

Canon

F-789SGA

Calculation Examples

Beispiele für Berechnungen

Exemples de calcul

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Rekenvoorbeelden

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Beräkningsexempel

Exemplos de cálculos




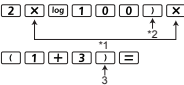

αραδείγματα υπολογισμών



E-IM-2801




ENGLISH
DEUTSCH
FRENCH
ESPAÑOL
ITALIANO
NEDERLANDS
DANSK
SUOMI
SVENSKA
PORTUGUÊS
ΕΛΛΗΝΙΚΑ

EX #1

Example 	Key In Operation 	Display 
Including \times *1,) *2,) *3	$2 \times \log 100 \times (1+3)$ 	$2x\log(100) \times (1+3)$ 16
Omitting \times *1,) *3	$2 \log 100 (1+3)$ 	$2\log(100)(1+3)$ 16

EX #2

LINE MODE: Shift SET-UP 2

Mode Setting 	Key In operation 	Display (input Line only) 
Method 1: Insert mode	1234567 $+$ 889900 \leftarrow 7 times	12345671+889900
	DEL 0	12345601+889900
Method 2: Overwrite mode	Shift <input type="checkbox"/> SET-UP <input type="checkbox"/> 2 1234567 $+$ 889900 Shift <input type="checkbox"/> Insert <input type="checkbox"/>	1234567+889900_
	\leftarrow 8 times	1234567+889900
	0	1234560+889900

EX #3

LINE MODE: Shift SET-UP 2

Mode Setting 	Key In operation 	Display
Method 1: Insert mode	12times	12 34567+889900
	DEL	1 34567+889900
Method 2: Overwrite mode	Shift <input type="checkbox"/> Insert <input type="checkbox"/>	1234567+889900_
	13times	1 <u>2</u> 34567+889900
	DEL	1 <u>3</u> 4567+889900

EX #4

MATHEMATICS MODE: Shift SET-UP 1

Mode Setting 	Key In operation 	Display
Insert mode	6times	1234567+ 889900
	2	1234567+2 889900

EX #5

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display
$\left \sqrt{3} - \frac{2}{\sqrt{2}} \right $	Abs 3 - 2 2 =	$\left \sqrt{3} - \frac{2}{\sqrt{2}} \right $ $\sqrt{3} - \sqrt{2}$

EX #6

**Calculation Precision, Input Range /
 Berechnung Präzision, Eingangsbereich /
 Calcul de précision, plages des valeurs d'entrée /
 Cálculo de precisión, Rango de entrada / Calcolo di
 precisione, Rango de entrada / Rekenprecisie,
 Invoerbereik / Beregning Precision, Inputområde /
 Laskelma Precision, Syöttöalue / Beräkning Precision,
 Inmatningsområde / Cálculo de Precisão, Limite de
 entrada / Υπολογισμός ακριβείας, Περιοχή εισαγωγής**

E	Number of Digits for Internal Calculation Precision*	18 digits ±1 at the 10th digit for a single calculation. ±1 at the least significant for exponential display
	Calculation Range	$\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ or 0
D	Anzahl Ziffern für die interne Berechnung Präzision*	18 Zeichen beinhalten ±1 an der 10. Stelle bei einer einzelnen Berechnung. ±1 an der letzten signifikanten Stelle bei der Exponentialdarstellung
	Rechenbereich	$\pm 1 \times 10^{-99}$ bis $\pm 9.999999999 \times 10^{99}$ oder 0
F	Nombre de chiffres pour les calculs internes Précision*	18 chiffres ±1 sur le dixième chiffre pour un calcul unique. ±1 sur le dernier chiffre significatif pour l'affichage exponentiel.
	Plage de calcul	$\pm 1 \times 10^{-99}$ à $\pm 9.999999999 \times 10^{99}$ ou 0
ES	Número de dígitos del cálculo interno Precisión*	18 dígitos ±1 en el décimo dígito (en cálculos simples) ±1 en el último dígito significativo (en la visualización de exponentes).
	Intervalo de cálculo	$\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ o 0
I	Numero di cifre del calcolo interno Precisione*	18 cifre ±1 alla 10a cifra per un unico calcolo. ±1 all'ultima cifra significativa in caso di visualizzazione esponenziale.
	Intervallo di calcolo	$\pm 1 \times 10^{-99}$ a $\pm 9.999999999 \times 10^{99}$ o 0

NL	Aantal cijfers van interne berekening Precisie*	18 cijfers bewaren
	Berekeningsbereik	±1 bij het tiende cijfer voor één berekening. ±1 bij het laatste significante cijfer voor de exponentiële weergave. $\pm 1 \times 10^{-99}$ tot $\pm 9.999999999 \times 10^{99}$ of 0
DA	Antal cifre i intern udregning Præcision*	18 cifre
	Udregningsområde	±1 ved det 10. Ciffer for en enkelt beregning. ±1 ved sidste signifikante ciffer ved eksponentiel visning. $\pm 1 \times 10^{-99}$ til $\pm 9.999999999 \times 10^{99}$ eller 0
FI	Sisäisen laskutoimituksen numeroiden lukumäärä Tarkkuus*	18 numeroa
	Laskenta-alue	±1 yksittäisessä laskussa 10. Numerolla. ±1 viimeisessä merkitsevässä numerossa eksponentiaalinäytössä. $\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ tai 0
SE	Antal siffror i intern beräkning Precision*	18 siffror
	Beräkningsområde	±1 vid den 10:e siffran för en enstaka beräkning. ±1 är den sista signifikanta siffran för exponentiell visning. $\pm 1 \times 10^{-99}$ to $\pm 9.999999999 \times 10^{99}$ eller 0
PT	Número de dígitos de cálculo interno Precisão*	18 dígitos
	Intervalo de cálculo	±1 no 10º dígito para um cálculo único. ±1 no último dígito significativo para o ecrã. $\pm 1 \times 10^{-99}$ a $\pm 9.999999999 \times 10^{99}$ ou 0
Ελ	Αριθμός ψηφίων για εσωτερικό υπολογισμό Ακρίβεια*	18 ψηφίο
	Εύρος τιμών υπολογισμού	1 στο 10ο ψηφίο για έναν υπολογισμό. 1 στο τελευταίο σημαντικό ψηφίο, για τηνεκθετική προβολή. 1×10^{-99} έως $9.999999999 \times 10^{99}$

Input Ranges / Eingangsbereich / Plages des valeurs d'entrée / Rango de entrada / Rango de entrada / Invoerbereik / Inputområde / Syöttöalue / Inmatningsområde / Limite de entrada / Περιοχή εισαγωγής

Functions	Input Range	
sinx	DEG	$0 \leq x < 9 \times 10^9$
	RAD	$0 \leq x < 157\,079\,632.7$
	GRA	$0 \leq x < 1 \times 10^{10}$
cosx	DEG	$0 \leq x < 9 \times 10^9$
	RAD	$0 \leq x < 157\,079\,632.7$
	GRA	$0 \leq x < 1 \times 10^{10}$
tanx	DEG	Same as sinx, except when $ x = (2n-1) \times 90$
	RAD	Same as sinx, except when $ x = (2n-1) \times \pi/2$
	GRA	Same as sinx, except when $ x = (2n-1) \times 100$
sin ⁻¹ x	$0 \leq x \leq 1$	
cos ⁻¹ x		
tan ⁻¹ x	$0 \leq x \leq 9.999\,999\,999 \times 10^{99}$	
sinhx	$0 \leq x \leq 230\,258\,509\,2$	
coshx		
sinh ⁻¹ x	$0 \leq x \leq 4.999\,999\,999 \times 10^{99}$	
cosh ⁻¹ x	$1 \leq x \leq 4.999\,999\,999 \times 10^{99}$	
tanhx	$0 \leq x \leq 9.999\,999\,999 \times 10^{99}$	
tanh ⁻¹ x	$0 \leq x \leq 9.999\,999\,999 \times 10^{-1}$	
logx/lnx	$0 < x \leq 9.999\,999\,999 \times 10^{99}$	
10 ^x	$-9.999\,999\,999 \times 10^{99} \leq x \leq 99.999\,999\,99$	
e ^x	$-9.999\,999\,999 \times 10^{99} \leq x \leq 230.258\,509\,2$	
\sqrt{x}	$0 \leq x < 1 \times 10^{100}$	
x ²	$ x < 1 \times 10^{50}$	
x ³	$ x \leq 2.154\,434\,69 \times 10^{33}$	
x ⁻¹	$ x < 1 \times 10^{100}, x \neq 0$	
$\sqrt[3]{x}$	$ x < 1 \times 10^{100}$	
x!	$0 \leq x \leq 69$ (x is an integer)	

Functions	Input Range
nPr	$0 \leq n < 1 \times 10^{10}$, $0 \leq r \leq n$ (n,r are integers)
	$1 \leq \{n!/((n-r)!\} < 1 \times 10^{100}$
nCr	$0 \leq n < 1 \times 10^{10}$, $0 \leq r \leq n$ (n,r are integers)
	$1 \leq n!/r! < 1 \times 10^{100}$ or $1 \leq n!/((n-r)! < 1 \times 10^{100}$
Pol(x,y)	$ x , y \leq 9.999\ 999\ 999 \times 10^{99}$ $\sqrt{x^2+y^2} \leq 9.999\ 999\ 999 \times 10^{99}$
Rec(r,θ)	$0 \leq r \leq 9.999\ 999\ 999 \times 10^{99}$ θ : Same as sinx
◦ ◡ "	$ a , b, c < 1 \times 10^{100}$ $0 \leq b, c$ The display seconds value is subject to an error of +/-1 at the second decimal place
	$ x < 1 \times 10^{100}$ ◀ ◡ " ◡ Sexagesimal Conversions $0^\circ 0' 0'' \leq x \leq 99999999^\circ 59' 59''$
$^{(x^y)}$	$x > 0$: $-1 \times 10^{100} < y \log x < 100$ $x = 0$: $y > 0$ $x < 0$: $y = n, m / (2n+1)$ (m,n are integers) However: $-1 \times 10^{100} < y \log x < 100$
$x \sqrt{y}$	$y > 0$: $x \neq 0$, $-1 \times 10^{100} < 1/x \log y < 100$ $y = 0$: $x > 0$ $y < 0$: $x = 2n+1, (2n+1)/m$ ($m \neq 0$; m,n are integers)
a b/c	Total of integer, numerator, and denominator must be 10 digits or less (including division marks).
i-Rand(a,b)	$0 \leq a < 1 \times 10^{10}$, $0 \leq b < 1 \times 10^{10}$ (a,b should be positive integers or 0)
Rand	Result generates a 3 digits pseudo random number(0.000~0.999)
LCM(x,y,z)	$0 < x, y, z \leq 9.999\ 999\ 999 \times 10^{12}$ (positive integers) Default result when x, y, z=0
GCD(x,y,z)	$0 < x, y, z \leq 9.999\ 999\ 999 \times 10^{12}$ (positive integers) Default result when x, y, z=0




Functions	Input Range
Q...r(x,y)	$0 < x, y \leq 9.999\ 999\ 999 \times 10^{12}$ (positive integers) $0 \leq Q \leq 999\ 999\ 9999$, $0 \leq r \leq 999\ 999\ 9999$ (Q,r are integers) Default result when $x=0$
Mod(x,y)	$0 < x, y \leq 9.999999999 \times 10^{12}$ Default result= x when $y=0$
Single-variable	$ x < 1 \times 10^{100}$ $ FREQ < 1 \times 10^{100}$
Paired-variable	$ x < 1 \times 10^{100}$ $ y < 1 \times 10^{100}$ $ FREQ < 1 \times 10^{100}$
ABS	$ x < 1 \times 10^{100}$
Pfact	$x \leq 9999999999$ (positive integers)
BIN	Positive: 0~0111 1111 1111 1111 1111 1111 1111 1111 Negative: 1000 0000 0000 0000 0000 0000 0000 0000~ 1111 1111 1111 1111 1111 1111 1111 1111
DEC	Positive: 0~2147483647 Negative: -2147483648~-1
OCT	Positive: 0~177 7777 7777 Negative: 200 0000 0000~377 7777 7777
HEX	Positive: 0~7FFF FFFF Negative: 8000 0000~FFFF FFFF
$\sum (f(x), a, b)$	a and b are integers in the range of $-1 \cdot 10^{10} < a \leq b < 1 \cdot 10^{10}$.
$\prod (f(x), a, b)$	a and b are integers in the range of $-1 \cdot 10^{10} < a \leq b < 1 \cdot 10^{10}$.

EX #7

1st Priority	Recall memory (A, B, C, D, E, F, 0-9), Rand
2nd	Calculation within parentheses ().
3rd	Function with parenthesis that request the input argument to the right Pol(, Rec(, d/dx, $\int dx$, P(, Q(, R(, Det(, Trn(, Ide(, Adj(, Inv(, Arg(, Conjg(, Real(, Imag(, sin(, cos(, tan(, \sin^{-1} (, \cos^{-1} (, \tan^{-1} (, sinh(, cosh(, tanh(, \sinh^{-1} (, \cosh^{-1} (, \tanh^{-1} (, log(, ln(, e^{\wedge} (, 10^{\wedge} (, $\sqrt{\wedge}$ (, $\sqrt[3]{\wedge}$ (, Abs(, ROUND(, LCM(, GCD(, Q...r(, i~Rand(,
4th	Functions that come after the input value preceded by values, powers, power roots: x^2 , x^3 , x^{-1} , $x!$, $^{\circ}$, $^{\circ}$, $^{\circ}$, r, g, $^{\wedge}$ (, $\sqrt{\wedge}$ (, Percent %, $\log_a b$, EXP, \blacktriangleright
5th	Fractions: a b/c, d/c
6th	Prefix symbol: (-) (negative sign), base-n symbols (d, h, b, o, Neg, Not)
7th	Statistical estimated value calculation: \hat{x} , \hat{y} , $\hat{x}1$, $\hat{x}2$ Metric conversion commands (cm \rightarrow in, etc)
8th	Multiplication where sign is omitted: Multiplication sign omitted immediately before π , e, variables (2π , $5A$, πA , etc.), functions with parentheses ($2\sqrt{(3)}$, $Asin(30)$, etc.)
9th	Permutations, combinations: nPr , nCr Complex number polar coordinate symbol (<)
10th	Dot: .
11th	Multiplication and division: \times , \div
12th	Addition and subtraction: +, -
13th	Logical AND (and)
14th	Logical OR, XOR, XNOR (or, xor, xnor)
15th	Calculation ending instruction: =, M+, M- STO (store memory), $\blacktriangleright r < \theta$, $\blacktriangleright a+bi$




EX #8

MATHEMATICS MODE:   **1**

Example 	Key in operation 	Display 
$(-2.5)^2$	((-) 2 . 5) x² =	$(-2.5)^2$ $\frac{25}{4}$
$(4 \times 10^{75})(-2 \times 10^{-79})$	4 EXP 7 5 x (-) 2 EXP (-) 7 = 9 =	$4E75x$ $-\frac{1}{1250}$




EX #9

MATHEMATICS MODE:   **1**

Example 	Key in operation 	Display 
$23 + 7 \rightarrow A$	2 3 + 7 Shift STO A	$23+7 \rightarrow A$ 30
$2 \times \sin A = 1$	2 sin Alpha A =	$2\sin(A)$ 1
Clear memory	0 Shift STO A	$0 \rightarrow A$ 0







EX #10

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
123 + 456 → M+, Ans ² = 335,241	1 2 3 + 4 5 6 M+ x² =	Ans ² 335241
789900 - Ans = 454,659	7 8 9 9 0 0 - Ans =	789900-Ans 454659
























EX #11

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
$1\frac{1}{2} + \frac{5}{6} = \frac{7}{3}$	1 Shift  1 → 2 → + 5  6 =	$1\frac{1}{2} + \frac{5}{6}$ $\frac{7}{3}$
$\frac{7}{3} \leftrightarrow 2.333333333$ (Fraction ↔ Decimal)	F↔D	$1\frac{1}{2} + \frac{5}{6}$ 2.333333333
$2.333333333 \leftrightarrow 2\frac{1}{3}$ (Decimal ↔ Mixed Fraction)	Shift 	$1\frac{1}{2} + \frac{5}{6}$ $2\frac{1}{3}$





























EX #12

MATHEMATICS MODE:   **1**

Example 	Key in operation 	Display 
To calculate 25% of 820	        	820x25% 205
The percentage of 750 against 1250	          	750÷1250% 60

EX #13

MATHEMATICS MODE:   **1**

Example 	Key in operation 	Display 
$86^{\circ}37'34.2'' \div 0.7 = 123^{\circ}45'6''$	               	$86^{\circ}37'34.2'' \div 0.7$ $123^{\circ}45'6''$
$123^{\circ}45'6'' \rightarrow 123.7516667$		$86^{\circ}37'34.2'' \div 0.7$ 123.7516667
$2.3456 \rightarrow 2^{\circ}20'44.16''$	       	2.3456 $2^{\circ}20'44.16''$

EX #14

MATHEMATICS MODE: **1**

Example 	Key in operation 	Display
$1 \times 12 = 12$ $2 + 25 = 27$ using a multi-statement	$\boxed{1} \boxed{\times} \boxed{1} \boxed{2} \text{Alpha}$ $\boxed{\div} \boxed{2} \boxed{+} \boxed{2} \boxed{5}$	$1 \times 12 : 2 + 25 $
	$\boxed{=}$	1×12 ▲ Disp 12
	$\boxed{=}$	$2 + 25$ ▲ 27
Replay the previous calculation history ($1 \times 12 = 12$)	$\boxed{\blacktriangle}$	1×12 ▼ 12

EX #15

MATHEMATICS MODE: **1**

Key in Operation 	Display
$\text{Shift} \text{ C-Value}$ $\boxed{\text{C}} \boxed{\text{C-Value}}$ (menu selection page)	Input 1-79 <u>0.0</u> ◀mP mn me mμ ao▶
$\boxed{3} \boxed{5} \boxed{=}$	g
$\boxed{+} \boxed{35} \boxed{=}$	g+35 44.80665
$\boxed{=} \boxed{=} \boxed{\times} \boxed{50} \boxed{=}$	Ansx50 2240.3325

EX #16

NO.	Constant	Symbol	Value	Unit
1.	Proton mass	m_p	$1.672621777 \times 10^{-27}$	kg
2.	Neutron mass	m_n	$1.674927351 \times 10^{-27}$	kg
3.	Electron mass	m_e	$9.10938291 \times 10^{-31}$	kg
4.	Muon mass	m_μ	$1.883531475 \times 10^{-28}$	kg
5.	Bohr radius $a_0 / 4\pi R_\infty$	a_0	$0.52917721092 \times 10^{-10}$	m
6.	Planck constant	h	$6.62606957 \times 10^{-34}$	J s
7.	Nuclear magneton $e\hbar / 2m_p$	μ_N	$5.05078353 \times 10^{-27}$	J T ⁻¹
8.	Bohr magneton $e\hbar / 2m_e$	μ_B	$927.400968 \times 10^{-26}$	J T ⁻¹
9.	$h / 2\pi$	\hbar	$1.054571726 \times 10^{-34}$	J s
10.	Fine-structure constant $e^2 / 4\pi\epsilon_0 \hbar c$	α	$7.2973525698 \times 10^{-3}$	
11.	Classical electron radius $\alpha^2 a_0$	r_e	$2.8179403267 \times 10^{-15}$	m
12.	Compton wavelength $h / m_e c$	λ_c	$2.4263102389 \times 10^{-12}$	m
13.	Proton gyromagnetic ratio $2\mu_p / \hbar$	γ_p	2.675222005×10^8	s ⁻¹ T ⁻¹
14.	Proton Compton wavelength $h / m_p c$	$\lambda_{c,p}$	$1.32140985623 \times 10^{-15}$	m
15.	Neutron Compton wavelength $h / m_n c$	$\lambda_{c,n}$	$1.3195909068 \times 10^{-15}$	m
16.	Rydberg constant $\alpha^2 m_e c / 2\hbar$	R_∞	10973731.568539	m ⁻¹
17.	(unified) atomic mass unit	u	$1.660538921 \times 10^{-27}$	kg
18.	Proton magnetic moment	μ_p	$1.410606743 \times 10^{-26}$	J T ⁻¹
19.	Electron magnetic moment	μ_e	$-928.476430 \times 10^{-26}$	J T ⁻¹
20.	Neutron magnetic moment	μ_n	$-0.96623647 \times 10^{-26}$	J T ⁻¹
21.	Muon magnetic moment	μ_μ	$-4.49044807 \times 10^{-26}$	J T ⁻¹
22.	Faraday constant $N_A e$	F	96485.3365	C mol ⁻¹
23.	Elementary charge	e	$1.602176565 \times 10^{-19}$	C
24.	Avogadro constant	N_A	$6.02214129 \times 10^{23}$	mol ⁻¹
25.	Boltzmann constant R / N_A	k	$1.3806488 \times 10^{-23}$	J K ⁻¹
26.	Molar volume of ideal gas RT / p T=273.15 K, p=101.325 kPa	V_m	22.413968×10^{-3}	m ³ mol ⁻¹
27.	Molar gas constant	R	8.3144621	J mol ⁻¹ K ⁻¹
28.	Speed of light in vacuum	c_0	299792458	m s ⁻¹
29.	First radiation constant $2\pi^5 / 15c^2$	c_1	$3.74177153 \times 10^{-16}$	W m ²
30.	Second radiation constant hc/k	c_2	1.4387770×10^{-2}	m K

NO.	Constant	Symbol	Value	Unit
31.	Stefan-Boltzmann constant	σ	5.670373×10^{-8}	$\text{W m}^{-2} \text{K}^{-4}$
32.	Electric constant $1 / \mu_0 c^2$	ϵ_0	$8.854187817 \times 10^{-12}$	F m^{-1}
33.	Magnetic constant	μ_0	$12.566370614 \times 10^{-7}$	N A^{-2}
34.	Magnetic flux quantum $h / 2e$	Φ_0	$2.067833758 \times 10^{-15}$	Wb
35.	Standard acceleration of gravity	g	9.80665	ms^{-2}
36.	Conductance quantum $2e^2/h$	G_0	$7.7480917346 \times 10^{-5}$	S
37.	Characteristic impedance of vacuum $\sqrt{\mu_0} / \epsilon_0 = \mu_0 c$	Z_0	376.730313461	Ω
38.	Celsius temperature	t	273.15	
39.	Newtonian constant of gravitation	G	6.67384×10^{-11}	$\text{m}^3 \text{kg}^{-1} \text{s}^{-2}$
40.	Standard atmosphere	atm	101325	Pa
41.	Proton g-factor $2 \mu_p / \mu_N$	g_p	5.585694713	
42.	$\lambda_{c,n} / 2\pi$	$\tilde{\lambda}_{c,n}$	$0.21001941568 \times 10^{-15}$	m
43.	Planck length $\hbar / m_p c = (\hbar G / c^3)^{1/2}$	l_p	1.616199×10^{-35}	m
44.	Planck time $l_p / c = (\hbar G / c^5)^{1/2}$	t_p	5.39106×10^{-44}	s
45.	Planck mass $(\hbar c / G)^{1/2}$	m_p	2.17651×10^{-8}	kg
46.	Atomic mass constant	m_u	$1.660538921 \times 10^{-27}$	kg
47.	Electron volt: $(e/c) \text{J}$	eV	$1.602176565 \times 10^{-19}$	J
48.	Molar planck constant	$N_A h$	$3.9903127176 \times 10^{-10}$	J s mol^{-1}
49.	Wien displacement law constant	b	2.8977721×10^{-3}	m K
50.	Lattice parameter of Si (in vacuum, 22.5°C)	a	$543.1020504 \times 10^{-12}$	m
51.	Hartree energy $e^2 / 4 \pi \epsilon_0 a_0$	Eh	$4.35974434 \times 10^{-18}$	J
52.	Loschmidt constant N_A / V_m	n_0	2.6867805×10^{25}	m^{-3}
53.	Inverse of conductance quantum	G_0^{-1}	12906.4037217	Ω
54.	Josephson constant $2e/h$	K_J	483597.870×10^9	Hz V^{-1}
55.	Von Klitzing constant h/e^2	R_K	25812.8074434	Ω
56.	$\lambda_c / 2\pi$	$\tilde{\lambda}_c$	$386.15926800 \times 10^{-15}$	m
57.	Thomson cross section $(8 \pi / 3) r_e^2$	σ_e	$0.6652458734 \times 10^{-28}$	m^2
58.	Electron magnetic moment anomaly $ \mu_e / \mu_B - 1$	a_e	$1.15965218076 \times 10^{-3}$	
59.	Electron g-factor $-2(1 + a_e)$	g_e	-2.00231930436153	
60.	Electron gyromagnetic ratio $2 \mu_e / \hbar$	γ_e	$1.760859708 \times 10^{11}$	$\text{s}^{-1} \text{T}^{-1}$
61.	Muon magnetic moment anomaly	a_μ	$1.16592091 \times 10^{-3}$	
62.	Muon g-factor $-2(1 + a_\mu)$	g_μ	-2.0023318418	

NO.	Constant	Symbol	Value	Unit
63.	Muon Compton wavelength $h / m_{\mu}c$	$\lambda_{c,\mu}$	$11.73444103 \times 10^{-15}$	m
64.	$\lambda_{c,\mu} / 2\pi$	$\tilde{\lambda}_{c,\mu}$	$1.867594294 \times 10^{-15}$	m
65.	Tau Compton wavelength $h / m_{\tau}c$	$\lambda_{c,\tau}$	0.697787×10^{-15}	m
66.	$\lambda_{c,\tau} / 2\pi$	$\tilde{\lambda}_{c,\tau}$	0.111056×10^{-15}	m
67.	Tau mass	m_{τ}	3.16747×10^{-27}	kg
68.	$\lambda_{c,p} / 2\pi$	$\tilde{\lambda}_{c,p}$	$0.21030891047 \times 10^{-15}$	m
69.	Shielded proton magnetic moment (H ₂ O, sphere, 25°C)	μ'_{p}	$1.410570499 \times 10^{-26}$	J T ⁻¹
70.	Neutron g-factor $2 \mu_{n} / \mu_{N}$	g_n	-3.82608545	
71.	Neutron gyromagnetic ratio $2 \mu_{n} / \hbar$	γ_n	1.83247179×10^8	s ⁻¹ T ⁻¹
72.	Deuteron mass	m_d	$3.34358348 \times 10^{-27}$	kg
73.	Deuteron magnetic moment	μ_d	$0.433073489 \times 10^{-26}$	J T ⁻¹
74.	Helion mass	m_h	$5.00641234 \times 10^{-27}$	kg
75.	Shielded helion magnetic moment (gas, sphere, 25°C)	μ'_{h}	$-1.074553044 \times 10^{-26}$	J T ⁻¹
76.	Shielded helion gyromagnetic ratio $2 \mu'_{h} / \hbar$ (gas, sphere, 25°C)	γ'_{h}	2.037894659×10^8	s ⁻¹ T ⁻¹
77.	Alpha particle mass	m_{α}	$6.64465675 \times 10^{-27}$	kg
78.	Shielded proton gyromagnetic ratio $2\mu'_{p} / \hbar$ (H ₂ O, sphere, 25°C)	γ'_{p}	2.675153268×10^8	s ⁻¹ T ⁻¹
79.	Proton magnetic shielding correction $1 - \mu'_{p} / \mu_p$ (H ₂ O, sphere, 25°C)	σ'_{p}	25.694×10^{-6}	

! Constant values cannot perform rounding. / Konstante Werte kann keine Rundung. / Les valeurs constantes ne peuvent pas effectuer d'arrondi. / Los valores constantes no se puede realizar el redondeo. / Valori costanti non può eseguire arrotondamenti. / Constante waarden kunnen niet worden uitgevoerd afronding. / Konstante værdier kan ikke udføre afrunding. / Nykyarvoina ei tehdä eroja. / Konstanta värden kan inte utföra avrundning. / Valores constantes não podem executar o arredondamento. / Σταθερή αξία δεν μπορεί να εκτελέσει τη στρογγυλοποίηση.

Source: CODATA Internationally 2010 / **Quelle:** CODATA Internationally 2010 / **Source:** Conférence internationale CODATA 2010 / **Fuente:** CODATA Internationally 2010 / **Fonte:** CODATA Internationally 2010 / **Bron:** CODATA Internationaal 2010 / **Kilde:** CODATA Internationally 2010 / **Lähde:** CODATA International 2010 / **Källa:** CODATA Internationally 2010 / **Fonte:** CODATA Internationally 2010 / **Πηγή:** CODATA Internationally 2010


<http://physics.nist.gov/constants>

EX #17

Page	Symbol	Unit
1	feet	feet
1	m	meter
1	mil	milliliter
1	mm	millimeter
1	in	inch
1	cm	centimeter
1	yd	yard
1	mile	mile
1	km	kilometer
2	ft ²	square foot
2	yd ²	square yard
2	m ²	square meter
2	mile ²	square mile
2	km ²	square kilometer
2	hectares	hectare
2	acres	acre
3	°F	degree Fahrenheit
3	°C	degree Celsius
4	gal	gallon (U.K.)
4	liter	liter
4	B.gal	gallon (U.S.)
4	pint	pint
4	fl.oz	fluid ounces (U.S.)
5	Tr.oz	ounce (troy or apothecary)
5	oz	ounces
5	lb	libra
5	Kg	kilogram
5	g	gram
6	J	joule
6	cal.f	calorie
7	atm	standard atmosphere
7	Kpa	kilopascal
7	mmHg	millimeter of mercury
7	cmH ₂ O	centimeter of water
8	m/s	Meter per second
8	km/h	Kilometer per hour



EX #18

MATHEMATICS MODE: Shift SET-UP 1

Key in Operation 	Display 12345 12345
1 0 + 5 <input type="checkbox"/> CONV (menu selection menu)	Unit (distance) [▲] feet m mil mm in cm yd mile km
<input type="checkbox"/> <input type="checkbox"/> (confirm selection ft ²)	ft ² yd ² m ² mile ² km ² ha acres 5
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (confirm the value convert into m ²)	10+5ft ² ▶ m ²
<input type="checkbox"/>	10+5ft ² ▶ m ² [▲] 10.4645152

EX #19

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 12345 12345
$(\sqrt[2]{2^2 + 5^3})^{-1} \times \pi$ = 0.6217559776	(<input type="checkbox"/> Shift $\sqrt[3]{}$ 2 x^2 + 5 Shift x^y <input type="checkbox"/> <input type="checkbox"/>) x^{-1} \times Shift π <input type="checkbox"/> =	$(\sqrt[2]{2^2 + 5^3})^{-1} \times \pi$ 0.6217559776
$(\sqrt[2]{2^6} + \sqrt[3]{243})$ = 7	(<input type="checkbox"/> Shift $\sqrt[3]{}$ 2 x^{\square} 6 <input type="checkbox"/> <input type="checkbox"/> + Shift <input type="checkbox"/> $\sqrt[3]{}$ 5 <input type="checkbox"/> <input type="checkbox"/> 2 4 3 <input type="checkbox"/> <input type="checkbox"/>) =	$(\sqrt[2]{2^6} + \sqrt[3]{243})$ 7

EX #20

MATHEMATICS MODE: **1**

Example 	Key in operation 	Display
$e^{-3} + 10^{1.2} + \ln 3 = 16.99733128$	Shift e^x (-) 3 → + Shift 10^x 1 • 2 → + ln 3 =	$e^{-3} + 10^{1.2} + \ln(3)$ 16.99733128
$\log_3 81 - \log 1 = 4$	Alpha \log_{α} 3 → 8 1 → - log 1 =	$\log_3(81) - \log(1)$ 4

EX #21

MATHEMATICS MODE: **1**




Example 	Key in operation 	Display
Convert 180 degree into radian and gradient ($180^\circ = \pi \text{ Rad} = 200^{\text{Gad}}$)	Shift 4 1 8 0 Shift DRG → 1 =	180° R π
	Shift 5 =	180° 200

EX #22




MATHEMATICS MODE: **1**

Example 	Key in operation 	Display
Degree Mode	Shift 3	D
$\sin 60 = \frac{\sqrt{3}}{2}$	sin 6 0 =	$\sin(60)$ $\frac{\sqrt{3}}{2}$
$\frac{1}{\sin 45^\circ} = \text{Cosec } 45^\circ = \sqrt{2}$	sin 4 5) x⁻¹ =	$\sin(45)^{-1}$ $\sqrt{2}$




EX #23
MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
$\sinh 2.5 - \cosh 2.5$ $= -0.082084998$	hyp 1 2 . 5) - hyp 2 2 . 5) =	$\sinh(2.5) - \cosh(\triangleright)$ -0.08208499862
$\cosh^{-1}45$ $= 4.499686191$	hyp 5 4 5 =	$\cosh^{-1}(45)$ 4.499686191



EX #24
MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
${}_{10}P_3 = 720$	1 0 Shift nPr 3 =	${}_{10}P_3$ 720
${}_5C_2 = 10$	5 Shift nCr 2 =	${}_5C_2$ 10
$5! = 120$	5 Shift x! =	$5!$ 120



EX #25
MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
Generate a random number between 0.000 & 0.999	Shift Rand =	Rand $\frac{139}{1000}$
Generate an integer from a range of 1 to 100	Alpha i-Rand 1 Shift , 1 0 0 =	$i\sim\text{Rand}(1,100)$ 33




EX #26**MATHEMATICS MODE:** Shift SET-UP 1

Key in operation 	Display 
Apps 1 Alpha X + 1 > 0 > 5 =	$5 \prod_{x=0} (x+1)$
	720

EX #27**LINE MODE:** Shift SET-UP 2

Key in operation 	Display 
Apps 2 Alpha X + 1 Shift , 1 Shift , 5 =	$\sum (x+1, 1, 5)$
	20




EX #28**LINE MODE:** Shift SET-UP 2

Example 	Key in operation 	Display 
To calculate Maximum value of 3, sin30 and cos30	Apps 3 3 Shift , sin 3 0) Shift , cos 6 0 =	Max(3, sin(30), C) > 3
To calculate Minimum value of 3, sin30 and cos30	Apps 4 3 Shift , sin 3 0) Shift , cos 6 0 =	Min(3, sin(30), C) > $\frac{1}{2}$




EX #29**MATHEMATICS MODE:** Shift SET-UP 1

Example	Key in operation	Display
The modulus after division (Mod) of 23 and 5	Apps 6 2 3 Shift , 5 =	Mod(23, 5 3
The modulus after division (Mod) of -23 and 5	Apps 6 (-) 2 3 Shift , 5 =	Mod(-23, 5 2





EX #30 MATHEMATICS MODE: Shift SET-UP 1

Example	Key in operation	Display
		
LCM(15, 27, 39) = 1755	Apps <input type="checkbox"/> 7 <input type="checkbox"/> 1 <input type="checkbox"/> 5 <input type="checkbox"/> Shift , <input type="checkbox"/> 2 <input type="checkbox"/> 7 <input type="checkbox"/> Shift , <input type="checkbox"/> <input type="checkbox"/> 3 <input type="checkbox"/> 9 <input type="checkbox"/> =	LCM(15,27,39 1755




LINE MODE: Shift SET-UP 2

Example	Key in operation	Display
		
GCD(12, 24, 60) = 12	Apps <input type="checkbox"/> 8 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> Shift , <input type="checkbox"/> 2 <input type="checkbox"/> 4 <input type="checkbox"/> Shift , <input type="checkbox"/> <input type="checkbox"/> 6 <input type="checkbox"/> 0 <input type="checkbox"/> =	GCD(12,24,60 12

EX #31 MATHEMATICS MODE: Shift SET-UP 1




Key in Operation	Display
	
<input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> 9 <input type="checkbox"/> = Shift <input type="checkbox"/> PFact <input type="checkbox"/>	9999999999  $3^2 \times 11 \times 41 \times 271 \times (9 \blacktriangleright)$
<input type="checkbox"/> 1 <input type="checkbox"/> 7 <input type="checkbox"/> 7 <input type="checkbox"/> 7 <input type="checkbox"/> = <input type="checkbox"/> Shift <input type="checkbox"/> PFact <input type="checkbox"/>	1777  (1777)

EX #32 LINE MODE: Shift SET-UP 2

Example	Key in operation	Display
		
$35 \div 10 = 3 \times 10 + 5$ Q=3 R=5	Apps <input type="checkbox"/> 5 <input type="checkbox"/> 3 <input type="checkbox"/> 5 Shift , <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> =	Q...r(35, 10 Q= 3 R= 5
Quotient value (Q) + 3 = 6	<input type="checkbox"/> + <input type="checkbox"/> 3 <input type="checkbox"/> =	Ans+3 6
Recall Quotient value (Q)	<input type="checkbox"/> RCL <input type="checkbox"/> C	C 3
Recall Remainder value (r)	<input type="checkbox"/> RCL <input type="checkbox"/> D	D 5




EX #33

MATHEMATICS MODE: Shift SET-UP $\boxed{1}$

Example 	Key in operation 	Display 
With rectangular coordinate ($x=1$, $y=\sqrt{3}$). Find Polar coordinate (r , θ) at degree mode	Shift Pol $\boxed{1}$ Shift , $\sqrt{\square}$ $\boxed{3}$ $\boxed{=}$	Pol(1, $\sqrt{3}$ $r=2$, $\theta=60$
	RCL X	X 2
	RCL Y	Y 60




EX #34

LINE MODE: Shift SET-UP $\boxed{2}$

Example 	Key in operation 	Display 
With Polar coordinate ($r=2$, $\theta=60^\circ$). Find Rectangular coordinate (x , y) at degree mode	Shift Rec $\boxed{2}$ Shift , $\boxed{6}$ $\boxed{0}$ $\boxed{=}$	Rec(2, 60 X= 1 Y= 1.732050808
	RCL X	X 1
	RCL Y	Y 1.732050808

EX #35

MATHEMATICS MODE: Shift SET-UP $\boxed{1}$

Example 	Key in operation 	Display 
$ \sin(60 - 5) \times (-\pi) $	Abs sin $\boxed{6}$ $\boxed{0}$ $\boxed{-}$ $\boxed{5}$ $\boxed{)}$ \times $\boxed{(}$ $\boxed{(-)}$ Shift π $\boxed{)}$ $\boxed{=}$	$ \sin(60 - 5) \times (-\pi) $ 2.573442045

EX #36LINE MODE: **2**

Example 	Key in operation 	Display
$1+200 = 5 \times 10^{-3}$	1 2 0 0 =	1+200 5×10^{-3}
	ENG ENG	1+200 5000×10^{-6}
	Shift ENG	1+200 5×10^{-3}

EX #37LINE MODE: **2**

Example 	Key in operation 	Display
$\frac{2}{3} + 2 = \frac{8}{3} = 2.666666667$	2 3 + 2 =	2_3+2 8_3
	F→D	2_3+2 2.666666667

MATHEMATICS MODE: **1**

Example 	Key in operation 	Display
$\frac{2}{3} + 2 = \frac{8}{3} = 2.666666667$	2 3 + 2 =	$\frac{2}{3} + 2$ $\frac{8}{3}$
	F→D	$\frac{2}{3} + 2$ 2.666666667
	tan 3 0 =	tan(30) $\frac{\sqrt{3}}{3}$
$\tan 30 = \frac{\sqrt{3}}{3}$ $= 0.5773502692$	F→D	tan(30) 0.5773502692
	Shift 8 =	$\pi + 8$ $\frac{1}{8}\pi$
$\pi + 8 = \frac{1}{8}\pi$ $= 0.3926990817$	F→D	$\pi + 8$ 0.3926990817

EX #38

MATHEMATICS MODE: **1**

Example 	Key in operation 	Display
$3+4i =$ $5 \angle 53.13010235$	3 + 4 1 =	$3+4i \rightarrow r \angle \theta$ $5 \angle 53.13010235$
$\sqrt{2} \angle 45 = 1+i$	$\sqrt{\square}$ 2 \rightarrow \angle 4 5 2 =	$\sqrt{2} \angle 45 \rightarrow a+bi$ $1+i$

EX #39

LINE MODE: **2**

Example 	Key in operation 	Display
Absolute value (r) and argument (θ) if complex number is $6+8i$	Abs 6 + 8) = \rightarrow DEL 3 =	$\text{Abs}(6+8i)$ 10 $\text{Arg}(6+8i)$ 53.13010235




EX #40

LINE MODE: **2**

Example 	Key in operation 	Display
$3+4i$ is $3-4i$	4 3 + 4) =	$\text{Conjg}(3+4i)$ 3 $-4i$




EX #41

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
Real and Imaginary values of a complex number is $23\angle 54$	Apps <input type="checkbox"/> 5 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> \angle <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/>) <input type="checkbox"/> = <input type="checkbox"/> \rightarrow DEL Apps <input type="checkbox"/> 6 <input type="checkbox"/> =	Real($23\angle 54$) 13.5190608 Imag($23\angle 54$) 18.60739087





EX #42

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
$10101011+1100-1001 \times 101+10$ $=10100001$ (in Binary Mode)	BIN <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> + <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> X <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> \div <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> =	$10101011+1100-1 \rightarrow$ BIN 1010 0001
$645+321-23 \times 7+2$ $=1064$ (in Octal Mode)	OCT <input type="checkbox"/> 6 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> + <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> - <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> X <input type="checkbox"/> 7 <input type="checkbox"/> \div <input type="checkbox"/> 2 <input type="checkbox"/> =	$645+321-23 \times 7+2 \wedge$ OCT 00000001064
$(77A6C+D9) \times B+F$ $=57C87$ (in Hexadecimal Mode)	HEX <input type="checkbox"/> (<input type="checkbox"/> 7 <input type="checkbox"/> 7 <input type="checkbox"/> A <input type="checkbox"/> 6 <input type="checkbox"/> C <input type="checkbox"/> + <input type="checkbox"/> D <input type="checkbox"/> 9 <input type="checkbox"/>) <input type="checkbox"/> X <input type="checkbox"/> B <input type="checkbox"/> \div <input type="checkbox"/> F <input type="checkbox"/> =	$(77A6C+D9) \times B+F \wedge$ HEX 00057C87

EX #43

MATHEMATICS MODE: Shift SET-UP 1

Example 	Key in operation 	Display 
$12345+101=12446$	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> + <input type="checkbox"/> 1 <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> =	$12345+101 \wedge$ DEC 12446
	HEX <input type="checkbox"/>	$12345+101 \wedge$ HEX 000309E
	BIN <input type="checkbox"/>	$12345+101 \wedge$  BIN 1001 1110
	OCT <input type="checkbox"/>	$12345+101 \wedge$ OCT 00000030236

EX #44

MATHEMATICS MODE: Shift SET-UP 1

Example	Key in operation	Display
789ABC Xnor 147258	$\left[\begin{array}{ccccc} 7 & 8 & 9 & \overset{A}{\square} & \overset{B}{\square} \\ & \overset{C}{\square} & \text{Apps} & 4 & 1 & 4 \\ 7 & 2 & 5 & 8 & = \end{array} \right.$	789ABCxnor147258 HEX FF93171B
Ans or 789ABC	$\left[\begin{array}{ccccc} \text{Ans} & \text{Apps} & 2 & 7 & 8 \\ 9 & \overset{A}{\square} & \overset{B}{\square} & \overset{C}{\square} & = \end{array} \right.$	Ansor789ABC HEX FFFB9FBF
Neg 789ABC	$\left[\begin{array}{ccccc} \text{Apps} & 6 & 7 & 8 & 9 \\ \overset{A}{\square} & \overset{B}{\square} & \overset{C}{\square} & = \end{array} \right.$	Neg(789ABC HEX FF876544




EX #45

LINE MODE: Shift SET-UP 2

Key in operation	Display
MODE 3	1:SD 2:Lin 3:Quad 4:Log 5:e EXP 6:ab EXP 7:PWR 8:Inv
1 (SD)	
7 5 = 8 5 = 9 0 = 7 7 = 7 9 =	
CA Apps 4 1 =	$\sum x^2$ 33120
CA Apps 4 2 =	$\sum x$ 406
CA Apps 5 1 =	n 5
CA Apps 5 2 =	\bar{x} 81.2
CA Apps 5 3 =	$x \ n$ σ 5.528109984
CA Apps 5 4 =	$x \ n-1$ σ 6.180614856




EX #46

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
MODE 3	1:SD 2:Lin 3:Quad 4:Log 5:e EXP 6:ab EXP 7:Pwr 8:Inv
3 (Quad)	
1 8 = 3 5 = 4 0 = 2 1 = 1 9 = v > 3 8 = 5 4 = 5 9 = 4 0 = 3 8 =	
CA 3 0 Apps 8 6 =	30 \hat{y} 48.69615715
CA 5 0 Apps 8 4 =	50 \hat{x}_1 31.30538226
CA 5 0 Apps 8 5 =	50 \hat{x}_2 -167.1096731


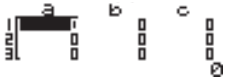
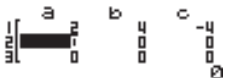
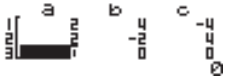
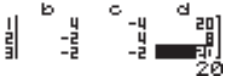
EX #47

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
MODE 3 1	
2 0 = 4 3 = 2 6 = 4 6 = 2 0 = 4 3 =	
CA 2 6 Apps 7 4 =	26 \blacktriangleright t -0.6236095645
Apps 7 1 =	P(Ans 0.26644


EX #48

MATHEMATICS MODE: Shift SET-UP 1

Key in operation 	Display 12345 12345
MODE 5 2 (3 unknowns)	
2 = 4 = (-) 4 = 2 0 =	
2 = (-) 2 = 4 = 8 =	
5 = (-) 2 = (-) 2 = 2 0 =	
=	X= $\frac{11}{2}$
=	Y= 3
=	Z= $\frac{3}{4}$


EX #49

MATHEMATICS MODE: Shift SET-UP 1

Key in operation 	Display 12345 12345
MODE 5 ▼ 2 (Cubic equation)	a b c 0 0 0 0
$5 = 2 = (-) 2 =$ $1 =$	1 b 2 c -2 d 1
$=$	$X_1 =$ -1
$=$	$X_2 =$ $\frac{3}{10} + 0.331662479i$
$=$	$X_3 =$ $\frac{3}{10} - 0.331662479i$



EX #50

LINE MODE: Shift SET-UP 2

Key in Operation 	Display 12345 12345
$\text{Alpha } X \text{ Alpha } = 1 \frac{B}{C} 3 \rightarrow$ $\text{Shift } \pi \text{ Alpha } B \text{ Alpha } C$ x^2	$X = \frac{1}{3} \pi B^2 C$
$\text{Shift } \text{Solve}$	$B?$ 0
$5 =$	$C?$ 0
$2 0 =$	Solve for X Initial value $\rightarrow 0$
$=$ Solution variable \rightarrow Precision of solution \rightarrow	$X = \frac{1}{3} \pi B^2 C$ $X =$ Solution $\rightarrow 523.5987756$ $L-R = 0$



EX #51

LINE MODE: Shift SET-UP $\boxed{2}$

Key in operation 	Display 
MODE $\boxed{1}$ (COMP MODE)	0
Alpha Y Alpha = $\boxed{5}$ Alpha x x^{\square} — $\boxed{2}$ Alpha x + $\boxed{1}$	$Y=5X^2-X+1$ 0
CALC $\boxed{5}$ =	$Y=5X^2-X+1$ 116
CALC $\boxed{7}$ =	$Y=5X^2-X+1$ 232



EX #52

LINE MODE: Shift SET-UP $\boxed{2}$

Key in operation 	Display 
MODE $\boxed{1}$ (COMP MODE)	0
Shift $\frac{d}{dx}$ sin $\boxed{3}$ Alpha x + $\boxed{3}$ $\boxed{0}$) Shift ' $\boxed{1}$ $\boxed{0}$ Shift ' $\boxed{1}$ EXP (-) $\boxed{8}$) =	$d/dx(\sin(3X+30))\triangleright$ 0.02617993878




EX #53

LINE MODE: Shift SET-UP $\boxed{2}$

Key in operation 	Display 
MODE $\boxed{1}$	0
\int_{\square}^{\square} $\boxed{5}$ Alpha x x^{\square} $\boxed{4}$) + $\boxed{3}$ Alpha x x^{\square} + $\boxed{2}$ Alpha x + $\boxed{1}$ Shift ' $\boxed{2}$ Shift ' $\boxed{3}$ Shift ' $\boxed{4}$) =	$\int(5X^{(4)}+3X^2+2X)\triangleright$ 236


EX #54

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
MODE 7 1  2	MatA: 3x3 $\begin{bmatrix} \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \end{bmatrix}$
1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 = 9 =	MatA: 3x3 $\begin{bmatrix} \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \end{bmatrix}$
CA <input type="checkbox"/> Apps 1 2  2	MatB: 3x3 $\begin{bmatrix} \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \end{bmatrix}$
9 = 8 = 7 = 6 = 5 = 4 = 3 = 2 = 1 =	MatB: 3x3 $\begin{bmatrix} \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \\ \blacksquare & \blacksquare & \blacksquare \end{bmatrix}$
CA <input type="checkbox"/> Apps 3 X	MatA: 1 0
Apps 4 =	MatAns: 3x3 $\begin{bmatrix} \blacksquare & 24 & 18 \\ \blacksquare & 69 & 54 \\ \blacksquare & 114 & 90 \\ \blacksquare & & 30 \end{bmatrix}$


EX #55

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3	MatC: 2x2 $\begin{bmatrix} \blacksquare & \blacksquare \\ 0 & 0 \end{bmatrix}$ 0
3 <input type="checkbox"/> = <input type="checkbox"/> (-) <input type="checkbox"/> 2 <input type="checkbox"/> = <input type="checkbox"/> (-) 1 <input type="checkbox"/> = <input type="checkbox"/> 5 <input type="checkbox"/> =	MatC: 2x2 $\begin{bmatrix} \blacksquare & -2 \\ -1 & \blacksquare \end{bmatrix}$ 5
CA <input type="checkbox"/> Apps <input type="checkbox"/> 5 <input type="checkbox"/> x <input type="checkbox"/> 2 <input type="checkbox"/> =	MatAns: 2x2 $\begin{bmatrix} \blacksquare & -4 \\ -2 & 10 \end{bmatrix}$ 6

EX #56

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 2	MatA: 3x3 $\begin{bmatrix} \blacksquare & \blacksquare & \blacksquare \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ 0
1 0 <input type="checkbox"/> = <input type="checkbox"/> (-) <input type="checkbox"/> 5 <input type="checkbox"/> = <input type="checkbox"/> 3 = <input type="checkbox"/> (-) <input type="checkbox"/> 4 <input type="checkbox"/> = <input type="checkbox"/> 9 <input type="checkbox"/> = <input type="checkbox"/> 2 = <input type="checkbox"/> 1 <input type="checkbox"/> = <input type="checkbox"/> 7 <input type="checkbox"/> = <input type="checkbox"/> (-) <input type="checkbox"/> 3 =	MatA: 3x3 $\begin{bmatrix} 10 & -5 & 3 \\ -4 & 1 & \blacksquare \\ \blacksquare & \blacksquare & -3 \end{bmatrix}$
CA <input type="checkbox"/> Apps <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	Det(0
Apps <input type="checkbox"/> 3 <input type="checkbox"/>) <input type="checkbox"/> =	Det(MatA) -471

EX #57

LINE MODE: **2**

Key in operation 	Display
1 2 3	MatB: 3x2 $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ 0
9 = 5 = 6 = 2 = 8 = 4 =	MatB: 3x2 $\begin{bmatrix} 0 & 5 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ 4
2	Trn $\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$ 0
4) =	MatANS: 2x3 $\begin{bmatrix} 5 & 6 \\ 5 & 2 \end{bmatrix}$ 8 4 9


EX #58

LINE MODE: **2**

Key in operation 	Display
3	Ide $\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$ 0
2) =	MatANS: 2x2 $\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}$ 1


EX #59

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3	MatA: 2x2 [<input type="checkbox"/> 0 0] 0
2 = 3 = 4 = 5 =	MatA: 2x2 [2 <input type="checkbox"/>] 5
CA <input type="checkbox"/> Apps <input type="checkbox"/> <input type="checkbox"/> 4	Adj(I) 0
Apps <input type="checkbox"/> 3) =	MatAns: 2x2 [<input type="checkbox"/> -4 -3] 5


EX #60

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3	MatC: 2x2 [<input type="checkbox"/> 0 0] 0
8 = 2 = 3 = 6 =	MatC: 2x2 [8 <input type="checkbox"/>] 6
CA <input type="checkbox"/> Apps <input type="checkbox"/> <input type="checkbox"/> 5	Inv(I) 0
Apps <input type="checkbox"/> 5) =	MatAns: 2x2 [0.047 0.1904] [-0.071 0.1904] 1.7


EX #61

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA Abs	Abs(1) 0
Apps 7) =	MatAns: 2x2 [0.0476 0.0714 0.1904] 1.7


EX #62

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
MODE 8 1 2	VctA: 2 [] 0
8 = 5 =	VctA: 2 [8] 5
CA Apps 1 2 2	VctB: 2 [] 0
7 = 3 =	VctB: 2 [1] 3
CA Apps 3 -	VctA: 1 0
Apps 4 =	VctAns: 2 [] 1


EX #63

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 3 1	VctC: 3 [] 0 01 0
4 = 5 = (-) 6 =	VctC: 3 [] 4 5 [] -F1 -6
CA <input type="checkbox"/> Apps <input type="checkbox"/> 5 X 5 =	VctANS: 3 [] F1 25 -301 20



EX #64

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 1 1	VctA: 3 [] 0 01 0
4 = 5 = (-) 6 =	VctA: 3 [] 4 5 [] -F1 -6
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 2 1	VctB: 3 [] 0 01 0
(-) 7 = 8 = 9 =	VctB: 3 [] -1 8 [] -F1 9
CA <input type="checkbox"/> Apps <input type="checkbox"/> 3	VctA: 3 [] 0 01 0
Apps <input type="checkbox"/> 8	VctA: 3 [] 0 01 0
Apps <input type="checkbox"/> 4 =	VctA-VctB -42



EX #65

LINE MODE: Shift SET-UP 2

Key in operation 	Display 
<input type="checkbox"/> CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1	VctA:3 [] 0 0] 0
<input type="checkbox"/> 4 <input type="checkbox"/> = <input type="checkbox"/> 5 <input type="checkbox"/> = <input type="checkbox"/> (-) <input type="checkbox"/> 6 <input type="checkbox"/> =	VctA:3 [4 5 [] -F] -6
<input type="checkbox"/> CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1	VctB:3 [] 0 0] 0
<input type="checkbox"/> (-) <input type="checkbox"/> 7 <input type="checkbox"/> = <input type="checkbox"/> 8 <input type="checkbox"/> = <input type="checkbox"/> 9 <input type="checkbox"/> =	VctB:3 [-1 8 [] -F] 9
<input type="checkbox"/> CA <input type="checkbox"/> Apps <input type="checkbox"/> 3 <input type="checkbox"/> X	UctA>1 0
<input type="checkbox"/> Apps <input type="checkbox"/> 4 <input type="checkbox"/> =	VctAns:3 [] -F] 6 6] 93


EX #66

LINE MODE: Shift SET-UP 2

Key in operation 	Display 
<input type="checkbox"/> CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 <input type="checkbox"/> 3 <input type="checkbox"/> 1	VctA:3 [] 0 0] 0
<input type="checkbox"/> 4 <input type="checkbox"/> = <input type="checkbox"/> 5 <input type="checkbox"/> = <input type="checkbox"/> (-) <input type="checkbox"/> 6 <input type="checkbox"/> =	VctA:3 [4 5 [] -F] -6
<input type="checkbox"/> CA <input type="checkbox"/> Abs <input type="checkbox"/> Apps <input type="checkbox"/> 5 <input type="checkbox"/>) <input type="checkbox"/> =	Abs(UctC) 8.774964387






EX #67

LINE MODE: Shift SET-UP 2

Key in operation 	Display 12345 12345
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 <input type="checkbox"/> 1 <input type="checkbox"/> 1	VctA:3 [] r 0 0] 0
(-) 1 = 0 = 1 =	VctA:3 [-1 0 []] 1
CA <input type="checkbox"/> Apps <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1	VctB:3 [] r 0 0] 0
1 = 2 = 0 =	VctB:3 [1 2 []] 0
CA <input type="checkbox"/> Apps <input type="checkbox"/> 3 <input type="checkbox"/> Apps <input type="checkbox"/> 8 <input type="checkbox"/> Apps <input type="checkbox"/> 4 =	UctA-UctB -1
\div (Abs <input type="checkbox"/> Apps <input type="checkbox"/> 3) \times Abs <input type="checkbox"/> Apps <input type="checkbox"/> 4) =	Ans \div (Abs(UctA) \times \blacktriangleright -0.316227766
Shift <input type="checkbox"/> cos ⁻¹ <input type="checkbox"/> Ans) = <input type="checkbox"/> Apps <input type="checkbox"/> 3 \times <input type="checkbox"/> Apps <input type="checkbox"/> 4 =	VctANS:3 [] r 1 -2] -2
Abs <input type="checkbox"/> Apps <input type="checkbox"/> 7) = <input type="checkbox"/> Apps <input type="checkbox"/> 7 \div Ans =	VctANS:3 [] r 0.3333 -0.666] -2.3

EX #68

LINE MODE: Shift SET-UP 2

Key in operation 	Display 
MODE <input type="checkbox"/> 6	f(x)=
Alpha <input type="checkbox"/> X <input type="checkbox"/> shift <input type="checkbox"/> x ⁻¹ <input type="checkbox"/> + <input type="checkbox"/> 3 <input type="checkbox"/> Alpha <input type="checkbox"/> X <input type="checkbox"/> x ² <input type="checkbox"/> - <input type="checkbox"/> 2 <input type="checkbox"/> Alpha <input type="checkbox"/> X	f(x)= X ³ +3X ² -2X
= = = =	 <p style="text-align: right;">1</p>
	 <p style="text-align: right;">5</p>