



Fraction & Degree

Key	Function
	Input a Fraction
	Input a Mixed Fraction
 	Input a Degree : Min : Sec Indicator
	Convert Current Result To (Mixed) Fraction and Degree Form

Notice: Turn On [\[Auto Convert To Fraction\]](#) Option in Setting to Get Fractional Form Automatically.

Example

Fraction & Mixed Fraction


 26 ÷ 8 04:36 $3\frac{1}{4}$	 F3 6 ÷ 8 = #↔ $\frac{\Box}{\Box}$ #↔ $\frac{\Box}{\Box}$
 2/7 + 3/4 04:38 $\frac{29}{28}$	 iFX 2 iFX 2 $\frac{\Box}{\Box}$ Y 7 CR + 3 $\frac{\Box}{\Box}$ F1 4 = #↔ $\frac{\Box}{\Box}$

↓ Scroll down for More Examples




Example

Fraction & Mixed Fraction

 04:41
3.25
3° 15' 0"




/	°	iFX	F2	=
3	.	2	5	
	°	°	°	
#↔	#↔	#↔		





 04:41
2°45'15" - 1°15'
1° 30' 15"

iFX	°	F1	F2	/	IGRP	F2	"
2	.	4	5	3	1	5	
IGRP	°	IGRP	F2	=	°	°	°
1	.	1	5		#↔	#↔	#↔



Notation & Base Conversion

Key	Function
  	Pop-up Notation/Base Box

Shift↑

Number ConversionBack

Notation

3.25E2SCI

325E0ENG±3

Degree

325° 0' 0.00000"

Mathematical

1 01000101BIN

505OCT

1 45HEX

Digital: Integer 16 Bits




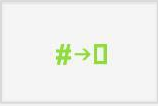


00000001 01000101BIN

0000 0505OCT

Notation/Base Number Box



Expression & Editing/Export

Key	Function
	Browse History
	Split Expression
	Undo (Up to 30 Step)
	Redo (Up to 30 Step)
	Left Joining
	Right Joining
	Copy / Export

123+ Paste

Double Tap to Paste

↓ Scroll down for More Examples



Example

Split Expressions

2+3;Ans+2

04:46

7

iFX

2

CR

+

/

3

::

>M

Ans

CR

+

iFX

2

=

The above expression contains two sub expressions. The 1st one calculates 2+3, Its result will be added by two in the next expression

Notice: Ans is the result of the latest calculation.

X ← 5; X + 5

10

X

STO

F2

5

::

X

CR

+

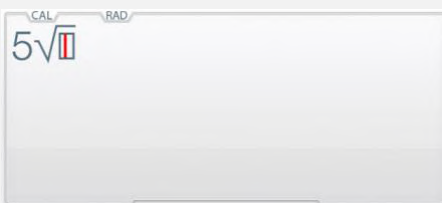
F2

5

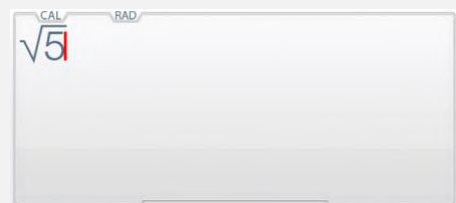
=

The above expression contains two sub expressions. The 1st one assign 5 to X, the next one calculates $X+5 = 10$ (where $X = 5$).

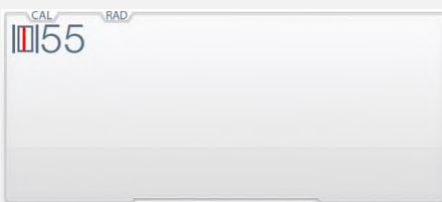
Left/Right Joining



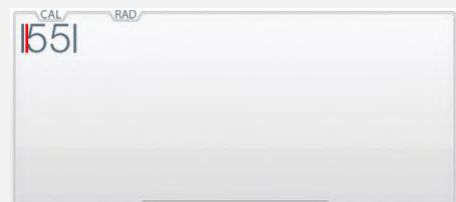
#→□



Move the left number (or expression) into Square Root function



□←#



Move the right number (or expression) into Absolute function



Variables (Expansion)

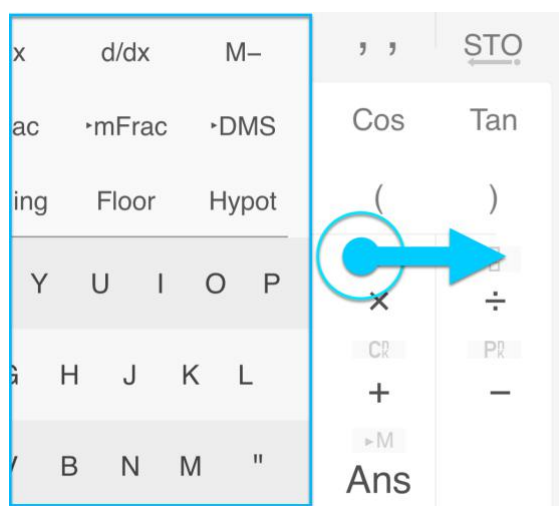
Common Variables

X	Y 7	Z 8	M 9
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X, Y, Z, M

Extended Variables

iPhone / iPod



Slide Keyboard to The Right

iPad



Press [ABC] Key

Result Variable



The last calculation result is stored in Res memory; The Res memory content is updated whenever a new calculated expression is displayed. Res memory helps your calculation continuing.

Notice: All Variables are distinct in Matrix/Vector and Complex Mode

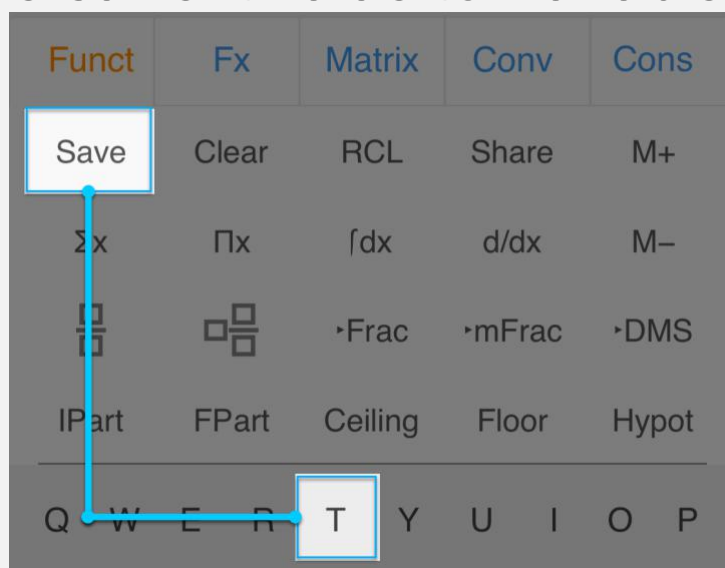
↓ *Scroll down to learn how to use variables.*



Context Menu: Tap the result, scroll to the right to save the value to common variables.



Alternative Way: Press [Save] followed by variable key to save the current value to Variables.





Assignment Operator & M±

Key	Function
M+	Add Displayed Value to M
M-	Subtract M to Displayed Value
STO	Assignment Operator

Example Assignment

05:01
M ← 10
10

Shift↑ M 9 STO IGRP 1 % 0 =

Assign 10 To M, Notice That [Shift] + [9] is M Key.

Assignment & Splitting Expression

x ← 5; x + 5
10

X STO F2 5 ; ; X C2 + F2 5 =

The above expression contains two sub-expressions. The 1st one assign 5 to X, the next one calculates X+5 (where X = 5).



Custom Functions (Fx)

Single Variable F(X)

$$F_1(x) \leftarrow 5x + 2$$

Double Variables F(X,Y)

$$F_2(x, y) \leftarrow 5x + 3y - 2$$

Triple Variables F(X,Y,Z)

$$F_3(x, y, z) \leftarrow 2x - 3y + 3z$$

Assign Fx Functions

$$2X+5$$

Step 1:

Input Based-X Equation

Step 2:

Press [Shift] + [2] (Fx Key)

Step 3:

Select the Target Function.

Fx

OR

Shift↑

+

2
iFX

Fx Assignment
Select Function to Assign




Assign to F1

Notice:

All Fxs are synched with Graph Fx Equations in Calculator Mode



Solve General Equations

Key	Feature
	Input “=” Symbol
	Solve Equation (<i>Press Normally</i>)
	Split Equation in System of Equations

Example

General Equation

ALGRAD04:08

$$\left(5x^2 - \frac{4}{3}\right) = 3x\left(\frac{x}{2} + 5\right)$$

System of Linear Equations

ALGRAD04:10

$$5(x + y) = 15; y = 8(7 + x)$$



Key	Function
	Quadratic Equation Solver
	Cubic Equation Solver
	System of Linear Equations with 2-Unknown Solver
	System of Linear Equations with 3-Unknown Solver

Select the appropriate Mode for the target Equations.

↓ *Scroll down for More Examples*



Example

$$2X_2 - 3X + 5 = 0$$

	Ax^2	Bx	C
1	2	-3	5
$C_2 =$			

$$X + Y = 2 \text{ \& } X - Y = 3$$

	Ax	By	$=C$
1	1	1	2
2	1	-1	3
$C_2 =$			

Keys Pressed

iFX	=	P/	/	=	F2
2		-	3		5

iGRP	=	iGRP	=	iFX	=
1		1		2	
iGRP	=	P/	iGRP	=	/
1		-	1		3

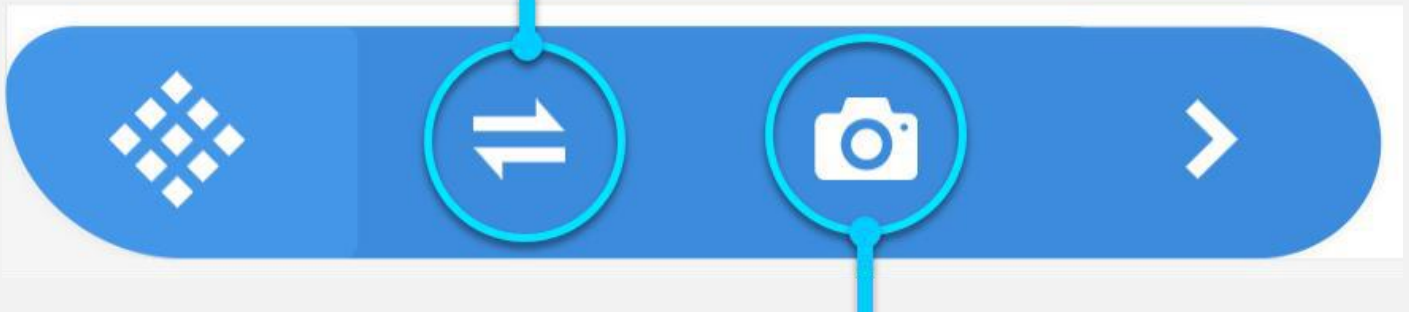
Notice:

Input all of necessary coefficients (one by one). Tap the coefficients or Press [Up] or [Down] to select and change the value.



Unit Converter / Constant Table

Unit converter



Solving from photo

Notice: Current Result will be use as base value in the Converter

↓ *Scroll down for More Examples*



Unit Categories

Length	Density Common
Area	Energy
Volume	Electric Charge
Mass	Power
Speed	Illumination
Velocity Angular	Radioactivity
Acceleration Linear	Data
Acceleration Angular	Time
Volume Flow Rate	Temperature
Pressure	Fuel Consumption
Force	

Total:

21 Categories & 400+ Units



Constant Table

Const	Description	Value
A ₀	Bohr radius	5.291772086E-11
A ₁	Second Radiation constant	1.438777000E-02
c	Speed of light in vacuum	2.997924580E+08
e	Elementary charge	1.602176487E-19
e ₀	Electric constant	8.854187817E-12
ev	Electron volt	1.602176565E-19
F	Faraday Constant	9.648534150E+04
F _c	Fermi coupling constant	1.166364000E-05
FR	First Radiation constant	3.741771530E-16
F _s	Alpha Fine structure constant	7.297352570E-03
G	Newtonian constant of gravitation	6.674280000E-11
g _n	Standard acceleration of gravity	9.806650000E+00
h	Planck constant	6.626068960E-34
J	Josephson constant	4.835978700E+14
JC	Joule's Constant	4.816000000E+00
k	Boltzmann Constant	1.380650400E-23
kC	Coulomb constant	8.987551800E+09
L	Loschmidt constant	2.651646200E+25
M	Molar gas constant	8.314472000E+00
Me	Electron mass	9.109382150E-31
Mn	Neutron mass	1.674927211E-27
Moonacc	Moon Acceleration due to gravity at its surface	1.620000000E+00
Moone	Moon Escape velocity at its surface	2.380000000E+03
MoonMa	Moon Mass	7.350000000E+22
MoonMe	Moon Mean density	3.343000000E+03
MoonMe	Moon Mean distance from the earth	3.844000000E+08
MoonR	Moon Radius	1.738000000E+06



Constant	Description	Value
mp	Proton mass	1.672621637E-27
mu	Atomic mass constant	1.660538782E-27
Na	Avogadro constant	6.022141790E+23
R	Rydberg constant	1.097373157E+07
s	Stefan-Boltzmann constant	5.670320000E-08
sosa	Speed of sound in air (20 ° C)	3.430000000E+02
sosw	Speed of sound in water (20 ° C)	1.402000000E+03
ST	Sackur-Tetrode constant	-1.151707800E+00
SunAcc	Sun Acceleration due to gravity at its surface	2.740000000E+02
SunMa	Sun Mass	1.989000000E+30
SunMe	Sun Mean density	1.408000000E+03
SunP	Sun Power production	3.826000000E+29
SunR	Sun Radius	6.959900000E+08
t	Celsius temperature	2.731500000E+02
u0	Magnetic constant	1.256637061E-06
vK	Von Klitzing constant	2.581280744E+04
Vm	Molar volume of ideal gas	2.241399600E-02



Plot (Graph) Equations

Key	Feature
<div><div>FXs</div><div>OR</div><div><div>Shift↑</div><div>+</div><div>iGRP 1</div></div></div>	<h2>Plot Current Equation</h2> <p><i>Notice: Please Input Equation First</i></p>
<div>GRP</div>	<h2>Open OXY Page</h2>
Key	Feature

Snap	TRACE	
Graph Calculation	CALC	
Screenshot & Share	SHARE	
	CLOSE	

Notice: All Graph Fx Equations are synched with Fxs in Calculator Mode

↓ Scroll down for an Example



Plot (Graph) Equations

Example

$$0.25X_2-5$$

Step 1:
Input Based-X Equation

FXs

OR

Shift↑

+

iGRP

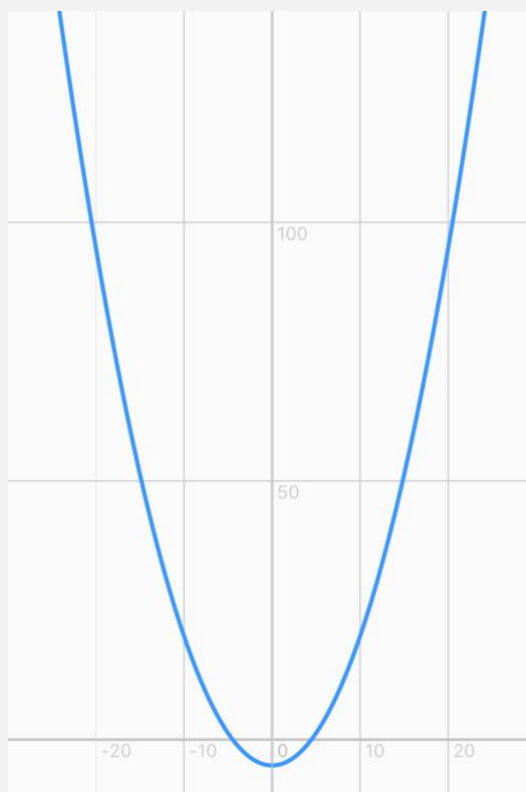
1

Step 2:
Press [Shift] + [1] (GRAPH)

Graph Page Action
Select Function to Plot

Plot as F1

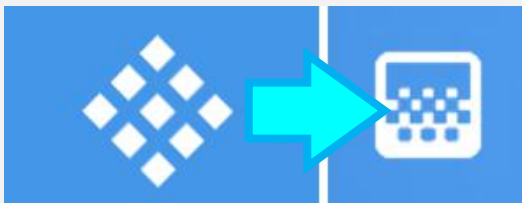
Step 3:
Select the Target Function.





Use Cramer's Rule Solver (or Function) to solve N-Unknowns Linear System of Equations, Where Maximum of N is 7.

Function



Step 1:

Switch to Matrix/Vector Mode

Cramer

Step 2:

Enter Cramer's Rule Functions

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

Step 3:

Insert a Matrix that represents the Linear System of Equations

$$\begin{aligned} 1X + 2Y + 3Z + 4T &= 5 \\ 6X + 7Y + 8Z + 9T &= 0 \\ 2X + 4Y + 1Z + 3T &= 5 \\ 5X + 7Y + 8Z + 9T &= 6 \end{aligned}$$



Step 4:

Enter Coefficient

Each row of the matrix must be matched to each equation in the linear system.

MATRAD 05:08

$$\text{CRR} \left(\begin{bmatrix} 1 & 2 & 3 & 4 & 5 \\ 6 & 7 & 8 & 9 & 0 \\ 2 & 4 & 1 & 3 & 5 \\ 5 & 7 & 8 & 9 & 6 \end{bmatrix} \right)$$

[-6 4 1 0]

(X=-6, Y=4, Z=1, T=0)
is an only solution



Percent Calculation

Calculator Infinity supports professional percent calculations, which is different from normal basic calculator.

$$X\% = X \div 100$$

Example: 150 increase 30% = ?

$$150 + 30\% = 150.3$$



!!! Wrong Input !!!

$$150 + 150 \times 30\% = 195$$



Correct Input




Solve Inequalities

Inequalities are not supported officially in Calculator Infinity. However, Graph is a handy feature to solve them.

First, all inequalities need simplified to $F(X) > 0$ or $F(X) < 0$. Please notice that the right-hand side of inequalities must be multiplied by minus one (-1) once moved them to the left-hand side.

Second, Plot the $F(X)$ on the Oxy plane. The areas above or below Ox Axis (depends on different inequalities) will be solution of inequalities.

Third, Use Snap Tool  to get segments of solution.

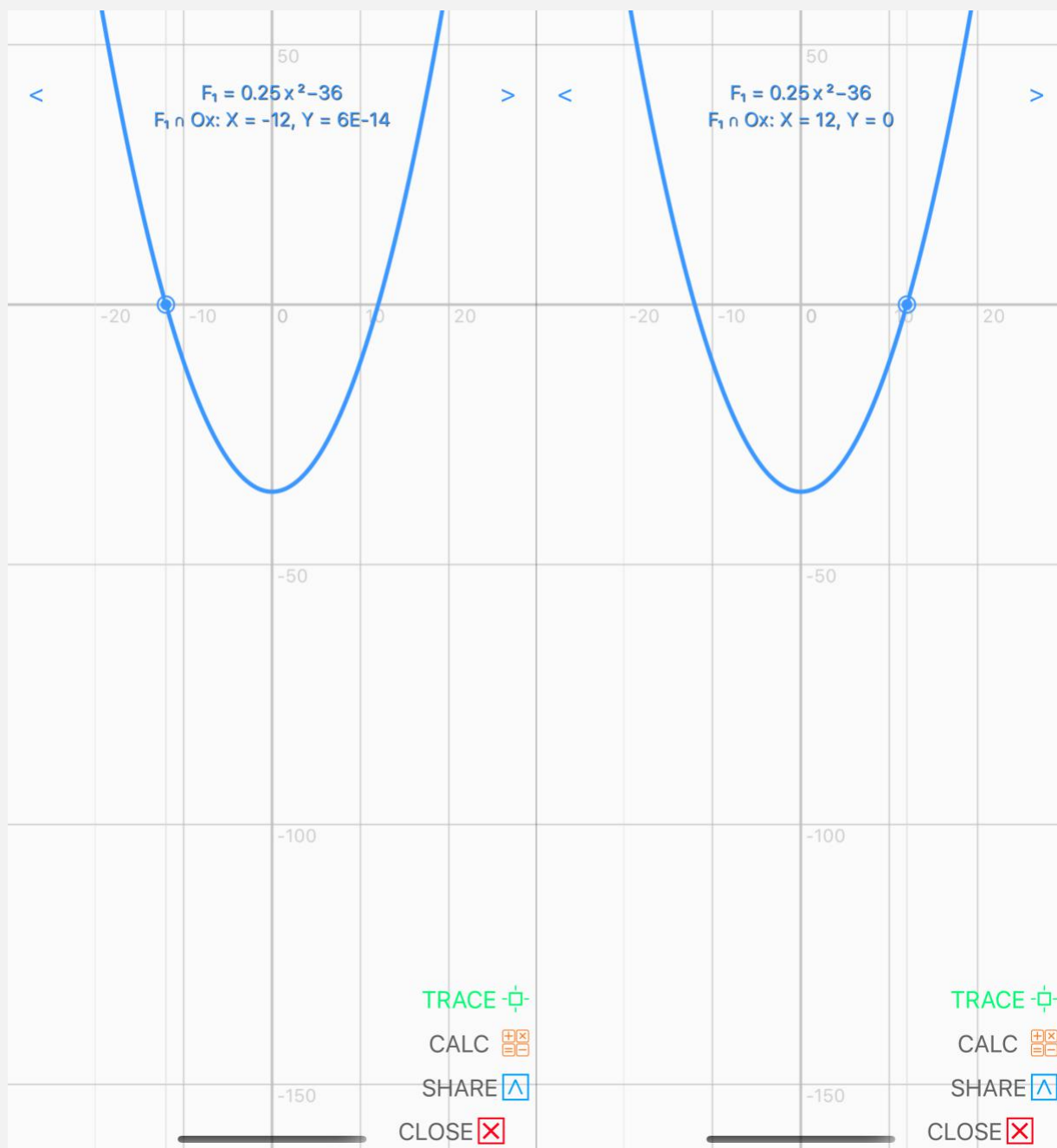
For Example:

$$0.25X_2 > 36$$

Must be simplified to:

$$0.25X_2 - 36 > 0 \text{ where } F(X) = 0.25X_2 - 36.$$

The $F(X) = 0.25X_2 - 36$ in Graph Page



Use Snap Too To get Intersection

The Areas above Ox are solution of Inequality $0.25X_2 - 36 > 0$. In fact, X values should be smaller than -12 and greater than 12.



Calculation Priority

The priority of inputted operations / functions / expression is evaluated according to the following table. The operation / functions / expression in the same priority will be performed from left to right.

Priority	Operation/Functions/Expressions
1 st	Parenthetical Expressions (...).
2 nd	The Functions that need the special display. $\sqrt{x}, \sqrt[n]{x}, \log_a b, x , \frac{x}{y}, \int_a^b dx, C_n^k, P_n^k$
3 rd	Functions that require an argument(s) and end with a closing parenthesis “)”. Sin, Cos, Tan, Sin ⁻¹ , Cos ⁻¹ , Tan ⁻¹ , Sinh, Cosh, Tanh, Log, Ln...
4 th	Functions that come after input value $X_2, X_3, X_n, X_{-1}, X!, ^{\circ}, d, r, g, \%$.
5 th	Multiplication, Division (\times, \div).
6 th	Addition, Subtraction ($+, -$).