KEYBOARD KEYSTROKE COMMANDS for SMath v0.99

The following is a tabled set of keystrokes, commands, and techniques to achieve a desired effect. This list was compiled referencing v0.99.7822.147 and is not absolute, some commands will be added/removed/revised. In addition, the English Language (region: Wisconsin, USA) was used to compile the following commands/techniques with Windows 10 Pro (64-bit operating system, x64-based processor) and 0365 Excel (Desktop Application); all data is text-based, merdged cells are utililzed. Please Note: this table references several Plugins; if a given feature is not avaliable, check those plugins you currently have installed/enabled. In addition, SMath was configured for ENG and uses [,] as seperators with [.] as the decimal point. Therefore: keypress/commands may not match your system/settings and copy/paste may not produce desired results:Use Discretion

Sources: UNITS/FUNCTIONS/HOTKEYS: https://smath.com/wiki/GetFile.aspx?File=forum_attach/TheWizEd/SMathLib_095.pdf
KEYBOARD SHORTCUTS: https://en.smath.com/wiki/Keyboard%20shortcuts.ashx
INTERACTIVE HANDBOOK: https://en.smath.com/view/interactivebook/ (https://en.smath.com/forum/yaf_poststl3872_Interactive-Handbook.aspx)

Formatting of Keypresses:

+ ····· Combine all Keys into (1) keystroke (all at once)
& ····· Type Key in sequence, (1) keystroke at a time
「+」 ····· Keystroke of those char contained within「▮」
blue Text: ····· Hold down for entire typing sequence, then release
purple Text: ····· Type in sequence (typically paired w/ &)
- Underlined: ···· Min. Req'd to focus function in Dynamic Assistant
pink fill: ····· SMath has some support / similair to Mathcad
red fill: ····· SMath does not have this feature
grey fill: ····· Mathcad does not have this feature
... ····· Not generated; may or may not be supported
▮ ····· A placholder, a generated field to interact with

PLUGINS/ADDINS/EXTENSIONS:

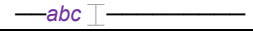
SF - Special Function (installed by Default)
CF - Custom Function (Davide Carpi v1.1.8051.30522)
https://en.smath.com/forum/yaf_poststl501p7_Custom-Functions-plugin.aspx
TR - Table Region (Davide Carpi v0.3.7806.4448)
HR - Hyperlink Region (Davide Carpi v1.0.7806.5225)

hex - Insert Unicode characters by hexadecimal code, to enable this feature, create a *string* called *EnableHexNumpad* in the registry: Computer\HKEY_CURRENT_USER\Control Panel\Input Method (value of 1).

Documentation of Published addins:
https://en.smath.com/forum/yaf_topics32_Extensions.aspx

System Interface (Top Level Windows Form Control)			
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**
Open System Menu			「Alt」+「Space」
Close Application [File Menu]			「Alt」+「F4」
Minimize Application			「Alt」+「Esc」

Navigation of SMath User Interface			
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**
Open SMath Menu		…	「Alt」+「-」
Set Focus on File Menu		…	「Alt」 「F10」
Create New Worksheet [File/Pages Menu]		…	「Ctrl」+「N」
Close Current Worksheet [Pages Menu]		…	「Ctrl」+「F4」
Move to Next Worksheet		…	「Ctrl」+「F6」 「Ctrl」+「Tab」
Move to Previous Worksheet		…	「Ctrl」+「Shift」+「F6」 「Ctrl」+「Shift」+「Tab」
Calculate worksheet [Calculation Menu]		「Ctrl」+「F9」	「F9」
Print Current Worksheet [File Menu]		…	「Ctrl」+「P」
Show Open File Dialog [File Menu]		…	「Ctrl」+「O」
Save Current Worksheet [File Menu]		…	「Ctrl」+「S」
Undo Previous Change [Edit Menu]		…	「Ctrl」+「Z」
Redo/Reapply a Change [Edit Menu]		…	「Ctrl」+「Y」
Cut Selected Regions from Sheet [Edit Menu]		…	「Ctrl」+「X」
Copy Content to Clipboard [Edit Menu]		…	「Ctrl」+「C」 「Ctrl」+「Insert」
Paste Content From Clipboard [Edit Menu]		…	「Ctrl」+「V」 「Shift」+「Insert」
Selects All Content [Edit Menu]		…	「Ctrl」+「A」
Search/Find [Edit Menu]		…	「Ctrl」+「F」 「F3」
Mathcad Help		「F1」	
Context sensitive Help		「Shift」「F1」	
Calculate region		「F9」	「F9」
Redefinition warnings (Toggle on/off)		「Ctrl」+「Shift」+「R」	
~ Debugging Tools ~			
Step Into [Open Debugging Data]		…	「F11」
Apply/Remove Debug Breakpoint [Context Menu]		…	「Ctrl」+「F8」

Worksheet Navigation - Default: Crosshair Mode (+)			
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**
Show Top of First Page (NOTE: does *NOT* relocate crosshair)		…	⌜Home⌟
Show Bottom of Last Page (does *NOT* relocate crosshair)		…	⌜End⌟
Move + (will exit crosshair mode when interaction with region)		…	[↑] [←] [↓] [→]
Create a Selection Field (+ as an anchor point)		…	⌜Shift⌟ + [↑] [←] [↓] [→]
Select Next Region		…	⌜Tab ↹⌟
Select Previous Region		…	⌜Shift⌟+⌜Tab ↹⌟
Insert New Line (Shift Regions Down)		…	⌜Enter ⏎⌟
Move up (1) Line, Enter into Region above Crosshair *NOTE: if no regions present, will Remove Current Line (Shift Lower Regions Up)*		…	⌜⇦ Backspace⌟ ⌜Delete⌟
Insert Seperator (i.e., Page Break)		…	⌜Ctrl⌟+⌜Enter ⏎⌟
Primary user interface: Mouse			
- Open Context Menu (Current Selected Region, or + Locale)		…	⌜Shift⌟+⌜F10⌟ Right-Click
- Zoom In/Out (Anchor for zoom is +)			⌜Ctrl⌟+ Scroll Wheel
- Scrollbar: up/down (vertical)			Scroll Wheel
- Scrollbar: left/right (horizontal)			⌜Shift⌟+ Scroll Wheel
- Scroll up/down the options listed by Dynamic Assistant		…	⌜↑⌟/⌜↓⌟ Scroll Wheel
~ Navigation Within a Math/Text Region ~			
- Travel (1) Charcter to the Left/Right		…	⌜←⌟/⌜→⌟
- Travel (1) Term/Word to the Left/Right		…	⌜Ctrl⌟+⌜←/→⌟
- Step out of Current Term (in front of or behind)		…	⌜Space⌟
- Leave Current Region; Enters into Crosshair mode (+)		…	⌜Enter ⏎⌟
- Select Next/Previous Region		…	⌜↑⌟/⌜↓⌟
- Goto Varaible Definition / Change Unit / Replace Function		…	⌜F12⌟

Controls / Plugins				
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**	Plugin
Insert a 2D Plot		…	⌜@⌟	
Insert picture (Whiteboard)		⌜Ctrl⌟+⌜T⌟	⌜Ctrl⌟+⌜T⌟	
Insert Function Dialog Box	 f(x)	…	⌜Ctrl⌟+⌜E⌟	
Insert Unit Dialog Box	 *'in*	…	⌜Ctrl⌟+⌜W⌟	
Activate Dynamic Assitance		…	⌜Ctrl⌟+⌜Space⌟	
Insert Table Region		…	⌜Ctrl⌟+⌜Shift⌟+⌜T⌟	TR
Insert Hyperlink Region *Supports keywords:* "charmap"	hyperlink / []	…	⌜Ctrl⌟+⌜H⌟	HR

Formatting Text Region				
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**	Plugin
Insert text region (Supports fonts tyles, math, & images)		⌜"⌟	⌜"⌟	
Bold Text	**What tool is best suited for math? Multi-pliers.**	…	⌜Ctrl⌟+⌜B⌟	
Italic Text	*How do you make seven an even number? Remove the S.*	…	⌜Ctrl⌟+⌜I⌟	
Underline Text	Why was math class so long? The teacher kept going off on a tangent.	…	⌜Ctrl⌟+⌜U⌟	
Insert New Paragaph (Line Feed) ¶	I don't get the point of decimals.¶ I'm more partial to fractions.	…	⌜Ctrl⌟+⌜Enter ⏎⌟ ⌜Ctrl⌟+⌜J⌟	
Insert New line (Line Break) ⏎	I don't get the point of decimals.⏎ I'm more partial to fractions.	…	⌜Shift⌟+⌜Enter ⏎⌟ ⌜Ctrl⌟+⌜Shift⌟+⌜J⌟	
Convert Character to Greek Equivalent	D → Δ	⌜Ctrl⌟+⌜G⌟	⌜Ctrl⌟+⌜G⌟	

Formatting Math Region

Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Insert Math Region (Can be used within a Text Region)		⌜Ctrl⌟+⌜Shift⌟+⌜A⌟	⌜Alt⌟+⌜=⌟	
Addition with line break operator (within a math region)	… + …	⌜Ctrl⌟+⌜Enter⌟	⌜Ctrl⌟+⌜Enter ⏎⌟	
Moves Math Term to Next Line (or Restores Inline Expression)	E := := m · c²	*Not Supported*	⌜Ctrl⌟+⌜Enter ⏎⌟ ⌜Ctrl⌟+⌜J⌟	
Multi-rename (syncs duplicate objects within the active Math Region; applies changes to all instances at once)	$x+2x+3^x \rightarrow yy+2yy+3^{yy}$	*Not Supported*	⌜F8⌟	
Character inside brackets as in chemistry notation	[■]	⌜Ctrl⌟+⌜Shift⌟+⌜ J⌟		
Enter special characters into math region	a+/bc|d1:= ■	⌜Ctrl⌟+⌜Shift⌟+⌜K⌟	⌜Ctrl⌟+⌜Shift⌟+⌜K⌟	
Literal subscript	■$_{■}$	⌜.⌟	⌜.⌟	
Refernce Namespace Operator (e.g.: mc; unit; user; doc)	$L_{[unit]} = 61.02 \cdot in^3$	⌜Ctrl⌟+⌜Shift⌟+⌜N⌟		
Insert a Macron Above Variable (bar); Applied As Suffix Char	x̄:= 22	…	■ & ⌜Alt⌟+⌜+⌟$_{numpad}$ &0305	hex
Underline a Variable; Applied as Suffix Character	x := 44	…	■ & ⌜Alt⌟+⌜+⌟$_{numpad}$ &0332	hex
Convert Character to Greek Equivalent	D| → Δ|	⌜Ctrl⌟+⌜G⌟	⌜Ctrl⌟+⌜G⌟	
Mathmatical pi (π = 3.14159265358979)	π	⌜Ctrl⌟+⌜Shift⌟+⌜P⌟	⌜Ctrl⌟+⌜Shift⌟+⌜P⌟ p &⌜Ctrl⌟+⌜G⌟ &⌜Tab⌟	
Infinity (∞=∞+1)	∞	⌜Ctrl⌟+⌜Shift⌟+⌜Z⌟	⌜Ctrl⌟+⌜Shift⌟+⌜Z⌟	
Adjust Units on Evaluations: Interact with Placeholder, located to the right of an output	Change Units, From *feet* to *inches*	x = 1 ft || x = 1 ft■ ||x = 1 ft■ || x = ■in || x = 12 in ↖ click ↖insert unit		

Standard Operators

Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Insert a Placeholder for an Operator	■ □ ■		⌜$⌟	
Absolute value	|■|	⌜|⌟	abs & ⌜Tab ↹⌟	
Ceiling	⌈■⌉		ceil & ⌜Tab ↹⌟	CF
Ceiling, based of the Multiple of 2nd input	⌈■⌉$_{■}$		ceil & ⌜Tab ↹⌟ & ⌜,⌟	
Floor	⌊■⌋		floor & ⌜Tab ↹⌟	CF
Floor, based off of the Multiple of 2nd input	⌊■⌋$_{■}$		floor & ⌜Tab ↹⌟ & ⌜,⌟	
Insert Unit Placeholder (units shown as 'blue')	⌜'⌟ & ⌜f⌟ & ⌜t⌟ → ft		⌜'⌟ & *unit*	
Create/Define a Custom Function (units shown as 'blue')	'■ := ■		⌜:⌟ & ⌜'⌟	
Definition / Assignment	x := 5	⌜:⌟	*x* & ⌜:⌟ & *5*	
Global Definition (performs action before := variables are evaluated)	x ≡ 5	⌜~⌟		
Absolute Definition (Send value to top of worksheet) - Shown as **BOLD** **IS NOT AUTOMATIC;** requires a "refresh" to update values [F9]	**x** := 5		⌜~⌟ & *x* & ⌜:⌟ & *5*	
Create/Define a Custom Function	x(■) := ■	…	*x(* & ⌜space⌟ & ⌜:⌟	
Evaluate numerically	x = 5	⌜=⌟	*x* & ⌜=⌟	
Evaluate Symbolically	x → 4 + z	⌜Ctrl⌟+⌜.⌟	*x* & ⌜Ctrl⌟+⌜.⌟	
Addition / Plus	+■; ■+■	⌜+⌟	⌜+⌟	
Subtraction / Minus	-■; ■ - ■	⌜-⌟	⌜-⌟	
Division	$\frac{x}{■}$	⌜/⌟	⌜/⌟	
Multiplication / Times	3 · 4	⌜*⌟	⌜*⌟	
Inline Division	(■) ÷ (■)	⌜Ctrl⌟+⌜/⌟	⌜Ctrl⌟+⌜/⌟$_{numpad}$	
Exponentiation / to the Power of	x²	⌜^⌟	⌜^⌟	
Plus Minus Sign (Returns a set of 2: the sum and difference)	±■; ■±■		⌜Alt⌟ + 0177$_{numpad}$ - ⌜Alt⌟ ⌜Alt⌟ + ⌜+⌟$_{numpad}$ & 00B1	hex
Minus Plus Sign (Returns a set of 2: the difference and sum)	∓■; ■∓■		⌜Alt⌟ + 8723$_{numpad}$ - ⌜Alt⌟ ⌜Alt⌟ + ⌜+⌟$_{numpad}$ & 2213	hex
Imaginary unit	i	1i	i	
Parentheses	(3 + 4)	⌜'⌟	⌜(⌟	
Mixed number	2½	⌜Ctrl⌟+⌜Shift⌟+⌜=⌟	Not Supported	
Square root	√■	⌜\⌟	⌜\⌟	
nth root	$\sqrt[■]{■}$	⌜Ctrl⌟+⌜\⌟	⌜Ctrl⌟+⌜\⌟ nth root & ⌜Tab ↹⌟	
Factorial	■!	⌜!⌟	⌜!⌟	
Logarithm	$\log_{■}(■)$		log & ⌜Tab ↹⌟	
Complex conjugate (of a complex number: y = x + z·*i*)	ȳ = x - z·*i*	⌜"⌟	conjugate & ⌜Tab ↹⌟	CF

Boolean Operators

Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Boolean **AND** (Returns 1 if both inputs are TRUE, else 0)	■∧■	⌜Ctrl⌟+⌜&⌟	⌜Ctrl⌟+⌜&⌟	
Boolean **OR** (Returns 1 if either input is TRUE, else 0)	■∨■	⌜Ctrl⌟+⌜^⌟	⌜Ctrl⌟+⌜|⌟	
Boolean **NOT** (Returns 1 if input is FALSE, else 0; i.e.; Double negative)	¬■	⌜Ctrl⌟+⌜!⌟	⌜Alt⌟ + 0172 numpad - ⌜Alt⌟ ⌜Alt⌟ + ⌜+⌟ numpad & 00AC	hex
Boolean **XOR** (Exclusive or) (Returns 0 if inputs are both TRUE or both FALSE, else 1)	■⊕■	⌜Ctrl⌟+⌜%⌟	⌜Alt⌟ + 0164 numpad - ⌜Alt⌟ ⌜Alt⌟ + ⌜+⌟ numpad & 00A4	hex
Less Than	■<■	⌜<⌟	⌜<⌟	
Less than or equal	■≤■	⌜Ctrl⌟+⌜9⌟	⌜Ctrl⌟+⌜9⌟	
Boolean Equals (1 if true, 0 if false)	■=■	⌜Ctrl⌟+⌜=⌟	⌜Ctrl⌟+⌜=⌟	
Greater than or equal	■≥■	⌜Ctrl⌟+⌜0⌟	⌜Ctrl⌟+⌜0⌟	
Greater Than	■>■	⌜>⌟	⌜>⌟	
Not equal	■≠■	⌜Ctrl⌟+⌜3⌟	⌜Ctrl⌟+⌜3⌟	
Approximately Equal to **(Added: SMath v1.0.8253)**	■≈■		⌜Ctrl⌟+⌜Alt⌟+⌜=⌟ ⌜Alt⌟ + ⌜+⌟ numpad & 2248	hex
Approximately NOT Equal to **(Added: SMath v1.0.8253)**	■≉■		⌜Alt⌟ + 8777 numpad - ⌜Alt⌟ ⌜Alt⌟ + ⌜+⌟ numpad & 2249	hex
Test Math Term Against an Upper and Lower Limit Plugin: *Custom Function Plugin (Davide Carpi) v1.1.8051.30522*	■≤■≤■		lele & ⌜Tab ↹⌟	CF
	■<■≤■		lelt & ⌜Tab ↹⌟	
	■<■≤■		ltle & ⌜Tab ↹⌟	
	■<■<■		ltlt & ⌜Tab ↹⌟	
Test Math Term Against an Upper and Lower Limit Plugin: *Custom Function Plugin (Davide Carpi) v1.1.8051.30522*	■≥■≥■		gege & ⌜Tab ↹⌟	CF
	■≥■>■		gegt & ⌜Tab ↹⌟	
	■>■≥■		gtge & ⌜Tab ↹⌟	
	■>■>■		gtgt & ⌜Tab ↹⌟	

Calculus Operators

Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Derivative (The prime notation f' is not functional by default; can be redefined)	■'		diff(	
1st Derivative [diff(f: function, ■: variable to derive)]	$\frac{d}{d■}\mathbf{f}(■)$	⌜?⌟	diff & ⌜Tab ↹⌟	SF
nth Derivative [diff(f: function, ■: variable to derive, n:order)]	$\frac{d^n}{d■^n}\mathbf{f}(■)$	⌜Ctrl⌟+⌜?⌟	diff & ⌜Tab ↹⌟ & ⌜,⌟	
Indefinite integral [int(f: integrand, ■: variable to integrate)]	$\int f(■)\,d■$	⌜Ctrl⌟+⌜I⌟	int & ⌜Tab ↹⌟	SF
Definite integral [int(f: integrand, ■; a: lower limit; b: upper limit)]	$\int_a^b f(■)\,d■$	⌜&⌟	int(& ⌜,⌟ & ⌜,⌟ & ⌜,⌟ Can only compute definite integrals numerically; w/o units	SF
Iterated product	$\prod_i ■$	⌜#⌟		
Iterated product with range variables	$\prod_{i=m}^{n} ■$	⌜Ctrl⌟+⌜#⌟	product & ⌜Tab ↹⌟	SF
Left-hand limit	$\lim_{■\to■^-} ■$	⌜Ctrl⌟+⌜Shift⌟+⌜B⌟		
Two-sided limit	$\lim_{■\to■} ■$	⌜Ctrl⌟+⌜L⌟	lim(& ⌜,⌟ & ⌜,⌟	
Right-hand limit	$\lim_{■\to■^+} ■$	⌜Ctrl⌟+⌜Shift⌟+⌜A⌟		
Vector Summation	$\sum ■$	⌜Ctrl⌟+⌜4⌟	sum(	SF
Summation	$\sum_i ■$	⌜$⌟		
Summation with range variables [sum(■, i, m, n)]	$\sum_{i=m}^{n} ■$	⌜Ctrl⌟+⌜$⌟	sum & ⌜↓⌟ & ⌜Tab ↹⌟	SF
Gradient	$\nabla_■ g(■)$	⌜Ctrl⌟+⌜Shift⌟+⌜G⌟	grad(has no native support; not functional	see: Nonlinear Solvers (Davide Carpi)

Matrix Operators

Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Creates 2x2 Matrix Insert matrix (Dialog Box) *Creates Zero Matrix of specified size*	$\begin{pmatrix}\blacksquare & \blacksquare \\ \blacksquare & \blacksquare\end{pmatrix}$	⌜Ctrl⌟+⌜M⌟	*mat(* ⌜Ctrl⌟+⌜M⌟ *matrix* & ⌜Tab ↹⌟	
Generate Identity Matrix	$\begin{pmatrix}1 & 0 \\ 0 & 1\end{pmatrix}$		*identity* & ⌜Tab ↹⌟	
Return Specified Column of Matrix (1-based)	$M^{\langle\blacksquare\rangle}$	⌜Ctrl⌟+⌜6⌟	*col* & ⌜Tab ↹⌟	SF
Return Specified Row of Matrix (1-based)			*row* & ⌜Tab ↹⌟	SF
Vector element (row) - 1 based	$V_{\blacksquare}$	⌜[⌟	⌜[⌟	
Matrix Element (row, column) - 1 based	$M_{\blacksquare\blacksquare}$		*el(* & ⌜,⌟ & ⌜,⌟	
Determinant (looks like Absolute)	$\lvert\blacksquare\rvert$	⌜\⌟	*det(*	
Vectorize	$\vec{\blacksquare}$	⌜Ctrl⌟+⌜-⌟	*vectorize* & ⌜Tab ↹⌟	SF
Transpose	M^T	⌜Ctrl⌟ 1	⌜Ctrl⌟+⌜1⌟	SF
Range variable [a .. b] (step = 1)	$\blacksquare..\blacksquare$	⌜;⌟	*range* & ⌜Tab ↹⌟	SF
Range variable [x_1, x_2 .. x_n] (step = $x_2 - x_1$)	$[\blacksquare, \blacksquare..\blacksquare]$		*range(* & ⌜,⌟ & ⌜,⌟	
Cross product	u x v	⌜Ctrl⌟+⌜8⌟	⌜Ctrl⌟+⌜8⌟	
Inner (dot) product	u · v	⌜*⌟	⌜*⌟	
Vector sum	$\sum\blacksquare$	⌜Ctrl⌟+⌜4⌟	*sum(*	SF
Create List	$\{\vdots$		*sys(* *Increase Size:* ⌜,⌟	

Programming Toolbar

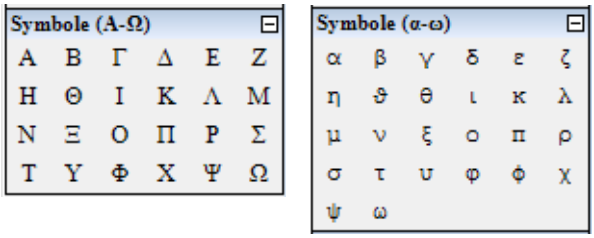
Action	Example	Mathcad 15.0	Smath v0.99	Plugin
Generate Line Object / Insert New Line	$\blacksquare$ // $\blacksquare$ newline $\blacksquare$	⌜ , ⌟ / ⌜ , ⌟	⌜] ⌟ / ⌜ , ⌟	SF
break: Terminates the execution of the nearest enclosing loop in which it appears	break	⌜Ctrl⌟ ⌜{⌟	*break* & ⌜Enter ⏎⌟	
continue: Ends the current iteration of a loop	continue	⌜Ctrl⌟ ⌜	*continue* & ⌜Enter ⏎⌟	
For: Loop statment [for(var, range, ■)]	for i ε 1..10 ■	⌜Ctrl⌟ ⌜"⌟	*for* & ⌜Tab ↹⌟	SF
An Advanced For Loop [for(initital, doWhile, action, ■)]	for i:=1, i < 10, i:=i+1 ■		*for(* & ⌜,⌟& ⌜,⌟& ⌜,⌟	
While: Loop statement. [while(condition, ■)] - Repeats execution of body as long as condition is true.	while i < 10 ■	⌜Ctrl⌟+⌜[⌟	*while* & ⌜Tab ↹⌟	SF
If statement:	if ■ ■ else ■	⌜}⌟	*if* & ⌜Tab ↹⌟	SF
local assignment	z ← 5	⌜{⌟		
on error (Try/Catch Block): The function evaluates and returns {0}. If {0}throws an error, the function evaluates and returns {1}	try ■ on error ■	⌜Ctrl⌟+⌜'⌟	*try* & ⌜Tab ↹⌟	SF
otherwise	z ← 5 otherwise	⌜Ctrl⌟+⌜}⌟	*Built directly into if() &Cases()*	
return	return	⌜Ctrl⌟+⌜\⌟		
Cases (if/else): Define piecewise fuctions; - Returns first 'True' condition, else proceed with 'otherwise' statement	■ if ■ ■ if ■ ■ otherwise		*cases* & ⌜Tab ↹⌟ *Add more cases:* ⌜,⌟ & ⌜,⌟	CF
Substitution [at(expr; ■)] - Subtitution list contained in ■ will be substitued into those undefined variables (current symbolic evaluation) of expr	expr ▏■		*at* & ⌜Tab ↹⌟	CF
Substitution with Lower/Upper Limits [at(expr; ■LL; ■UL)] - Evaluated as: substitution of ■UL *minus* substitution of ■LL **Example:** ⌜at(h+2*j,sys(h=60,j=0,2,1),sys(h=0,j=33,2,1))⌟	expr ▏■UL ■LL		*at(* & ⌜,⌟ & ⌜,⌟	

Evaluations				
Action	**Example**	**Mathcad 15.0**	**Smath v0.99**	Plugin
Custom Function	x(■) ≔ ■	*x(* & *)* & ⌜:⌟	*x(* & ⌜space⌟ & ⌜:⌟	
Custom infix operator	■ f ■		NOT SUPPORTED	
Custom postfix	■ f	⌜Ctrl⌟+⌜Shift⌟+⌜X⌟	NOT SUPPORTED	
Custom prefix	f ■		NOT SUPPORTED	
Custom treefix operator	f / \ ■ ■		NOT SUPPORTED	
Variable Definition	*x* ≔ 5	⌜:⌟	*x* & ⌜:⌟ & *5*	
Unit Definition	x ≔ 5		⌜'⌟ & *x* & ⌜:⌟ & *5*	
Global definition	x ≡ 5	⌜~⌟	NOT SUPPORTED	
Absolute Definition (is not automatic, requires refresh to update) *https://en.smath.com/forum/yaf_poststt1348_Absolute-definitions.aspx*	**x** ≔ 5		⌜~⌟ & *x* & ⌜:⌟ & *5*	
Evaluation	x = 5	⌜=⌟	*x* & ⌜=⌟	
Evaluate symbolically	x → 4 + z	⌜Ctrl⌟+⌜.⌟	*x* & ⌜Ctrl⌟+⌜.⌟	
Redefine an Operator: it is possible to change the definition of a custom operator (e.g., Special Function, Custom Function Plugins) because they are functions with glorified graphics. Please practice restraint (i.;, limit to functions w/ no native support: (e.g; diff(1), lim())			lim ■ ≔ ■ ■→■	

Excerpt from *https://en.smath.com/view/interactivebook/* Published by Martin Kraska: - Greek Characters.sm

Alpha	A Ctrl+G	*Α*	a Ctrl+G	*α*	
Beta	B Ctrl+G	*Β*	b Ctrl+G	*β*	
Gamma	G Ctrl+G	*Γ*	g Ctrl+G	*γ*	
Delta	D Ctrl+G	*Δ*	d Ctrl+G	*δ*	
Epsilon	E Ctrl+G	*Ε*	e Ctrl+G	*ε*	
Zeta	Z Ctrl+G	*Ζ*	z Ctrl+G	*ζ*	
Eta	H Ctrl+G	*Η*	h Ctrl+G	*η*	
Theta	Q Ctrl+G	*Θ*	q Ctrl+G	*θ*	
			J Ctrl+G	*ϑ*	
Iota	I Ctrl+G	*Ι*	i Ctrl+G	*ι*	
Kappa	K Ctrl+G	*Κ*	k Ctrl+G	*κ*	
Lambda	L Ctrl+G	*Λ*	l Ctrl+G	*λ*	
Mu	M Ctrl+G	*Μ*	m Ctrl+G	*μ*	— Do not use AltGr+m (on german keyboards). This is a different μ
Nu	N Ctrl+G	*Ν*	n Ctrl+G	*ν*	
Xi	X Ctrl+G	*Ξ*	x Ctrl+G	*ξ*	
Omicron	O Ctrl+G	*Ο*	o Ctrl+G	*ο*	
Pi	P Ctrl+G	*Π*	p Ctrl+G	*π*	Ctrl+Shift+p
Rho	R Ctrl+G	*Ρ*	r Ctrl+G	*ρ*	
Sigma	S Ctrl+G	*Σ*	s Ctrl+G	*σ*	
Tau	T Ctrl+G	*Τ*	t Ctrl+G	*τ*	
Upsilon	U Ctrl+G	*Υ*	u Ctrl+G	*υ*	
Phi	F Ctrl+G	*Φ*	f Ctrl+G	*φ*	
			j Ctrl+G	*ϕ*	
Chi	C Ctrl+G	*Χ*	c Ctrl+G	*χ*	
Psi	Y Ctrl+G	*Ψ*	y Ctrl+G	*ψ*	
Omega	W Ctrl+G	*Ω*	w Ctrl+G	*ω*	

Greek characters are found in the symbol palettes of the side panel.



There is a very convenient hotkey:
Just type ⌜*Ctrl*⌟ + ⌜*G*⌟ after any appropriate Latin character to make it Greek. This works in math and text regions.

Don't use the grayed out characters. They are false look-alikes to Latin characters. *(i.e, these greeek characters look **identical** to standard text when drawn/copy/paste'd, good practice to avoid) - KML*