Scientific CALCULATOR

ACCURACY: 14 DIGITS

TRS-80 L-II

- LINEAR REGRESSION WITH CORRELATION
- COMPLETE SET OF MATHEMATICAL FUNCTIONS
- 100 ADDRESSABLE MEMORY REGISTERS
- SCIENTIFIC NOTATION
- SCROLLED MEMORY DISPLAY
- SINGLE KEY OPERATION INPUT
- SCROLLED DISPLAY OF CALCULATOR KEYS
- AUTOMATIC CLEARING
- ERROR CORRECTION

S.S. SOFTWARE • BATTLESHIP • P.O. BOX 683, N.Y. 10001

Instruction Manual

SS-51 CALCULATOR for TRS-80(TM) 16K Level II

I FEATURES AND FUNCTIONS

Complete Set of Mathematical Functions

Algebraic functions, trigonometric functions, hyperbolic functions, logarithmic functions (both common and natural) with 10^x and e^x.
Factorial, reciprocal, percent and change of percent, square and square root, y^x and $\sqrt[x]{y}$.

Linear Regression and Correlation

This routine provides both immediate statistical analysis of data and projection of new points. Trend line analysis is also available using the automatic counter insert. Correlation, average x, average y, standard deviation of x and y are all printed together with the linear regression equation.

Addressable Memory System with 100 seperate memory locations for instant storage and recall of data. This memory is not shared by any other operations and the data remains in place until changed by you or the computer is turned off.

Scrolled Memory Display above the calculator display "Window". Displays memory address and contents of non-zero locations (4 locations at a time) scrolled by the memory display operator: Keyboard letter "M". Memory scrolling may be performed at any time without effecting the operation or calculation in progress. Scroll includes a blank out the display position.

Memory Storage/Recall Display shows that your transfer to (or from) memory is complete. Displays address, value, direction of transfer and the register involved. Graphic display is automatically displayed at the bottom of the screen during each transfer to (or from) memory.

Dual Register and Dual Operator Display Window - The display window of a regular calculator has been elongated to accomodate 50 characters of data/information. The calculator uses two registers (A and B) for all of its calculations. Both of these registers are displayed in the display window together with any operations pending upon each register.

Single Key Operator Input just like a regular calculator. See Function List in this section.

Operates Just Like a Regular Calculator in that the ENTER key is not used to enter numbers. Any operation or function key enters the number just like a regular calculator.

Scrolled Display of Calculator Keys - The calculators 38 operation/function keys are displayed (up to 12 at a time) below the display window upon request. The Display Key function scrolls the calculators keys in much the same way as the memory scrolling. A display off position is also included.

Scientific Notation entry from keyboard and automatically from calculations.

Calculator READY/BUSY Indicator is displayed at the top of the screen to show when it is BUSY calculating and when it is READY to receive your next input.

Accuracy to 14 Significant Digits for most operations (13 digits for a few) rounded up to 14 from 15 digits (the 16th is discarded).
Automatic Clearing when the " = " key is pressed all calculations are completed, answers displayed and the calculator is ready for the start of a new problem.

Decimal Character Display shows the decimal value of the ASCII character typed last. Displayed only when the keys are being displayed, it appears directly under the C A L C U L A T O R R E A D Y display at the top of the screen.

Ignores or Corrects Most Errors - The displays "OVERFLOW --- OPERATION IGNORED" and "ATTEMPTED DIVISION BY ZERO --- OPERATION IGNORED" indicate an error has occurred. The error routines return the calculator to the state it was in before the offending operation was attempted with the data intact whenever it is possible. The routines can sometimes see through your error and give you the correct answer after it gives its error indication.
Consecutive operator inputs do not result in errors like the regular calculators. The last operator merely replaces the old one and the calculator returnsto READY. Other illegal character inputs are ignored.

FUNCTION LIST U=upper case (shift on) L=lower case

No.	Function	Key	Case	Result
1.	ADD	+	U/L	A = A + B
2.	SUBTRACT	-	L	A = A - B
3.	MULTIPLY	*	U/L	A = A * B
4.	DIVIDE	/	L	A = A / B
5.	SQUARE ROOT A	'	U (7)	A = SQR(A)
	" B	'	U (7)	A = A (LAST OPERATION) SQR(B) --- SQR done 1st
6.	SQUARE A	↑	L	A = A * A
	" B	↑	L	B = B * B then A = A (OP) B
7.	PERCENT A	%	U (5)	A = A / 100
	" B	%	U (5)	B = A * B / 100 then A = A (OP) B
8.	RECIPROCAL A	?	U	A = 1 / A
	B	?	U	B = 1 / B then A = A (OP) B
9.	EQUAL	=	U	A = FINAL ANSWER
10.	STORE A	>	U	MEMORY ADDRESS (nn) = A
	" B	>	U	MEMORY ADDRESS (nn) = B
11.	RECALL A	<	U	A = MEMORY ADDRESS (nn)
	" B	<	U	B = MEMORY ADDRESS (nn)
12.	PI A	P	L	A = PI
	" B	P	L	B = PI
13.	SINE IN DEGREES A	S	L	A = SINE(A in degrees)
	" B	S	L	B = SINE(B deg) then A = A (OP) B
14.	SINE IN RADIANS A	S	U	A = SINE(A rad)
	" B	S	U	B = SINE(B rad) then A = A (OP) B
15.	COSINE DEGREES A	C	L	A = COSINE(A deg)
	" B	C	L	B = COSINE(B deg) then A = A (OP) B
16.	COSINE RADIANS A	C	U	A = COSINE(A rad)
	" B	C	U	B = COSINE(B rad) then A = A (OP) B
17.	TANGENT DEG A	T	L	A = TAN(A deg)
	" B	T	L	B = TAN(B deg) then A = A (OP) B
18.	TANGENT RAD A	T	U	A = TAN(A rad)
	" B	T	U	B = TAN(B rad) then A = A (OP) B
19.	ARCTAN DEG A	A	L	A = ARCTAN(A deg)
	" B	A	L	B = ARCTAN(B deg) then A = A (OP) B
20.	ARCTAN RAD A	A	U	A = ARCTAN(A rad)
	" B	A	U	B = ARCTAN(B rad) then A = A (OP) B

FUNCTION LIST (Cont'd) U =upper case L =lower case

No.	Function	Key	Case	Result
21.	LOG_{10} A	L	L	A = LOG(A)
	" B	L	L	B = LOG(B) then A = A (OP) B
22.	LOG_e A	L	U	A = LN(A)
	" B	L	U	B = LN(B) then A = A (OP) B
23.	10^x A	X	L	$A = 10^A$
	" B	X	L	$B = 10^B$ then A = A (OP) B
24.	e^x A	X	U	$A = e^A$
	" B	X	U	$B = e^B$ then A = A (OP) B
25.	FACTORIAL A	!	U	A = A!
	" B	!	U	B = B! then A = A (OP) B
26.	SINH A	H	L	A = SINH(A)
	" B	H	L	B = SINH(B) then A = A (OP) B
27.	COSH A	H	U	A = COSH(A)
	" B	H	U	B = COSH(B) then A = A (OP) B
28.	TANH A	J	L	A = TANH(A)
	" B	J	L	B = TANH(B) then A = A (OP) B
29.	DELTA PERCENT	D	L	$A = \frac{A - B}{B} X100$
30.	MINUS A	M	U	A = - A
	" B	M	U	B = - B
31.	DISPLAY MEMORY	M	L	DISPLAY NEXT 4 NON-ZERO MEMORY LOCATIONS
32.	REGRESSION/CORR	R	L	See instructions in SECTION IV
33.	CLEAR ENTRY A	←	L	CLEAR A REGISTER
	" B	←	L	CLEAR B REGISTER
34.	CLEAR ALL	←	U	CLEAR A, B, PENDING OPS and WINDOW
35.	$\sqrt[x]{y}$	↓	L	$A = \sqrt[B]{A}$
36.	y^x	↑	U	$A = A^B$
37.	DISPLAY KEYS	K	L	DISPLAY NEXT GROUP OF KEYS
38.	SCIENTIFIC NOTA'N	E	L	See instructions in SECTION II

II BASIC OPERATIONS

Initial Operations

1. Type CLOAD and press ENTER
2. Type RUN and press ENTER
3. After NAME PLATE display, press ENTER
4. After CALCULATOR READY display appears, your calculator is operational waiting for you to enter data.

Data Entry Keys

Digit Keys are the keyboard numbers " 0 " thru " 9 ". Numbers are entered via these keys.

Decimal Point Key - The keyboard period enters the decimal point. Only the first decimal point entered is accepted, all others are ignored.

Dual Input Registers - The first number entered is placed in the A register. The second number (and all subsequent numbers until " = " or CLEAR ALL) is placed in the B register. The results of all operations are placed in the A register thus freeing the B register for the next input number.

Pi Key - The keyboard letter " P " causes the value of pi 3.14159265358898 to be entered for calculations and display into either register.

Enter Exponent Keys - The keyboard letter " E " is used to tell the calculator that a 1 or 2 digit exponent is to follow. A minus sign " - " input before the 1 or 2 digits will cause the exponent to be negative. Then program will ignore more than 2 digits as it will ignore extra " E "'s or decimal points. An extra " - " is assumed to be the next operation.

Example: $2.3x10^{4} + 3.5x10^{-3} - 23000.0035$

Enter	Press	Display
2.3	E	2.3E
4	+	2.3E4 +

(The calculator places $2.3x10^{4}$ in the A register and set the operation to " + ". It is now waiting for you to enter a number for the B register.)

3.5	E	2.3E4 + 3.5E
	-	2.3E4 + 3.5E-
3	=	2.3E4 + 3.5E-3 =
		23000.0035

Minus Sign Key - The keyboard upper case " M " (shift M) causes the register taking the number to be set negative. This may be done before, during or after the entering of the number but before the operation is keyed in.

Example: (-4) + (-8) = -12

Enter	Press	Display
4	shift M	-4
	+	-4 +
8	shift M	-4 + -8
	=	-4 + -8 =
		-12

Clearing Operations

CLEAR ENTRY is the keyboard reverse arrow " ◄—". The last entry will be cleared. This can be either register A or B.

Example: Clear and correct A and repeat for B

Enter	Press	Display
12.6	(oops)	12.6
	◄—	12.6 CLEAR ENTRY
		(blank window)
16.2	+	16.2 +
34	(oops)	16.2 + 34
	◄—	16.2 + 34 CLEAR ENTRY
		16.2 +
43	=	16.2 + 43 =
		59.2 ANSWER

CLEAR ALL is the keyboard upper case back arrow "shift ◄— " (upper case CLEAR ENTRY). The CLEAR ALL key clears the display window, redraws the bottom of the display window, zeros A and B registers and removes any pending operations. It DOES NOT clear memory. In fact there is no memory clear function except BREAK and RUN.
The calculator effectively clears itself after most calculations. When the " = " key is pressed to complete a calculation, the answer is displayed and the calculator is ready for a new problem.

III ARITHMETIC CALCULATIONS

Basic Keys

Add and Subtract Keys - The keyboard " + " and " - " sets the next operation to Plus or Minus respectively. The lower case + (which is " ; ") is accepted as + by the program.

Multiplication and Division Keys - The keyboard " * " and " / " sets the next operation to multiply or divide respectively. The lower case * (which is " : ") is accepted as * by the program.

Equal Key is the keyboard " = ". It causes the completion of pending operations. The answer is displayed and the calculator is ready for a new problem.

Example: 3.22 + .07 - 10 = -6.71

Enter	Press	Display
3.22	+	3.22 +
.07	-	3.22 + .07 -
		3.29 -
10	=	3.29 - 10 =
		-6.71 ANSWER

Example: -5 * 2.2 / 2 = -5.5

Enter	Press	Display
	shift ←	CLEAR ALL
		(blank window)
5	shift M	-5
	*	-5 *
2.2	/	-5 * 2.2 /
		-11 /
2	=	-11 / 2 =
		-5.5 ANSWER

Combining Operations - After a result is obtained in one calculation, it may be directly used as the first number in a second calculation. There is no need to reenter the number from the keyboard.

Example: 1.84 + .39 = 2.23 then (1.84 + .39)/365 = .0061096

Enter	Press	Display
1.84	+	1.84 +
.39	=	1.84 + .39 =
		2.23 ANSWER
	/	2.23 /
365	=	2.23 / 365 =
		.00061096 ANSWER

IV MATH FUNCTIONS

Reciprocal and Factorial

Reciprocal Key is the keyboard " ? ". It calculates the reciprocal (1/x) of register A or B by dividing x into 1. $x \neq 0$

Example: (1/16) + (1/32) + (1/64) = .109375

Enter	Press	Display
16	?	16 1/X
		.0625
	+	.0625 +
32	?	.0625 + 32 1/X
		.0625 + .03125
		.09375
	+	.09375 +
64	?	.09375 + 64 1/X
		.09375 + .015625
		.109375

Factorial Key - The keyboard " ! " is the factorial key. If the value m is placed into either register A or B, the factorial ($1x2x3x4x...xm$) of m is computed for integers $0 < m \leq 33$. Errors ignored: Negative numbers are treated as positive and decimals are truncated.

Example: 5!x3!-6!=0

Enter	Press	Display
5	!	5 FACTORIAL
		120
	*	120 *
3	!	120 * 3 FACTORIAL
		120 * 6
		720
	-	720 -
6	!	720 - 6 FACTORIAL
		720 - 720
		0

Logarithms

Common Logarithm (LOG) Key - Keyboard " L " computes the common logarithm (Base 10) of the value in register A or B. $x>0$

Natural logarithm (LN) Key - Keyboard upper case " L " (shift L) computes the natural logarithm (Base e) of the value in register A or B.

Example: Ln(pi) + Log(pi) = 1.6418797585435

Enter	Press	Display
	P	PI
		3.1415926535898
	shift L	3.1415926535898 LN X
		1.1447298858494
	+	1.1447298858494 +
	P	1.1447298858494 + 3.1415926535898
	L	1.1447298858494 + 3.1415926535898 LOG X
		1.1447298858494 + .49714987269413
		1.6418797585435

Trigonometric Functions

SINE(x in degrees) Key is keyboard " S ".

SINE(x rad) Key is keyboard upper case " S " (shift S)

COSINE(x deg) Key is keyboard " C "

COSINE(x rad) Key is keyboard upper case " C " (shift C)

TANGENT(x deg) Key is keyboard " T "

TANGENT(x rad) Key is keyboard upper case " T " (shift T)

ARCTANGENT(x) in degrees Key is keyboard " A "

ARCTANGENT(x) in radians Key is keyboard upper case " A " (shift A)

Example: $\sin 30^{\circ} + \tan 315^{\circ} = -.5$

Enter	Press	Display
30	S	30 SIN(DEG)
		.5
	+	.5 +
315	T	.5 + 315 TAN(DEG)
		.5 + -1
		-.5

Example: sin(pi/6 rad) + arctan(1) deg = 45.5

Enter	Press	Display
	P	PI
		3.1415926535898
	/	3.1415926535898 /
6	=	3.1415926535898 / 6 =
		.5235987755983 ANSWER
	shift S	.5235987755983 SIN(RAD)
		.5
	+	.5 +
1	A	.5 + 1 ATAN-D
		.5 + 45
		45.5

Hyperbolic Functions for $|x| \leq 87.2$

Hyperbolic Sine (SINH) Key is keyboard " H "

Hyperbolic Cosine (COSH) Key is keyboard upper case " H " (shift H)

Hyperbolic Tangent(TANH) Key is keyboard " J "

Example: 1-COSH(2) =-2.76219569l0836

Enter	Press	Display
1	-	1 -
2	shift H	1 - 2 COSH
		1 - 3.7621956910836
		- 2.7621956910836

Square and Square Root

Square Key is keyboard " ↑ " for $|x| \leq 10^{18}$

Square Root Key is keyboard apostrophy (shift 7)

Example: $\sqrt{53^2+42^2} = 67.623960250787$

Enter	Press	Display
53	↑	53 ↑2
		2809
	+	2809 +
42	↑	2809 + 42 ↑2
		2809 + 1764
		4573
	'	4573 SQRT
		67.623960250787

Universal Roots and Powers

Universal Power (y^x) Key is keyboard upper case " ↑ " (shift ↑). The value of y is placed in the A register and the value of x to the B register.

Example: $8^5 = 32768$

Enter	Press	Display
8	shift ↑	8 Y↑X
5	=	8 Y↑X 5 =
		32768

Universal Root ($\sqrt[x]{y}$) Key is keyboard " ↓ ". The value of y is placed in the A register and x to the B register.

Example: $\sqrt[3]{2.36^{-.23}} = .936289342074 51$

Enter	Press	Display
2.36	shift ↑	2.36 Y ↑ X
.23	shift M	2.36 Y ↑ X -.23
	=	2.36 Y ↑ X -.23 =
		.820786565 4090396 ANSWER
	↓	.820786565 4090396 X ROOT OF Y
3	=	.820786565 4090396 X ROOT OF Y 3 =
		.936289342074 51 ANSWER

Percent and Percent Change

Percent Key - Keyboard " % " converts the A register number from a percentage to a decimal. The B register percentage is converted to a decimal and multiplied times the A register value. The result is placed in the B register. Then the pending operation between A and B is executed.

Example: 54.5% = .545

Enter	Press	Display
54.5	%	54.5 %
		.545

Example: How much do you have to pay for a $119.98 camera thet has been discounted 20% with 7% sales tax?

Enter	Press	Display
119.98	-	119.98 -
20	%	119.98 - 20 %
		119.98 - 23.996
		95.984
	+	95.984 +
7	%	95.984 + 7 %
		95.984 + 6.71888
		102.70288

Example: What is 42% of 79

Enter	Press	Display
42	%	42 %
		.42
	*	.42 *
79	=	.42 * 79 =
		33.18

Change Percent Key - Keyboard " D " calculates the percentage change between the two values in the A and B registers. The calculation is: $\frac{A - B}{B} \times 100$

Example: What is the percentage increase (markup) of a $760.72 video recorder that wholesales for $514.00 ?

Enter	Press	Display
760.72	D	760.72 DELTA %
514	=	760.72 DELTA % 514
		48

The recorder has been marked up 48%.

Example: What is the percentage discount on a $11,275.98 automobile which is on sale for $9640.96 ?

Enter	Press	Display
9640.96	D	9640.96 DELTA %
11275.98	=	9640.96 DELTA % 11275.98 =
		-14.500025718385

The car was discounted a little over 14.5%

V MEMORY CAPABILITIES

Storing and Recalling Data

Your calculator has 100 user accessable memories to greatly extend the flexibility of calculations. Because there are 100 memories, you must specify which memory you are addressing by entering its number, n = 00 thru 99 immediately after pressing a memory store or recall key. Note the a two digit address is required: location 1 is addressed as 01. All store/recall operations are displayed at the bottom of the screen.

Recall Key - Keyboard " < " causes the data in memory to be transferred to the current register.

Store Key - Keyboard " > " causes the data stored in the current register to be stored in memory

Example: Store pi/6 and $\sqrt{2}$ in memory locations 11 and 12. Compute sin (pi/6 rad) and store in 13. Then compute the cos(pi/6 + $\sqrt{2}$ rad) and store in 14.

Enter	Press	Display
	shift ←	CLEAR ALL
	P	PI
		3.1415926535898
	/	3.1415926535898 /
6	=	3.1415926535898 / 6 =
		.52359877559837 ANSWER
	>	.52359877559837 > STORE IN MEM LOC (00-99) →
11		.52359877559837 > STORE IN MEM LOC (00-99) → 11
(bottom of screen: A → MEMORY LOCATION(11) = .52359877559837)		
		.52359877559837
2	'	2 SQRT
		1.4142135623731
	>	1.4142135623731 > STORE IN MEM LOC (00-99) →
12		1.4142135623731 > STORE IN MEM LOC (00-99) → 12
(bottom of screen: A → MEMORY LOCATION(12) = 1.4142135623731)		
		1.4142135623731
	<	1.4142135623731 ← RECALL FROM MEM LOC (00-99)
11		1.4142135623731 ← RECALL FROM MEM LOC (00-99) 11
(bottom of screen: A ← MEMORY LOCATION(11) = .52359877559837)		
		.52359877559837
	shift S	.52359877559837 SIN(RAD)

Enter	Press	Display
	>	.5 > STORE IN MEM LOC (00-99) ⟶
13		.5 > STORE IN MEM LOC (00-99) ⟶ 13
(bottom of screen: A ⟶ MEMORY LOCATION (13) = .5)		
	<	.5 ⟵ RECALL FROM MEM LOC (00-99)
11		.5 ⟵ RECALL FROM MEM LOC (00-99) 11
(bottom of screen: A ⟵ MEMORY LOCATION(11) = .52359877559837)		
		.52359877559837
	+	.52359877559837 +
	<	.52359877559837 + ⟵ RECALL FROM MEM LOC (00-99)
12		.52359877559837 + ⟵ RECALL FROM MEM LOC (00-99) 12
(bottom of screen: B ⟵ MEMORY LOCATION(12) = 1.4142135623731)		
		.52359877559837 + 1.4142135623731
	=	.52359877559837 + 1.4142135623731 =
		1.9378123379714 ANSWER
	shift C	1.9378123379714 COS(RAD)
		-.25883177176955
	>	-.25883177176955 > STORE IN MEM LOC (00-99) ⟶
14		-.25883177176955 > STORE IN MEM LOC (00-99) ⟶ 14
(bottom of screen: A ⟶ MEMORY LOCATION(14) = -.25883177176955)		
		-.25883177176955
	shift ⟵	CLEAR ALL

This memory data will be used for the next example.

Memory Scroll Key is keyboard " M ". This key causes the first four non-zero memory locations to be displayed above the window. Note: If the KEYS are not being displayed below the display window, then the top most memory location will not be displayed; leaving only 3 memory locations on display. When the " M " key is pressed repeatedly, the next 3 non-zero memory locations are displayed together with the last location of the previous display (overlap one memory location).

The BUSY indicator shows which memory locations are being tested for zero. When the " M " key is pressed again after the last (99th) location has been displayed (or found to be zero), then the upper screen display is blanked. Pressing " M " again causes the display to begin again at location(00). The " M " key may be used at anytime without interfering with other operations.

Example: Display the memory from the last example.

Enter	Press	Display Above Window
	M	Locations 11, 12, 13, display
	M	Location 14 displays
	M	blank display
	K	Keys displayed below window
	M	Locations 11, 12, 13, 14 display
	M	Location 14 displays
	M	Blank display

Example: Recall $\sqrt{2}$ and add 3.57 to it and also store the 3.57 in the next empty memory. Using the stored data from the previous two examples.

Enter	Press	Display
	shift ←	CLEAR ALL
		(blank)
	<	← RECALL FROM MEM LOC (00-99)

(realize you forgot the location of $\sqrt{2}$

M Display above shows locations 11, 12, 13, 14. You see the 1.414.... in location 12)

12 ← RECALL FROM MEM LOC (00-99) 12

(bottom of screen: A ← MEMORY LOCATION (12) = 1.4142135623731)

1.4142135623731

\+ 1.4142135623731 +

3.57 > 1.4142135623731 + 3.57 > STORE IN MEM LOC(00-99) →

(where is the next empty location? Press " M " again: Displays 14 as the last)

15 1.4142135623731 + 3.57 > STORE IN MEM LOC(00-99) → 15

(bottom of screen: B → MEMORY LOCATION(15) = 3.57)

1.4142135623731 + 3.57

\= 1.4142135623731 + 3.57 =

4.9842135623731

(the memory display pointer is now at zero. In order to see location 15 displayed at the top you must press " M " as follows:

Press	Display Above Window
M	blanks display
M	display locations 11, 12, 13, 14
M	display locations 14, 15)

VI LINEAR REGRESSION AND CORRELATION

Regression/Correlation Key - Keyboard " R " initiates the regression/correlation function. The program then requests the number of points. NOTE: Use ENTER key when inputting points for regression. Accuracy to 5 digits only.

Example: Given the following set of points, find values for y given x 2,20,200 :

14	28
16	32
18	36
20	40

Enter	Press	Display
	R	REGRESSION/CORRELATION
		TYPE THE NUMBER OF POINTS (99 MAX)
4	ENTER	TYPE THE NUMBER OF POINTS (99 MAX) 4
(display above window:		4 POINTS)
		X(1) =
14	ENTER	X(1) = 14 Y(1) =
28	ENTER	X(1) = 14 Y(1) = 28
		X(2) =
16	ENTER	X(2) = 16 Y(2) =
32	ENTER	X(2) = 16 Y(2) = 32
		X(3) =
18	ENTER	X(3) = 18 Y(3) =
36	ENTER	X(3) = 18 Y(3) = 36
		X(4) =
20	ENTER	X(4) = 20 Y(4) =
40	ENTER	X(4) = 20 Y(4) = 40
(display above window:		
		AVE X = 17 STD X = 2.58199
		AVE Y = 34 STD Y = 5.16398
		LINEAR REGRESSION EQUATION Y = 0 + 2 * X
		COEF OF CORRELATION = 1)
		X =
2	ENTER	X = 2 Y = 4 --- ENTER TO CONTINUE
	ENTER	X =
20	ENTER	X = 20 Y = 40 --- ENTER TO CONTINUE
	ENTER	X =

Enter	Press	Display	
200	ENTER	X = 200	Y = 399.997 --- ENTER TO CONTINUE
	shift ←	CLEAR ALL	
		(blank)	

Example: Average and Trend 4, 8, 12, 16 for 20,24, 35

Enter	Press	Display	
	R	REGRESSION/CORRELATION	
		TYPE THE NUMBER OF POINTS (99 MAX)	
4	ENTER	TYPE THE NUMBER OF POINTS (99 MAX) 4	
(display above window: 4 POINTS)			
		X(1) =	
	ENTER	X(1) = 1	Y(1) =
4	ENTER	X(1) = 1	Y(1) = 4
		X(2) =	
	ENTER	X(2) = ?	Y( ) =
8	ENTER	X(2) = ?	Y(2) = 8
		X(3) =	
	ENTER	X(3) = 3	Y(3) =
12	ENTER	X(3) = 3	Y(3) = 12
		X(4)	
	ENTER	X(4) = 4	Y(4) =
16	ENTER	X(4) = 4	Y(4) = 16
(display above window:			
	AVE X = 2.5	STD X = 1.29099	
	AVE Y = 10	STD Y = 5.16397	
	LINEAR REGRESSION EQUATION Y = 0 + 4 * X		
	COEF OF CORRELATION = 1)		
		X =	
20	ENTER	X = 20	Y = 80 --- ENTER TO CONTINUE
	ENTER	X =	
24	ENTER	X = 24	Y = 96 --- ENTER TO CONTINUE
	ENTER	X =	
35	ENTER	X = 35	Y = 140 --- ENTER TO CONTINUE
	shift ←	CLEAR ALL	
		(blank)	

REGRESSION

LOG (x)

COSH (x)

X^2

X + Y%

LN (x)

$\sqrt[x]{Y}$

SIN (DEG)

ATAN (x) DEG/RAD

X!

COS (RAD)

e^x

Y

TAN (DEG)

TAN (RAD)

10^x

COS (DEG)

$\sqrt{X}$

Standard Deviation

π e

SIN (RAD)

TANH (x)

Y^x

Δ%

SINH (x)

Average

TRENDS

CORRELATION