
X=t	11	STARTING	
GTO 2	12		
EXC 0	13		
RCL 5	14	FUNCTION PROGRAM	
JNDLOG	15	- BEFORE RUNNING,	
INN SUM 6	16	PRESS JNDLOG C.E.	
1	17	THEN ENTER	
INN SUM 5	18	GUESS AND P/B	
RCL 6	19	STO X * X 0	
PAUSE	20	GTO 0	
LBL 2	21	CBL 1	
RCL 3	22	X=t	
JNDLOG	23	GTO 2	
SUM 6	24	RCL * X 0	
INN SBR	25	STO X 5	
LBL 0	26	RCL * 6	
2	27	GTO 3	
3	28	CBL 2	
5	29	RCL * X 0	
7	30	STO * 6	
9	31	RCL * X 5	
SBR 1	32	CBL 3	
GTO 0	33	SUM * X 0	
	34	2	
	35	JNDLOG * X 0	
	36	CBL 0	
	37	RCL * X 0	
	38	:	PAUSE
	39	:	TO DISPLAY
	40	=	X VAL.
	41	GTO 1	
	42		
	43		
	44		
	45		
	46		
	47		
	48		
	49		

MEMORIES

LABELS

0	DSZ	n	0	
1		ΣY	1	
2		ΣY^2	2	
3		Σx	3	
4		Σx^2	4	
5	(AOS)	Σxy	5	
6	(AOS)		6	
7	(t)		7	
	RADIO SHACK		8	
	EC-4000			
	CAT. NO. 65-650			

PROGRAM TITLE/PURPOSE DIGIT-BY-DIGIT BASE CONV.
PROGRAMMER J. PARSONS
DATE 3-15-79

RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

ALLOWS PROGRAMMER TO ENTER
A NO. DIGIT-BY-DIGIT AND CONVERT
IT TO ANOTHER BASE, EXAMINING
IT ALSO DIGIT-BY-DIGIT.

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
	ENTER PROGRAM, RESET, ENTER "BASE FROM" AND R/S, THEN "BASE TO" AND R/S.	
	NOW ENTER RIGHT- MOST DIGIT, R/S, NEXT DIGIT, AND SO ON.	
	WHEN DONE, PRESS SBR 1 AND DIGITS OF NEW NO. WILL BE SHOWN (FROM R TO L).	



FLOW CHART/NOTES

...XXXX_a → ...YYYY_b

FOR ALL INTEGERS

> 0 AND < 100,000,000,000

(DECIMAL)

KEY	LOC	CODE	COMMENTS
STO 1	00	321	
R/S	01	81	
STO 0	02	320	
CLR	03	15	
STO 2	04	322	
STO 3	05	323	
CBL 2	06	862	
INV FIX	07	-48	
R/S	08	81	
FIX 8	09	488	
X	10	55	
RCL 1	11	331	
YX	12	35	
RCL 2	13	332	
=	14	85	
EE	15	42	
INV EE	16	-42	
SUM 3	17	343	
I	18	01	
SUM 2	19	342	
CLR	20	15	
GTO 2	21	512	
CBL 1	22	861	
FIX 8	23	488	
RCL 3	24	333	
2nd INT	25	49	
÷	26	45	
RCL 0	27	330	
=	28	85	
STO 3	29	323	
INV INT	30	-49	
X	31	55	
RCL 0	32	330	
=	33	85	
INV FIX	34	-48	
EE	35	42	
PAUSE	36	36	
INV EE	37	-42	
FIX 8	38	488	
RCL 3	39	333	
2nd INT	40	49	
C.T.	41	19	
INV X=	42	-66	
GTO 1	43	511	
CLR	44	15	
INV FIX	45	-48	
R/S	46	81	
RST	47	71	
	48		
	49		

MEMORIES

LABELS

0	DSZ NEW BASE	n	0	
1	ORIG. BASE	Σ Y	1	DISPLAYER
2	COUNTER	Σ Y ²	2	CONVERTER
3	NO. IN DEC.	Σ X	3	
4		Σ X ²	4	
5	(AOS)	Σ xy	5	
6	(AOS)		6	
7	(t)		7	
RADIO SHACK		8		
	EC-4000			
	CAT. NO. 65-650	9		

PROGRAM TITLE/PURPOSE BINOMIAL EXPANSION
PROGRAMMER J. PARSONS
DATE 4-5-79 RADIO SHACK EC-4000
PROGRAM RECORD

PROGRAM DESCRIPTION

EXPANDS (DISPLAYS COEFFICIENTS) OF
 $(a+b)^n$ ^m

WHERE a IS A NON-NEGATIVE REAL
NO. AND b, m, n ARE REAL NOS.

HOW TO USE IT:

STEP	PRESS	DISPLAY/COMMENTS
	ENTER PROGRAM, RESET, AND ENTER a. STORE IT IN MEM. 1, AND THEN STORE b IN MEM. 2.	
		NOTES -
	NOW ENTER m, R/S; ENTER n, R/S; ENTER r, R/S.	r IS THE NO. OF THE TERM DESIRED.
	TERM r WILL BE DIS- PLAYED. FOR TERM r+1, PRESS R/S AGAIN.	FOR NON-CONSECUTIVE r, ENTER r AND SBR.



FLOW CHART/NOTES

$$(a+b)^{\frac{m}{n}}$$

$$= \left(a^{\frac{m}{n}} \right) + \left(\frac{m}{n} \cdot \frac{b}{a} \cdot A \right) + \left(\frac{m-n}{2n} \cdot \frac{b}{a} \cdot B \right) + \left(\frac{m-2n}{3n} \cdot \frac{b}{a} \cdot C \right) + \dots$$

WHERE A IS THE FIRST TERM
 $(P^{\frac{m}{n}})$, B IS THE 2nd TERM,
 $(\frac{bm}{an} \cdot A)$, AND SO ON.

KEY	LOC	CODE	COMMENTS
STO 3	00	323	
RIS	01	81	
STO 4	02	324	
RIS	03	81	
CBL 0	04	860	
STO 5	05	325	
STO 0	06	320	
RCL 1	07	331	
X	08	35	
RCL 3	09	333	
=	10	85	
STO 6	11	326	
CBL 1	12	861	
INV DSZ	13	-56	
GTO 3	14	513	
SBR J	15	612	
GTO 1	16	511	
CBL 3	17	863	
RCL 5	18	335	
STO 0	19	320	
I	20	01	
SUM 5	21	345	
RCL 6	22	336	
RIS	23	81	
SBR J	24	612	
GTO 3	25	513	
CBL 2	26	862	
RCL 3	27	333	
-	28	65	
(29	43	
RCL 0	30	330	
-	31	65	
I	32	01	
)	33	44	
X	34	55	
	35	334	
	36	85	
	37	45	
	38	330	
	39	45	
	40	334	
	41	55	
	42	332	
	43	45	
	44	331	
	45	85	
	46	396	
	47	-61	
	48		
	49		

MEMORIES

LABELS

0	Dsz	n	0	FOR NON-CONSECUTIVES
1	+a	Σy	1	GEN. PURPOSE
2	$\pm b$	Σy^2	2	CALCULATES TERM
3	m	Σx	3	GEN. PURPOSE
4	n	Σx^2	4	
5	(AOS) r	Σxy	5	
6	(AOS) TERM		6	
7	(t)		7	

RCL 4	35	334
=	36	85
\div	37	45
RCL 0	38	330
\div	39	45
RCL 4	40	334
X	41	55
RCL 2	42	332
\div	43	45
RCL 1	44	331
=	45	85
PROG	46	396
INV SBR	47	-61
	48	
	49	

RADIO SHACK

EC-4000

CAT. NO. 65-650

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CUSTOM MFD. IN USA FOR RADIO SHACK
 A DIVISION OF TANDY CORPORATION, FORT WORTH, TX 76102