

# Electronic Slide Rule

ELECTRONIC CALCULATOR

OPERATION MANUAL

CM	MIN	RM	
F	DR	CL	
X $\rightarrow$ M	X $\rightarrow$ Y	Y <sup>x</sup>	$\div$
sin	cos	tan	X
sin <sup>-1</sup>	cos <sup>-1</sup>	tan <sup>-1</sup>	-
e <sup>x</sup>	ln	log	+
1/X	$\sqrt{x}$	$\pi$	=

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## SPECIFICATION

### Display:

9-digit Digitron or LED display used.

### Capacity:

8-digit for all function and results in operation. The acceptable range of argument of scientific function operation are mentioned in the following calculation examples.

### Decimal Point:

Full-floating decimal point system.

### Negative Number:

True value indication with minus sign at the 9th digit.

### Error or Overflow Indication:

"/7" sign at the 9th digit indicating the result of operation is over 8-digit, or the argument of operation is out of range.

### Function Mode Indicator:

"." (Decimal Point) at the 9th digit indicating the scientific mode is activated.

That means you can perform the second mode of the dual label keys.

## OPERATION

\*Basic four arithmetic function(+ - X ÷) operating in the algebraic mode

\*Chain operation

\*Intermixed operation

\*Repeated operation

\*Constant operation

\*Accumulating memory register

\*Right adjusted display with leading zero suppression

\*The interchange of X-register and Y-register

\*The interchange of X-register and memory

\*7 Constant register in the LSI chip

\*Unique function key doubles the function of 12 keys

\*PERFORM SCIENTIFIC FUNCTIONS

- Sine.....Sin X
- Cosine.....Cos X
- Tangent.....Tan X
- Arc sine.....Sin<sup>-1</sup> X
- Arc cosine.....Cos<sup>-1</sup> X
- Arc tangent.....Tan<sup>-1</sup> X
- Exponential.....e<sup>x</sup>
- Natural Logarithmic Function Ln X
- Common Logarithmic Function Log X

\*CALCULATE

- Reciprocal.....1/X
- Square root.....√x
- Power function.....y<sup>x</sup>

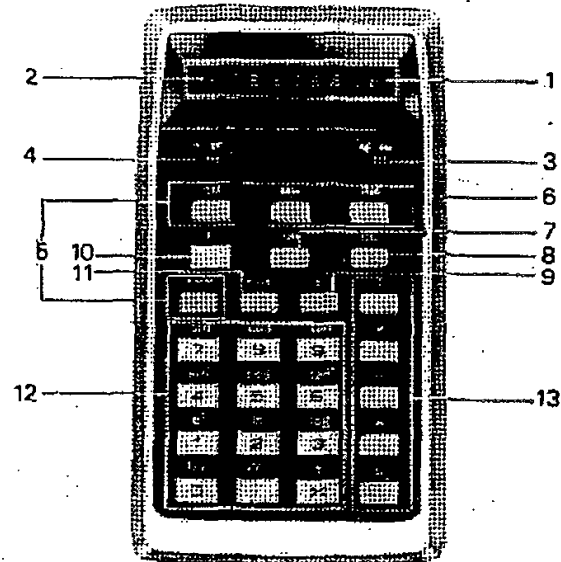
\*The deviation of all above scientific function operation of this ESR is programmed to one part to million.

OPERATING TEMPERATURE: 0°C - 40°C

POWER CONSUMPTION:  
DC 0.3 W (Average)

DIMENSION:  
145mm (L) X 77mm (W) X 32.5mm (H)

FUNCTION OF KEYS



- 1) Display panel
- 2) Minus, error, overflow and function mode
- 3) Radian-degree switch
- 4) Power on-off switch
- 5) Memory operation keys
- 6) AC socket
- 7) Display recall key.
- 8) Clear key
- 9) X-power of Y key
- 10) Command function keys
- 11) X-register and Y-register interchange key
- 12) Dual label keys: data keys and scientific function keys
- 13) Arithmetic operation keys

POWER SOURCE OPERATION

BATTERY OPERATION:

- \* This calculator operates on 4 pcs of UM-3 1.5V throw-away batteries or rechargeable batteries (optional).
- \* When installing batteries, power switch should be in off position.
- \* If the calculator is not used for a long time be sure to remove the batteries.
- \* When not in use always keep on-off switch in off position to conserve battery strength.
- \* In recharging processing insert rechargeable batteries into compartment and use AC adaptor attaching to household power source. Don't charge longer than 15 hours,

AC OPERATION

- \* To use this calculator on AC power, you must attach an AC adaptor (optional equipment) to DC receptacle of this unit.
- \* Be sure to remove throw-away batteries when AC adaptor is in using.
- \* Be sure to secure the proper adaptor and plug, using wrong adaptor may damage your calculator.
- \* When using an AC adaptor, first attach to DC receptacle, then attach to AC power outlet.
- \* AC adaptor with output DC 6V 100ma.

OPERATION GUIDE

A. FOUR SPECIES

A.1 CHAIN OPERATION

Example 1)  $1.23+4.567-8.9+10=6.897$

Operation	Display	Remark
1.23	1.23	
$+$	1.23	
4.567	4.567	
$-$	5.797	1.23+4.567
8.9	8.9	
$+$	-3.103	5.797-8.9
10	10	
$=$	6.897	answer

Example 2)  $9.87 \times 6.543 \div 2.1 \div 0.9 = 34.169$

Operation	Display	Remark
9.87	9.87	
$\times$	9.87	
6.543	6.543	
$\div$	64.57941	9.87 X 6.543
2.1	2.1	
$\div$	30.7521	64.5794 $\div$ 2.1
0.9	0.9	
$=$	34.169	answer

A.2 INTERMIXED OPERATION

Example 1)  $[(1+2) \times 3 - 4] \div 5 = 1$

Operation	Display	Remark
1	1.	
$+$	1.	
2	2.	
$\times$	3.	1+2
3	3.	
$-$	9.	3X3
4	4.	
$\div$	5.	9-4
5	5.	
$=$	1.	answer

Example 2)  $[(10+9-8) \div (7 \times 6) + 5] \div 4 = 1.3154761$

Operation	Display	Remark
10	10.	
$+$	10.	
9	9.	
$-$	19.	
8	8.	
$\div$	11.	
7	7.	

Operation	Display	Remark
$\div$	1.5714285	
6	6.	
$+$	0.2619047	
5	5.	
$\div$	5.2619047	
4	4.	
$=$	1.3154761	answer

#### A.3 REPEATED OPERATION

Example: 1)  $1.1+1.1+1.1+1.1+1.1=5.5$

Operation	Display	Remark
1.1	1.1	
$+$	1.1	
$=$	2.2	
$=$	3.3	
$=$	4.4	
$=$	5.5	answer

#### A.4 CONSTANT OPERATION

Example 1)  $1 + 2 = 3$      $4 + 2 = 6$   
 $5 + 2 = 7$

Operation	Display	Remark
1	1.	
$+$	1.	

Operation	Display	Remark
2	2.	
=	3.	1+2
4	4.	
=	6.	4+2
5	5.	
=	7.	5+2

Example 2)  $2 \times 3 = 6$      $2 \times 4 = 8$   
 $2 \times 5 = 10$

Operation	Display	Remark
2	2.	
X	2.	
3	3.	
=	6.	2X3
4	4.	
=	8.	2X4
5	5.	
=	10.	2X5

Example 3)  $10 - 5 = 5$      $15 - 5 = 10$   
 $20 - 5 = 15$

Operation	Display	Remark
10	10.	
-	10.	

Operation	Display	Remark
5	5.	
=	5.	10-5
15	15.	
=	10.	15-5
20	20.	
=	15.	20-5

#### A.5 THE X-REGISTER AND Y-REGISTER INTERCHANGE KEY $X \leftrightarrow Y$

Depression of this key will interchange the x-register and y-register, i.e. interchange the addend and augend, subtrahend and minuend, multiplier and multiplicand, divisor and dividend.

Example 1)  $6 \div (1+2) = 2$

Operation	Display	Remark
1	1.	
+	1.	
2.	2.	
÷	3.	
6	6.	3+6
$X \leftrightarrow Y$	3.	6+3
=	2.	answer

A.6 CHANGE SIGN  
 Example 1)  $(-6) \times 3 = -18$

Operation	Display	Remark
6	6.	
$\boxed{+/-}$	-6.	change sign of 6
$\boxed{\times}$	-6.	
3	3.	
$\boxed{=}$	-18.	answer

A.7  $\pi$  CONSTANT

Any time when you depress the  $\boxed{CHS/\pi}$  key directly following a depression of function key  $\boxed{F}$  will display the  $\pi$  constant.

Example 1)

Operation	Display	Remark
$\boxed{F}$	.-	(1) Optional Display (2) Function light".
$\boxed{\pi}$	3.1415926	$\pi$ -constant

Example 2) To count the circumference of a circle:  $2\pi R$   
 $2\pi \times 5 = 31.415926$   
 $2\pi \times 6 = 37.699111$

Operation	Display	Remark
2	2	

Operation	Display	Remark
$\boxed{\times}$	2.	
$\boxed{F}$	.2.	function light
$\boxed{\pi}$	3.1415926	
$\boxed{\times}$	6.2831852	
5	5.	
$\boxed{=}$	31.415926	$2\pi \times 5$
6	6.	
$\boxed{=}$	37.699111	$2\pi \times 6$

B. MEMORY OPERATION

- $\boxed{Min}$  : MEMORY-IN KEY  
 Depression of this key will add the displayed number into the memory.
- $\boxed{RM}$  : MEMORY RECALL KEY  
 Recall the contents of the memory to display.
- $\boxed{CM}$  : CLEAR MEMORY KEY  
 Set the contents of the memory to zero without interfering the displayed number.
- $\boxed{X \leftrightarrow M}$  : THE X-REGISTER AND MEMORY INTERCHANGE KEY  
 Depression of this key will interchange the displayed number and memory.

Example 1)  $(4+4+5 \times 6+56 \div 8) \div 9 = 5$

Operation	Display	Memory	Remark
$\boxed{CM}$	-	0.	Display is optional

Operation	Display	Memory	Remark
<b>CL</b>	0.	0.	
4	4.	0.	
<b>Min</b>	4.	4.	Accumulate 4 to memory
<b>Min</b>	4.	8.	Accumulate 4 to memory
5	5.	8.	
<b>X</b>	5.	8.	
6	6.	8.	
<b>=</b>	30.	8.	
<b>Min</b>	30.	38.	Accumulate 30 to memory
56	56.	38.	
<b>÷</b>	56.	38.	
8	8.	38.	
<b>=</b>	7.	38.	
<b>Min</b>	7.	45.	Accumulate 7 to memroy
<b>RM</b>	45.	45.	
<b>÷</b>	45.	45.	
9	9.	45.	
<b>=</b>	5.	45.	5 is answer

Example 2)  $\frac{(3X5) - 4}{(3X5) + 4} = 0.5789473$

Operation	Display	Memory	Remark
<b>CM</b>	-	0.	Display is optional
<b>CL</b>	0.	0.	
3	3.	0.	
<b>X</b>	3.	0.	
5	5.	0.	
<b>=</b>	15.	0.	
<b>Min</b>	15.	15.	
<b>-</b>	15.	15.	
4	4.	15.	
<b>=</b>	11.	15.	
<b>X↔M</b>	15.	11.	Display and Memory interchange
<b>+</b>	15.	11.	X=3X5, M=3X5-4
4	4.	11.	
<b>+</b>	19.	11.	X=3X5+4, M=3X5-4
<b>RM</b>	11.	11.	To calculate 19÷11



Operation	Display	Memory	Remark
$X \leftrightarrow Y$	19.	11.	To calculate 11+19
$=$	0.5789473	11.	0.5789473 is answer

### C. SCIENTIFIC FUNCTION OPERATION

- \* THE SCIENTIFIC FUNCTION MODE IS ACTIVATED WHILE FOLLOWING A DEPRESSION OF FUNCTION KEY  $F$
- \* ALL SCIENTIFIC FUNCTIONS ARE OPERATED IN CORRECT ALGEBRAIC SIGN.

C.1 TRIGONOMETRIC FUNCTION: sinX, cosX, tanX  
 The acceptable range of argument of trigonometric function is 99999999  $\leq X \leq 99999999$ . The argument in radians or degrees depends upon the external "DR-DG" switch (Radian-Degree Switch).

#### C.1.1 ARGUMENT IN DEGREE

Set the "RD-DG" switch at the "DG" position  
 Example 1)  $\sin 30^\circ = 0.5$

Operation	Display	Remark
30	30.	
$F$	.30.	Function light
$\sin$	0.5	$\sin 30^\circ$

Example 2)  $\tan (-45^\circ) = -1$

Operation	Display	Remark
45	45.	
$+/-$	-45.	Change sign of 45
$F$	-.45.	Function light
$\tan$	-1.	$\tan (-45^\circ)$

#### C.1.2 ARGUMENT IN RADIAN

Set "RD-DG" Switch at the "RD" position  
 Example 1)  $\cos 2(\text{rad}) = -0.41647$

Operation	Display	Remark
2	2.	
$F$	.2.	Function light
$\cos$	-0.416147	$\cos 2(\text{rad})$

Example 2)  $\sin \frac{2}{3}\pi = 0.866026$

Operation	Display	Remark
$F$	.-	Display is optional
$\pi$	3.1415926	$\pi$
$X$	3.1415926	
2	2.	

Operation	Display	Remark
$\div$	6.2831852	$2\pi$
3.	3.	
$=$	2.094395	$\frac{2}{3}\pi$
$F$	.2.094395	
$\sin$	0.866026	$\sin\frac{2}{3}\pi$

### C.2 INVERSE TRIGONOMETRIC FUNCTION

$\sin^{-1}x$ ,  $\cos^{-1}x$ ,  $\tan^{-1}$

The acceptable range of argument is

(1)  $-1 < x < 1$  for  $\sin^{-1}$  and  $\cos^{-1}x$   
 (2)  $-99999999 \leq x \leq 99999999$  for  $\tan^{-1}x$

The result will be in the correct algebraic sign and with the following principal angles

$$-90^\circ \leq \sin^{-1}x \leq 90^\circ \text{ or}$$

$$-\frac{\pi}{2} \leq \sin^{-1}x \leq \frac{\pi}{2}$$

$$0^\circ \leq \cos^{-1}x \leq 180^\circ \text{ or}$$

$$0 \leq \cos^{-1}x \leq \pi$$

$$-90^\circ \leq \tan^{-1}x \leq 90^\circ \text{ or}$$

$$-\frac{\pi}{2} \leq \tan^{-1}x \leq \frac{\pi}{2}$$

#### C.2.1 THE RESULT IN DEGREE

Set the "RD-DG" switch at the "DG" position

Example 1)  $\sin^{-1}0.5 = 30^\circ$

Operation	Display	Remark
0.5	0.5	
$F$	.0.5	
$\sin^{-1}$	30.	$30^\circ$

Example 2)  $\cos^{-1}(-0.5) = 120^\circ$

Operation	Display	Remark
0.5	0.5	
$+/-$	-0.5	
$F$	-.0.5	
$\cos^{-1}$	120.	$120^\circ$

#### C.2.2 THE RESULT IN RADIAN

Set the "RD-DG" switch at the "RD" position

Example 1)  $\sin^{-1}0.5 = \frac{\pi}{6}$  (rad)

Operation	Display	Remark
0.5	0.5	
$F$	.0.5	
$\sin^{-1}$	0.523599	$0.523599$ (rad)
$\div$	0.523599	
$F$	.0.523599	
$\pi$	3.1415926	$0.523599 \div \pi$
$=$	0.1666667	or $= \frac{\pi}{6}$

C.3 EXPONENTIAL FUNCTION

e=2.71828

The acceptable range of x is  $|x| \leq 18.42068$

Example 1)  $e^{-0.2} = 0.818731$

Operation	Display	Remark
0.2	0.2	
$\pm/\mp$	-0.2	
$\boxed{F}$	-.0.2	
$\boxed{e^x}$	0.818731	

C.4 NATURAL LOGARITHMIC FUNCTION  $\ln X$ .

The acceptable range of x is  $0 < x \leq 99999999$

Example 1)  $\ln 2 = 0.693147$

Operation	Display	Remark
2	2.	
$\boxed{F}$	.2.	
$\boxed{\ln}$	0.693147	

C.5 COMMON LOGARITHMIC FUNCTION  $\log X$

The acceptable range of x is all  $0 < x \leq 99999999$

Example 1)  $\log 2 = 0.30103$

Operation	Display	Remark
2	2.	
$\boxed{F}$	.2.	
$\boxed{\log}$	0.30103	

C.6 THE X-POWER OF Y

For  $0 < Y \leq 99999999$  and  $X \leq (\ln 99999999)/(\ln Y)$

Example 1)  $5^3 = 125$

Operation	Display	Remark
5	5.	
$\boxed{Y^X}$	1.609438	$\ln 5$
3	3.	Enter X
$\boxed{=}$	125.	5

C.7 THE RECIPROCAL  $\frac{1}{X}$

The acceptable range is  $-99999999 < X \leq 99999999$  except  $X=0$

Example 1)  $\frac{1}{8} = 0.125$

Operation	Display	Remark
8	8.	
$\boxed{F}$	.8.	
$\boxed{1/X}$	0.125	

C.8 THE SQUARE ROOT  $\sqrt{X}$

The acceptable range of X is  $0 \leq X \leq 99999999$

Example 1)  $\sqrt{36} = 6$

Operation	Display	Remark
36	36.	
$\boxed{F}$	.36.	
$\boxed{\sqrt{X}}$	6.	

Example 2)  $\sqrt{3^2 + 4^2} = 5$

Operation	Display	Remark
<b>CM</b>	-	Display is optional
<b>CL</b>	0.	
3	3.	
<b>X</b>	3.	
<b>=</b>	9.	
<b>Min</b>	9.	M=9
4	4.	
<b>X</b>	4.	
<b>=</b>	16.	
<b>Min</b>	16.	M=9+16
<b>RM</b>	25.	
<b>F</b>	.25.	
<b>√X</b>	5.	answer

C.9 DISPLAY RECALL KEY: **DR**  
 Depression of this "Display Recall" key while the ESR is in the number entry mode recalls the previously displayed number. If you forget to depress the "function key" **F** before depressing a dual label key while being used in scientific function mode, you can depress this "Display Recall" key to recall the previously displayed number.

Example 1)  $\sin 30^\circ = 0.5$   
 ("RD-DG" switch at "DG")

Operation	Display	Remark
30	30.	
<b>7/sin</b>	307.	you forget depressing <b>F</b> key
<b>DR</b>	30.	
<b>F</b>	.30.	
<b>sin</b>	0.5	

Example 2)  $\ln(3 \times 7.3) = 3.086486$

Operation	Display	Remark
3	3.	
<b>X</b>	3.	
7.3	7.3	
<b>=</b>	21.9	
<b>2/ln</b>	2.	you forget depressing <b>F</b> key
<b>DR</b>	21.9	
<b>F</b>	.21.9	
<b>ln</b>	3.086486	

D. ERROR OR OVERFLOW CONDITION  
 While the ESR is in ERROR or OVERFLOW condition and displays "0", only the **CL** key is operative.

D.1 Arithmetic operation with the result > 99999999

Operation	Display	Remark
99999999	99999999.	
[+]	99999999.	
1	1.	
[=]	$\sqrt{1.0000000}$	$1.0000000 \times 10^8$
[CL]	1.0000000	
99999999	99999999.	
[+]	99999999.	
100	100.	
[=]	$\sqrt{1.0000009}$	$1.0000009 \times 10^8$
[CL]	1.0000009	
[CL]	0.	

D.2 Min with the result in memory > 99999999

Operation	Display	Remark
[CM]	-	
[CL]	0.	
99999998	99999998.	
[Min]	99999998.	M=99999998
1.23	1.23	

Operation	Display	Remark
[Min]	1.23	M=99999999
1	1.	
[Min]	$\sqrt{1.}$	M=1.0000000x10 <sup>8</sup>
[CL]	1.	M=1.0000000

D.3 The overflow or unacceptable range of argument of scientific function When operating

$\sin^{-1}x$  for  $|x| > 1$   
 $\cos^{-1}x$  for  $|x| > 1$   
 $e^x$  for  $|x| > 18.42068$   
 $\ln x$  for  $x \leq 0$   
 $\log x$  for  $x \leq 0$   
 $1/x$  for  $x = 0$   
 $\sqrt{x}$  for  $x < 0$

and  $\tan x$  for  $1 \times 180^\circ + 89.999999^\circ < x < 1 \times 180^\circ + 90.000018^\circ$  the ESR will result in error or overflow condition and display  $\sqrt{0}$ .

Example 1)  $\tan 90^\circ$  ("RD-DG" switch at "DG" position)

Operation	Display	Remark
90	90.	
[F]	.90.	
[tan]	0.	
[CL]	0.	

E. CLEAR KEY

The clear key has four functions:  
 E.1 Single depression of this key only clear the displayed number without interfering with the previous function mode so it can be used as clear error entry key.

Example  $2 \times 4 = 8$

Operation	Display	Remark
2	2.	
$\boxed{X}$	2.	
3	3.	
$\boxed{CL}$	0.	
4	4.	
$\boxed{=}$	8.	2x4

E.2 Double depression of this key will clear the X-register and Y-register

Operation	Display	Remark
$\boxed{CL}$	0.	
$\boxed{CL}$	0.	
9	9.	x=9 y=0
$\boxed{X \leftrightarrow Y}$	0.	x=0 y=9
6	6.	x=6 y=9
$\boxed{CL}$	0.	x=0 y=9

Operation	Display	Remark
$\boxed{X \leftrightarrow Y}$	9.	x=9 y=0
$\boxed{X \leftrightarrow Y}$	0.	x=0 y=9
5	5.	x=5 y=9
$\boxed{X \leftrightarrow Y}$	9.	x=9 y=9
$\boxed{X \leftrightarrow Y}$	5.	x=5 y=9
$\boxed{CL}$	0.	x=0 y=9
$\boxed{CL}$	0.	x=0 y=0
$\boxed{X \leftrightarrow Y}$	0.	x=0 y=0
$\boxed{X \leftrightarrow Y}$	0.	x=0 y=0

E.3 Clear the error or overflow condition

Operation	Display	Remark
99999999	99999999.	
$\boxed{X}$	99999999.	
2	2.	
$\boxed{=}$	$\surd$ 1.9999999	
$\boxed{CL}$	1.9999999	
$\boxed{F}$	.1.9999999	
$\boxed{\sin^{-1}}$	$\surd$ 0.	
$\boxed{CL}$	0.	

E. 4 Halt the scientific function calculation  
 When the clear key is depressed before the scientific function calculation is completed, it will halt the calculation and displayed 0.

F. EXTENDED USAGE

Example 1)  $\sinh A = \frac{e^A - \frac{1}{e^A}}{2}$

Operation	Display	Remark
<b>CL</b>	0.	
A	A	
<b>F</b>	.A	
<b>e<sup>X</sup></b>	e <sup>A</sup>	
<b>-</b>	e <sup>A</sup>	
<b>F</b>	.e <sup>A</sup>	
<b>1/X</b>	$\frac{1}{e^A}$	
<b>÷</b>	$e^A - 1/e^A$	
2	2	
<b>=</b>	$(e^A - 1/e^A)/2$	sinh A

Example 2) cosh A

Operation	Display	Remark
<b>CL</b>	0.	

Operation	Display	Remark
A	A	
<b>F</b>	.A	
<b>e<sup>X</sup></b>	e <sup>A</sup>	
<b>+</b>	e <sup>A</sup>	
<b>F</b>	e <sup>A</sup>	
<b>1/X</b>	1/e <sup>A</sup>	
<b>÷</b>	$e^A + 1/e^A$	
2	2	
<b>=</b>	$(e^A + 1/e^A)/2$	cosh A

Example 3) tanh A

Operation	Display	Remark
<b>CM</b>	-	
<b>CL</b>	0.	
A	A	
<b>F</b>	A	
<b>e<sup>X</sup></b>	e <sup>A</sup>	
<b>Min</b>	e <sup>A</sup>	M=e <sup>A</sup>
<b>-</b>	e <sup>A</sup>	
<b>F</b>	e <sup>A</sup>	
<b>1/X</b>	1/e <sup>A</sup>	

Operation	Display	Remark
$\boxed{=}$	$e^A - 1/e^A$	
$\boxed{X \leftrightarrow M}$	$e^A$	$M = e^A - 1/e^A$
$\boxed{+}$	$e^A$	
$\boxed{F}$	$e^A$	
$\boxed{1/X}$	$1/e^A$	
$\boxed{\div}$	$e^A + 1/e^A$	
$\boxed{RM}$	$e^A - 1/e^A$	
$\boxed{X \leftrightarrow Y}$	$e^A + 1/e^A$	
$\boxed{=}$	$(e^A - \frac{1}{e^A}) / (e^A + \frac{1}{e^A})$	$\tanh A$

Example 4) Compound interest

$$A = p \left(1 + \frac{i}{q}\right)^{nq}$$

With: P: Principal

i: Rate per annum compounded monthly.

q: Compounded interest q times per year

n: Period (year)

A: Compounded interest

Operation	Display	Memory	Remark
$\boxed{CM}$	-	0.	
$\boxed{C}$	0.	0.	

Operation	Display	Memory	Remark
q	q	0.	
$\boxed{X}$	q	0.	
n	n	0.	
$\boxed{=}$	nq	0.	
$\boxed{Min}$	nq	nq	
i	i	nq	
$\boxed{+}$	i	nq	
q	q	nq	
$\boxed{+}$	i/q	nq	
1	1	nq	
$\boxed{=}$	i/i/q	nq	
$\boxed{y^x}$	$\ln(1+i/q)$	nq	
$\boxed{RM}$	nq	nq	
$\boxed{=}$	$(1+i/q)^{nq}$	nq	
$\boxed{X}$	$(1+i/q)^{nq}$	nq	
P	P	nq	
$\boxed{=}$	$P(1+i/q)^{nq}$	nq	$A = p(1+i/q)^{nq}$



