



Math Guide

The OpenOffice.org Equation Editor

This PDF is designed to be read onscreen, two pages at a time. If you want to print a copy, your PDF viewer should have an option for printing two pages on one sheet of paper, but you may need to start with page 2 to get it to print facing pages correctly. (Print this cover page separately.)

Copyright

This document is Copyright © 2005–2010 by its contributors as listed in the section titled **Authors**. You may distribute it and/or modify it under the terms of either the [GNU General Public License](#), version 3 or later, or the [Creative Commons Attribution License](#), version 3.0 or later. All trademarks within this guide belong to their legitimate owners.

Authors

Daniel Carrera
Agnes Belzunce
Peter Kupfer
Ian Laurenson
Janet M. Swisher
Jean Hollis Weber
Michele Zarri

Feedback

Please direct any comments or suggestions about this document to:
authors@documentation.openoffice.org

Publication date and software version

Published 5 October 2010. Based on OpenOffice.org 3.2.1.



*You can download
an editable version of this document from
<http://oooauthors.org/english/userguide3/published/>*

Contents

What is Math?	4
Getting started.....	4
Entering a formula	5
The Elements window.....	5
Right-click (context) menu.....	7
Markup.....	8
Greek characters.....	9
Customizations	11
Formula editor as a floating window.....	11
How can I make a formula bigger?.....	12
Formula layout	13
Brackets are your friends.....	13
Equations over more than one line.....	13
How do I add limits to my sum/integral?.....	13
Brackets with matrices look ugly!.....	14
How do I make a derivative?.....	15
How do I align my equations at the equals sign?.....	15
Numbering equations	16
Math commands - Reference	18
Unary / binary operators.....	18
Relational operators.....	19
Set operations.....	20
Functions.....	21
Operators.....	22
Attributes.....	23
Miscellaneous.....	25
Brackets.....	26
Formats.....	27
Characters - Greek.....	28
Characters - Special.....	28

What is Math?

Math is OpenOffice.org (OOo)'s component for writing mathematical equations. It is most commonly used as an equation editor for text documents, but it can also be used with other types of documents or stand-alone. When used inside Writer, the equation is treated as an object inside the text document.

Note The equation editor is for writing equations in symbolic form, as in equation 1. If you want to evaluate a numeric value, see the *Calc Guide*.

$$\frac{df(x)}{dx} = \ln(x) + \tan^{-1}(x^2) \quad (1)$$

Getting started

To insert an equation, go to **Insert > Object > Formula**.

The equation editor opens at the bottom of the screen, and the floating Elements window (called "Selection" before Math 3.2) may appear. You will also see a small box with a gray border in your document, where the formula will be displayed, as shown in Figure 1.

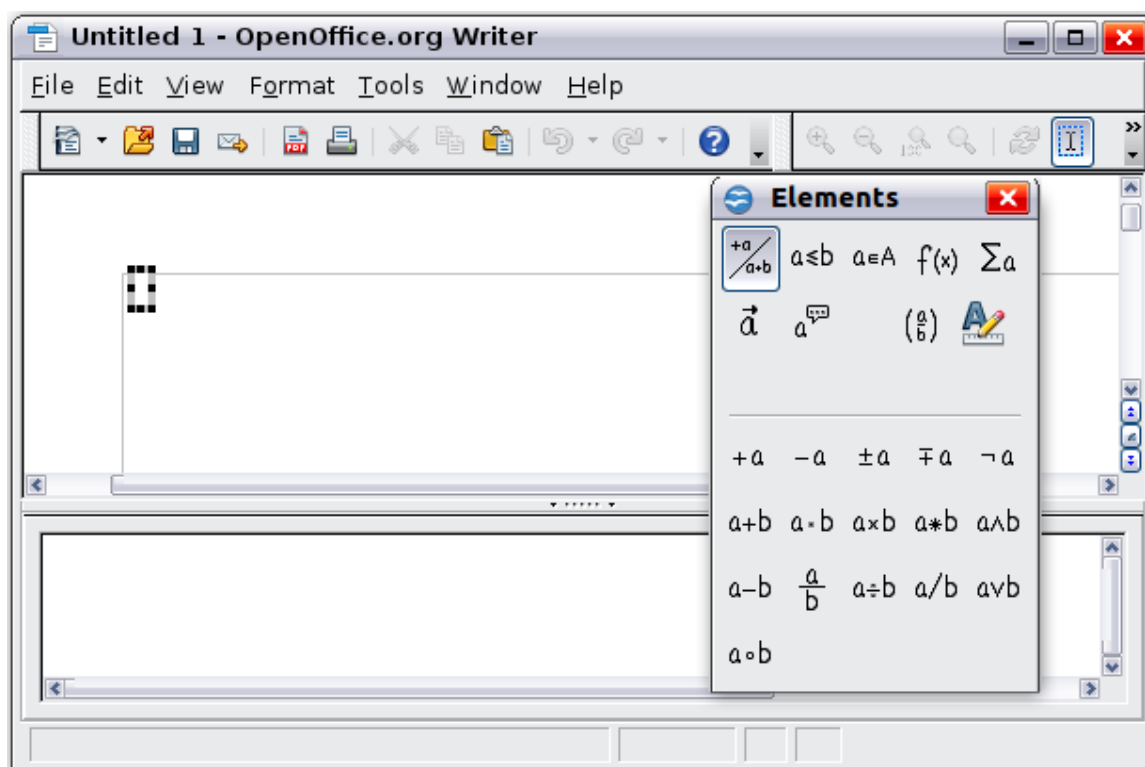


Figure 1: Equation Editor, Elements window, and location of resulting equation

Entering a formula

The equation editor uses a markup language to represent formulas. For example, `%beta` creates the Greek character beta (β). This markup is designed to read similar to English whenever possible. For example, `a over b` produces a fraction: $\frac{a}{b}$.

You can enter a formula in three ways:

- Select a symbol from the Elements window.
- Right-click on the equation editor and select the symbol from the context menu.
- Type markup in the equation editor.

The context menu and the Elements window insert the markup corresponding to a symbol. This provides a convenient way to learn the OOo Math markup.

Note Click on the document body to exit the formula editor.
Double-click on a formula to enter the formula editor again.

The Elements window

The simplest method for entering a formula is the Elements window, shown in Figure 1.

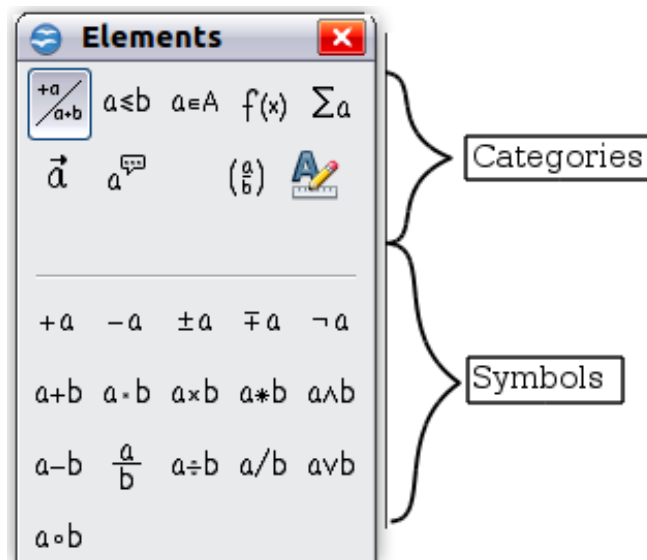


Figure 2: Symbols are divided into categories

Note In OOo Math before V3.2.0, the Elements window was called the Selection window.

The Elements window is divided into two main parts.

- The **top** shows the symbol categories. Click on these to change the list of symbols.
- The **bottom** shows the symbols available in the current category.

Tip You can hide or show the Elements window with **View > Elements**.

Example 1: 5×4

For this example we will enter a simple formula: 5×4 . On the Elements window (Figure 3):

- 1) Select the top-left button of the categories (top) section.
- 2) Click on the multiplication symbol.

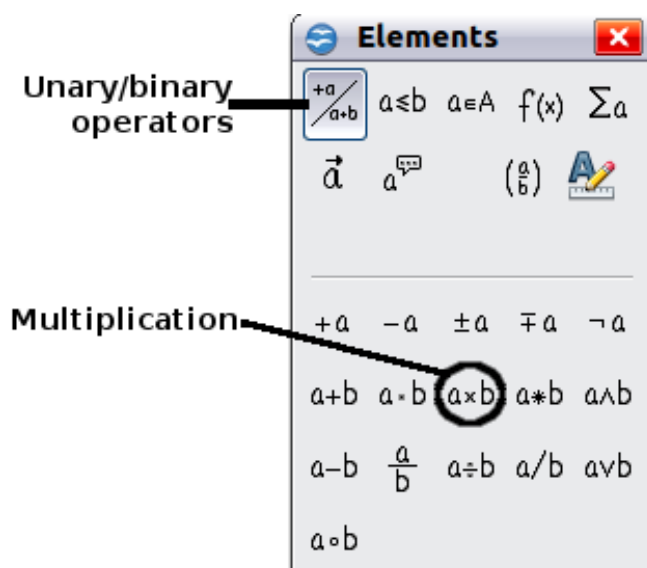


Figure 3: Selecting the multiplication symbol

When you select the multiplication symbol on the Elements window, two things happen:

- The equation editor shows the markup: $\langle ? \rangle \textit{times} \langle ? \rangle$
- The body of the document shows a gray box like this: $\square \times \square$



Figure 4: Result of selecting the multiplication symbol

The <?> symbols shown in Figure 4 are placeholders that you can replace by other text, for example 5 and 4. The equation will update automatically, and the result should resemble Figure 5.



Figure 5: Result of entering 5 and 4 next to the times operator

Tip

To keep the equation from updating automatically, select **View > AutoUpdate display**. To update a formula manually, press *F9* or select **View > Update**.

Right-click (context) menu

Another way to access mathematical symbols is to right-click on the equation editor. This pops up the menu shown in Figure 6. The items in this menu correspond exactly to those in the Elements window.

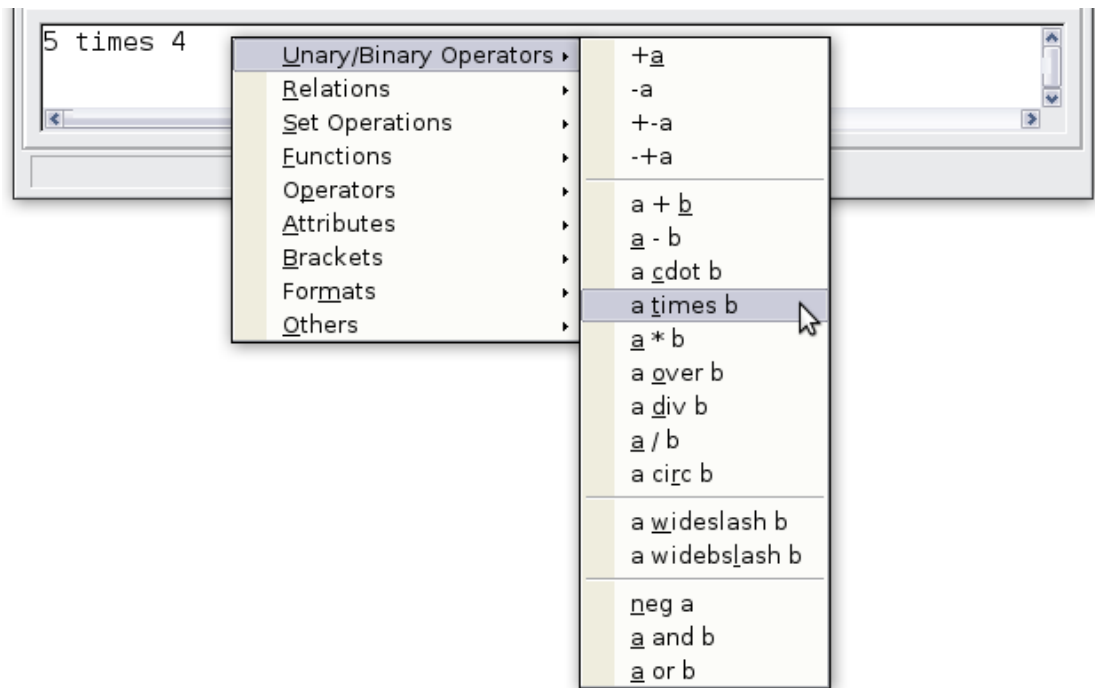


Figure 6: Right-click (context) menu

Markup

You can type the markup directly in the equation editor. For example, you can type `5 times 4` to obtain 5×4 . If you know the markup, this can be the fastest way to enter a formula.

Tip The formula markup resembles the way the formula reads in English.

Below is a short list of common equations and their corresponding markup.

Display	Command	Display	Command
$a = b$	<code>a = b</code>	\sqrt{a}	<code>sqrt {a}</code>
a^2	<code>a^2</code>	a_n	<code>a_n</code>
$\int f(x) dx$	<code>int f(x) dx</code>	$\sum a_n$	<code>sum a_n</code>
$a \leq b$	<code>a <= b</code>	∞	<code>infinity</code>
$a \times b$	<code>a times b</code>	$x \cdot y$	<code>x cdot y</code>

Greek characters

Greek characters ($\alpha, \beta, \gamma, \theta$, etc) are common in mathematical formulas. *These characters are not available in the Elements window or the right-click menu.* Fortunately, the markup for Greek characters is simple: Type a % sign followed the name of the character, in English.

- To write a *lowercase* character, type the name of the character in lowercase.
- To write an *uppercase* character, type the name of the character in uppercase.

A complete table of Greek characters is provided on page 28. See the table below for some examples.

<i>Lowercase</i>	<i>Uppercase</i>
%alpha → α	%ALPHA → A
%beta → β	%BETA → B
%gamma → γ	%GAMMA → Γ
%psi → ψ	%PSI → Ψ
%phi → ϕ	%PHI → Φ
%theta → θ	%THETA → Θ

Another way to enter Greek characters is by using the Symbols catalog window. Choose **Tools > Catalog**. This window is shown in Figure 7. Under *Symbol set*, select **Greek** and double-click on a Greek letter from the list. The markup name of the character is shown below the list window.

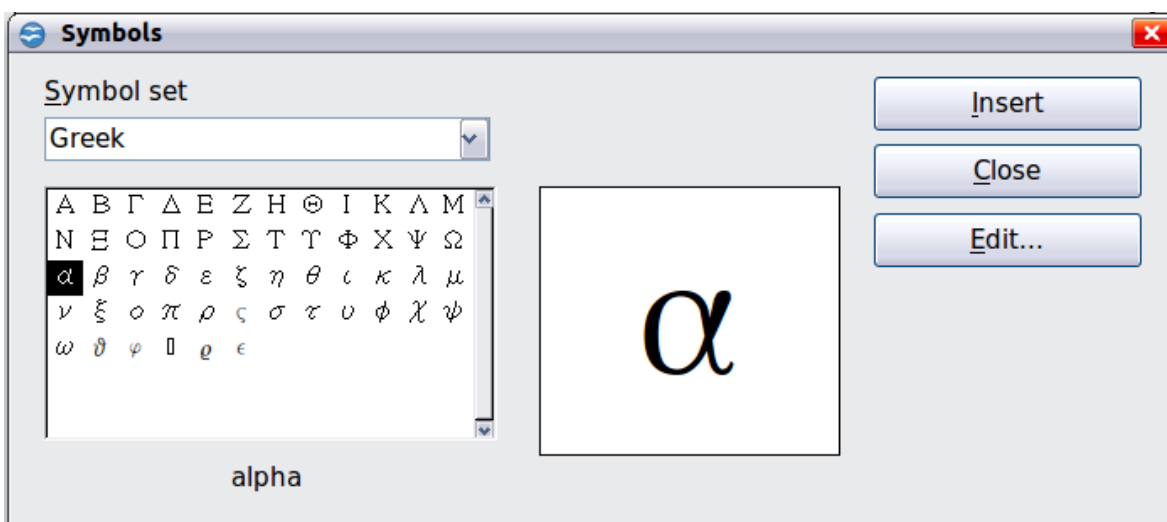


Figure 7: Symbols catalog, used for entering Greek characters and some special symbols

Example 2: $\pi \simeq 3.14159$

For this example we will suppose that:

- We want to enter the above formula (the value of pi rounded to 5 decimal places).
- We know the name of the Greek character (pi).
- But we do not know the markup associated with the \simeq symbol.

Step 1: Type % followed by the text `pi`. This displays the Greek character π .

Step 2: Open the Elements window (**View > Elements**).

Step 3: The \simeq symbol is a relation, so we click on the Relations button. If you hover the mouse over this button you see the tooltip *Relations* (Figure 8).

Figure 9 shows the Selection window after clicking the Relations button. The symbol we want is circled.

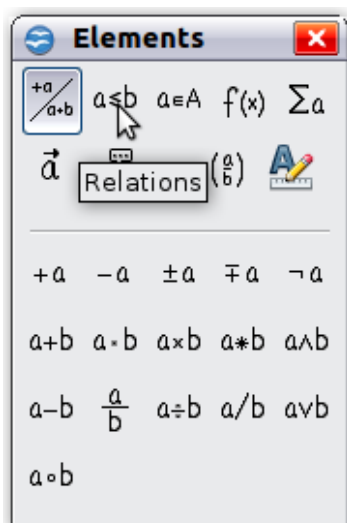


Figure 8: Tooltip indicates the Relations button

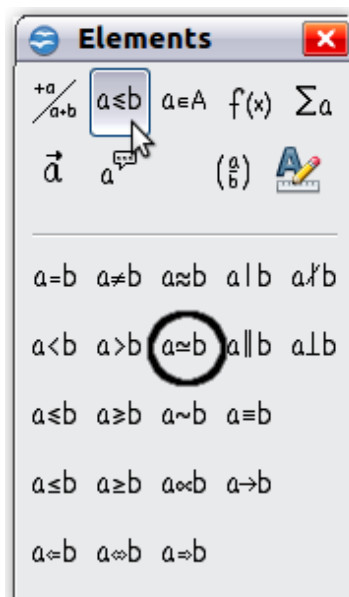


Figure 9: After selecting Relations

Step 4: Click on the $a \simeq b$ symbol. The equation editor now shows the markup `%pi<?> simeq <?>`.

Step 5: Delete the `<?>` text and add `3.14159` at the end of the equation. We end up with the markup `%pi simeq 3.14159`. The result is shown in Figure 10.

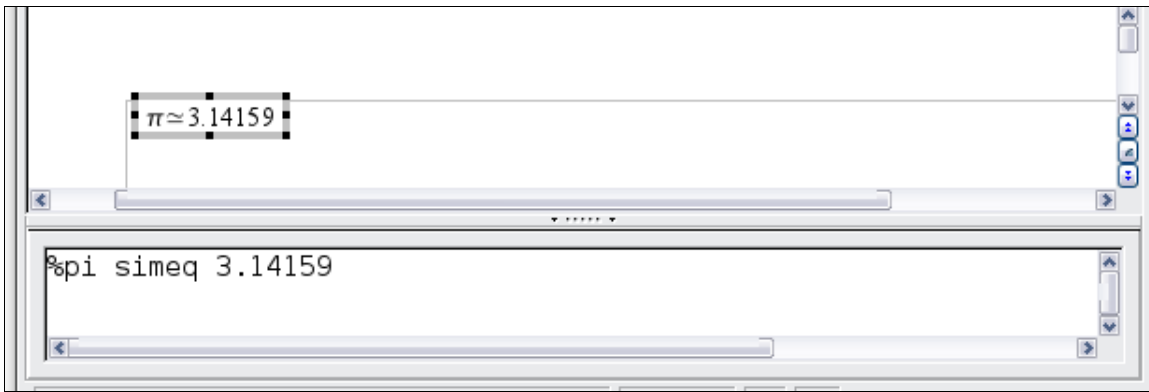


Figure 10. Final result

Customizations

Formula editor as a floating window

The formula editor can cover a large part of the Writer window. To turn the formula editor into a floating window, do this:

- 1) Hover the mouse over the editor frame, as shown in Figure 11.
- 2) Hold down the *Control* key and double-click.

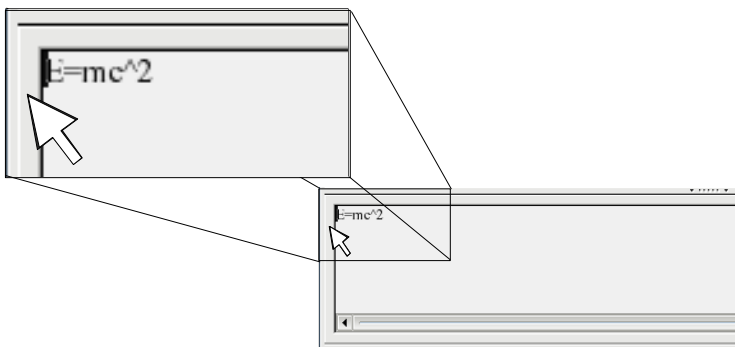


Figure 11: Turning the formula editor into a floating window

Figure 12 shows the result. You can dock the floating window again by using the same steps. Hold down the *Control* key and double-click the window frame.

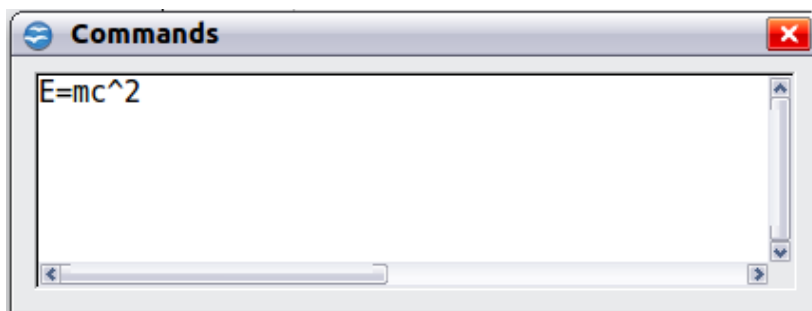


Figure 12: Formula editor as a floating window

How can I make a formula bigger?

This is one of the most common questions people ask about Oo Math. The answer is simple, but not intuitive:

- 1) Start the formula editor and choose **Format > Font size**.

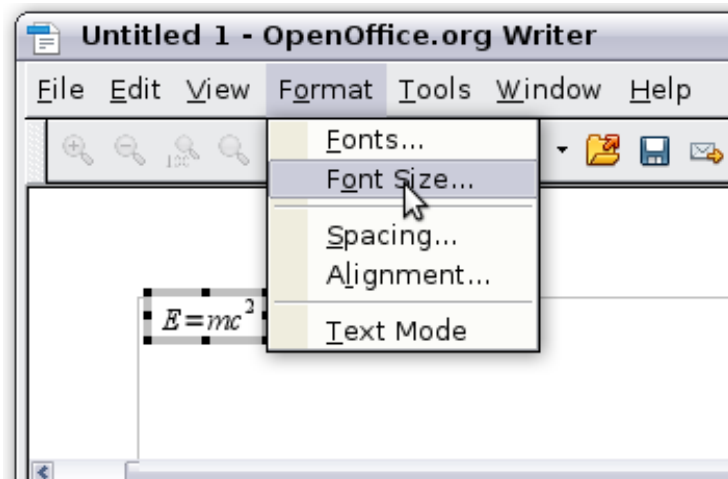


Figure 13: Changing the font size for a formula

- 2) Select a larger font size under *Base size* (top-most entry), as shown in Figure 13.

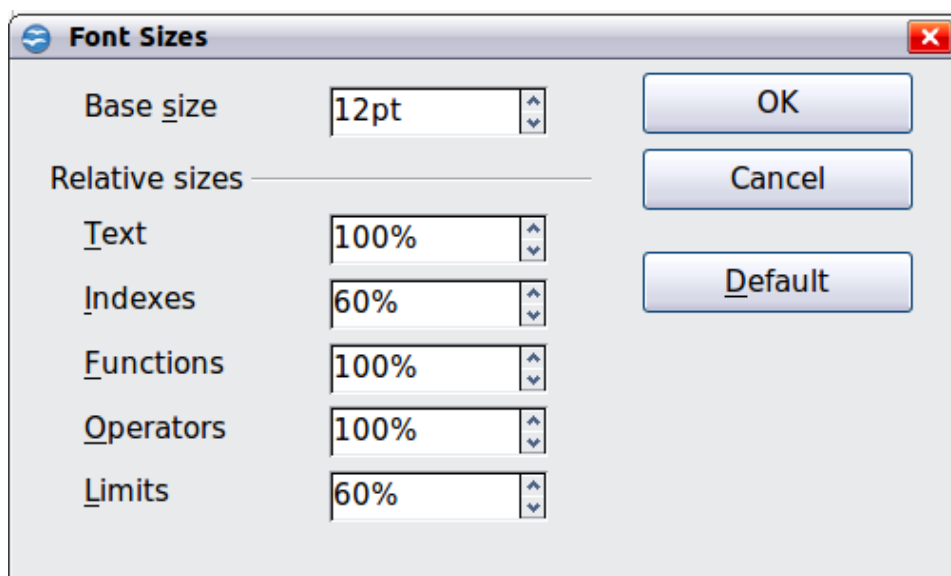


Figure 14. Edit Base size (top) to make a formula bigger

The result of this change is illustrated in Figure 14.

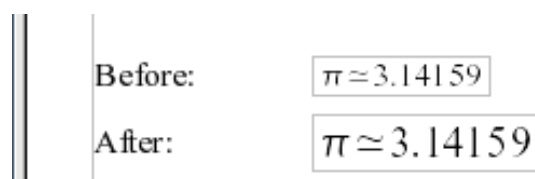


Figure 15. Result of changing the base font size.

Formula layout

The most difficult part of using OOo Math comes when writing complicated formulas. This section provides some advice.

Brackets are your friends

OOo Math knows nothing about order of operation. You must use brackets to state the order of operations explicitly. Consider the following example.

Markup	Result
2 over x + 1	$\frac{2}{x}+1$
2 over {x + 1}	$\frac{2}{x+1}$

Equations over more than one line

Suppose you want to type an equation covering more than one line. For example: $x=3$
 $y=1$

Your first reaction would be to simply press the *Enter* key. However, if you press the *Enter* key, though the markup goes to a new line, the resulting equation does not. You must type the newline command explicitly. This is illustrated in the table below.

Markup	Result
x = 3 y = 1	$x=3 y=1$
x = 3 newline y = 1	$x=3$ $y=1$

How do I add limits to my sum/integral?

The sum and int commands can (optionally) take the parameters *from* and *to*. These are used for lower and upper limits respectively. These parameters can be used singly or together. Limits for integrals are usually treated as subscripts and superscripts.

Markup	Result
--------	--------

Markup	Result
int from 0 to x f(t) dt or int_0^x f(t) dt	$\int_0^x f(t) dt$ or $\int_0^x f(t) dt$
int from Re f	$\int_{\mathbb{R}} f$
sum to infinity 2^{-n}	$\sum_{n=0}^{\infty} 2^{-n}$

Note For more details on integrals and sums, see page 22.

Brackets with matrices look ugly!

For background, we start with an overview of the matrix command.

Markup	Result
matrix { a # b ## c # d }	$\begin{matrix} a & b \\ c & d \end{matrix}$

Note Rows are separated by two #’s and entries within each row are separated by one #.

The first problem people have with matrices is that brackets do not scale with the matrix:

Markup	Result
(matrix { a # b ## c # d })	$\left(\begin{matrix} a & b \\ c & d \end{matrix} \right)$

OOo Math provides scalable brackets. That is, the brackets grow in size to match the size of their contents. Use the commands *left(* and *right)* to make scalable brackets.

Markup	Result
left(matrix { a # b ## c # d } right)	$\left(\begin{matrix} a & b \\ c & d \end{matrix} \right)$

Tip Use *left[* and *right]* to obtain square brackets.

How do I make a derivative?

Making derivatives essentially comes down to one trick: *Tell OOO it's a fraction.*

In other words, you have to use the *over* command. Combine this with either the letter *d* (for a total derivative) or the *partial* command (for a partial derivative) to achieve the effect of a derivative.

Note Notice that we have to use braces (squiggly brackets) to make the derivative.

Markup	Result
<code>{df} over {dx}</code>	$\frac{df}{dx}$
<code>{partial f} over {partial y}</code>	$\frac{\partial f}{\partial y}$
<code>{partial^2 f} over {partial t^2}</code>	$\frac{\partial^2 f}{\partial t^2}$

How do I align my equations at the equals sign?

OOO Math does not have a command for aligning equations on a particular character, but you can use a matrix to do this, as shown below.

Markup	Result
<pre>matrix{ alignr x+y # {}={} # alignl 2 ## alignr x # {}={} # alignl 2-y }</pre>	$\begin{array}{rcl} x+y & = & 2 \\ x & = & 2-y \end{array}$

The empty braces around = are necessary because = is a binary operator and thus needs an expression on each side.

You can reduce the spacing around = if you change the inter-column spacing of the matrix:

- 1) With the equation editor open, choose **Format > Spacing** from the menu bar.

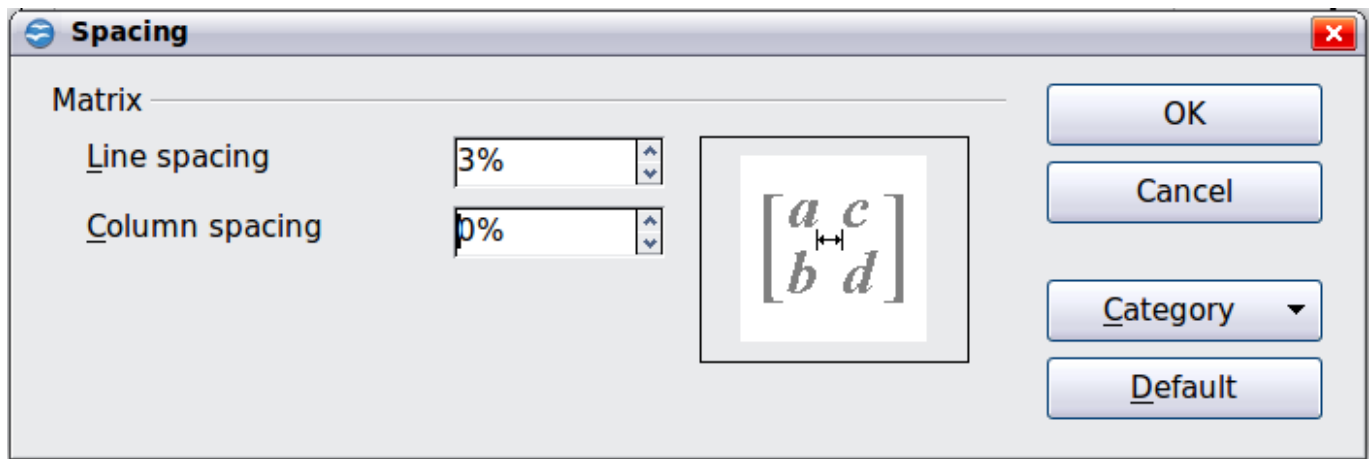


Figure 16: Changing spacing in a matrix formula

- 2) In the Spacing dialog (Figure 16), click the **Category** button and select **Matrices** in the drop-down menu.
- 3) Enter **0%** for Column spacing and click **OK**.

Numbering equations

Equation numbering is one of OOo Math's best hidden features. The steps are simple, but obscure:

- 1) Start a new line.
- 2) Type `fn` and then press `F3`.

The `fn` is replaced by a numbered formula:

$$E = mc^2 \tag{2}$$

Now you can double-click on the formula to edit it. For example, here is the Riemann Zeta function:

$$\zeta(z) = \sum_{n=1}^{\infty} \frac{1}{n^z} \tag{3}$$

You can reference an equation ("as shown in Equation (2)") with these steps:

- 1) Choose **Insert > Cross-reference** from the menu bar.
- 2) On the *Cross-references* tab (Figure 17), under *Type*, select *Text*.
- 3) Under *Selection*, select the equation number.
- 4) Under *Format*, select *Reference*.

Click **Insert**.

Done! If you later add more equations to the paper before the referenced equation, all the equations will automatically renumber and the cross-references will update.

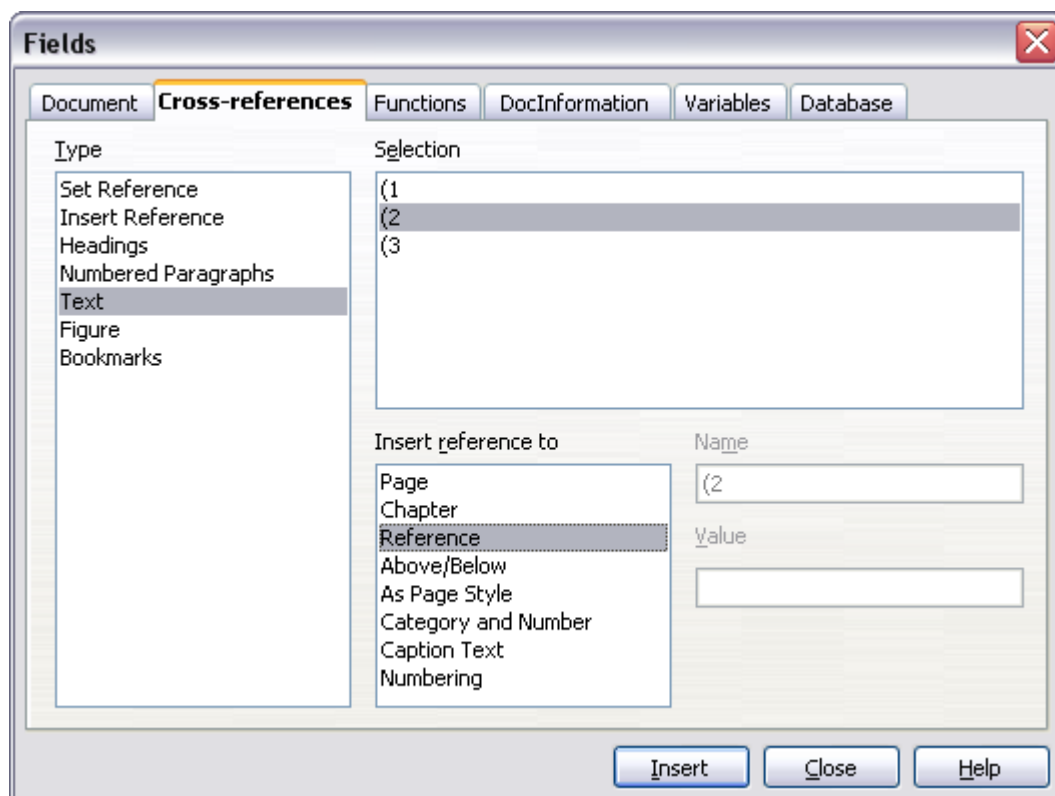


Figure 17. Inserting a cross-reference to an equation number

Tip

To insert the equation number without parenthesis around it, choose *Numbering* instead of *Reference* under *Format*.

Math commands - Reference

Unary / binary operators

Operation	Command	Display
+ sign	+1	+1
- sign	-1	-1
+/- sign	+ -1	± 1
-/+ sign	- +1	∓ 1
Boolean not	neg a	$\neg a$
Addition +	a + b	$a+b$
Dot product	a cdot b	$a \cdot b$
Multiplication (X)	a times b	$a \times b$
Multiplication (asterisk)	a * b	$a * b$
Boolean 'and'	a and b	$a \wedge b$
Subtraction (-)	a - b	$a - b$
Division (as a fraction)	a over b	$\frac{a}{b}$
Division (as an operator)	a div b	$a \div b$
Division (with a slash)	a / b	a / b
Boolean 'or'	a or b	$a \vee b$
Concatenation	a circ b	$a \circ b$

Relational operators

Operation	Command	Display
Is equal	$a = b$	$a = b$
Is not equal	$a <> b$	$a \neq b$
Approximately	$a \text{ approx } b$	$a \approx b$
Divides	$a \text{ divides } b$	$a b$
Does not divide	$a \text{ ndivides } b$	$a \nmid b$
Less than	$a < b$	$a < b$
Greater than	$a > b$	$a > b$
Similar to or equal	$a \text{ simeq } b$	$a \simeq b$
Parallel	$a \text{ parallel } b$	$a \parallel b$
Orthogonal to	$a \text{ ortho } b$	$a \perp b$
Less than or equal to	$a \text{ leslant } b$	$a \leq b$
Greater than or equal to	$a \text{ geslant } b$	$a \geq b$
Similar to	$a \text{ sim } b$	$a \sim b$
Congruent	$a \text{ equiv } b$	$a \equiv b$
Less than or equal to	$a \leq b$	$a \leq b$
Greater than or equal to	$a \geq b$	$a \geq b$
Proportional	$a \text{ prop } b$	$a \propto b$
Toward	$a \text{ toward } b$	$a \rightarrow b$
Arrow left	$a \text{ dleftarrow } b$	$a \leftarrow b$
Double arrow left and right	$a \text{ dleftrightarrow } b$	$a \leftrightarrow b$
Arrow right	$a \text{ drightarrow } b$	$a \rightarrow b$

Set operations

Operation	Command	Display
Is in	a in B	$a \in B$
Is not in	a notin B	$a \notin B$
Owns	A owns b	$A \ni b$
Empty set	emptyset	\emptyset
Intersection	A intersection B	$A \cap B$
Union	A union B	$A \cup B$
Difference	A setminus B	$A \setminus B$
Quotient	A slash B	A / B
Aleph	aleph	\aleph
Subset	A subset B	$A \subset B$
Subset or equal to	A subseteq B	$A \subseteq B$
Superset	A supset B	$A \supset B$
Superset or equal to	A supseteq B	$A \supseteq B$
Not subset	A nsubset B	$A \not\subset B$
Not subset or equal	A nsubseteq B	$A \not\subseteq B$
Not superset	A nsupset B	$A \not\supset B$
Not superset or equal	A nsupseteq B	$A \not\supseteq B$
Set of natural numbers	setN	\mathbb{N}
Set of integers	setZ	\mathbb{Z}
Set of rational numbers	setQ	\mathbb{Q}
Set of real numbers	setR	\mathbb{R}
Set of complex numbers	setC	\mathbb{C}

Functions

Operation	Command	Display
Exponential	<code>func e^{a}</code>	e^a
Natural logarithm	<code>ln(a)</code>	$\ln(a)$
Exponential function	<code>exp(a)</code>	$\exp(a)$
Logarithm	<code>log(a)</code>	$\log(a)$
Power	<code>a^{b}</code>	a^b
Sine	<code>sin(a)</code>	$\sin(a)$
Cosine	<code>cos(a)</code>	$\cos(a)$
Tangent	<code>tan(a)</code>	$\tan(a)$
Cotangent	<code>cot(a)</code>	$\cot(a)$
Square root	<code>sqrt{a}</code>	\sqrt{a}
Arcsine	<code>arcsin(a)</code>	$\arcsin(a)$
Arc cosine	<code>arccos(a)</code>	$\arccos(a)$
Arctangent	<code>arctan(a)</code>	$\arctan(a)$
Arc cotangent	<code>arccot(a)</code>	$\operatorname{arccot}(a)$
n^{th} root	<code>nroot{a}{b}</code>	$\sqrt[b]{a}$
Hyperbolic sine	<code>sinh(a)</code>	$\sinh(a)$
Hyperbolic cosine	<code>cosh(a)</code>	$\cosh(a)$
Hyperbolic tangent	<code>tanh(a)</code>	$\tanh(a)$
Hyperbolic cotangent	<code>coth(a)</code>	$\operatorname{coth}(a)$
Absolute value	<code>abs{a}</code>	$ a $
Arc hyperbolic sine	<code>arsinh(a)</code>	$\operatorname{arsinh}(a)$
Arc hyperbolic cosine	<code>arcosh(a)</code>	$\operatorname{arcosh}(a)$
Arc hyperbolic tangent	<code>artanh(a)</code>	$\operatorname{artanh}(a)$
Arc hyperbolic cotangent	<code>arcoth(a)</code>	$\operatorname{arcoth}(a)$
Factorial	<code>fact{a}</code>	$a!$

Operators

All operators can be used with the limit functions (“from” and “to”).

Operation	Command	Display
Limit	<code>lim{a}</code>	$\lim a$
Sum	<code>sum{a}</code>	$\sum a$
Product	<code>prod{a}</code>	$\prod a$
Coproduct	<code>coprod{a}</code>	$\coprod a$
Upper and lower bounds shown with integral	<code>int from {r_0} to {r_t} a</code>	$\int_{r_0}^{r_t} a$
Integral	<code>int{a}</code>	$\int a$
Double integral	<code>iint{a}</code>	$\iint a$
Triple integral	<code>iiint{a}</code>	$\iiint a$
Lower bound shown with summation symbol	<code>sum from{3}b</code>	$\sum_3 b$
Contour integral	<code>lint a</code>	$\oint a$
Double curved integral	<code>llint a</code>	$\oiint a$
Triple curved integral	<code>lllint a</code>	$\oiiint a$
Upper bound shown with product symbol	<code>prod to{3} r</code>	$\prod^3 r$

Attributes

<i>Operation</i>	<i>Command</i>	<i>Display</i>
Acute accent	acute a	\acute{a}
Grave accent	grave a	\grave{a}
Reverse circumflex	check a	\check{a}
Breve	breve a	\breve{a}
Circle	circle a	$\circ a$
Vector arrow	vec a	\vec{a}
Tilde	tilde a	\tilde{a}
Circumflex	hat a	\hat{a}
Line above	bar a	\bar{a}
Dot	dot a	\dot{a}
Wide vector arrow	widevec abc	\vec{abc}
Wide tilde	widetilde abc	\widetilde{abc}
Wide circumflex	widehat abc	\widehat{abc}
Double dot	ddot a	\ddot{a}
Line over	overline abc	\overline{abc}
Line under	underline abc	\underline{abc}
Line through	overstrike abc	$\ae b$
Triple dot	dddots a	$\ddot{\ddot{a}}$
Transparent (useful to get a placeholder of a given size)	phantom a	
Bold font	bold a	<i>a</i>
Italic font ¹	ital "a"	<i>a</i>
Resize font	size 16 qv	<i>qv</i>
Following item in sans serif font ²	font sans qv	<i>qv</i>
Following item in serif font	font serif qv	<i>qv</i>
Following item in fixed font	font fixed qv	<i>qv</i>

1 Unquoted text that is not a command is considered to be a variable. Variables are, by default, italicized.

2 There are three custom fonts: sans serif (without kicks), serifs (with kicks), and fixed (non-proportional). To change the actual fonts used for custom fonts and the fonts used for variables (unquoted text), numbers and functions, use **Format > Fonts**.

Operation	Command	Display
Make color of following text cyan ³	color cyan qv	<i>qv</i>
Make color of following text yellow	color yellow qv	<i>qv</i>
Make color of following text white	color white qv	<i>qv</i>
Make color of following text green	color green qv	<i>qv</i>
Make color of following text blue	color blue qv	<i>qv</i>
Make color of following text red	color red qv	<i>qv</i>
Make color green returns to default color black	color green X qv	<i>X qv</i>
Brace items to change color of more than one item	color green {X qv}	<i>X qv</i>

3 For all coloring, the color will apply only to the text immediately following the command until the next space is encountered. In order to have the color apply to more characters, place the text you want in color in curly brackets.

Miscellaneous

Operation	Command	Display
Infinity	infinity	∞
Partial	partial	∂
Nabla	nabla	∇
There exists	exists	\exists
For all	forall	\forall
H bar	hbar	\hbar
Lambda bar	lambdabar	λ
Real part	re	\Re
Imaginary part	im	\Im
Weierstrass p	wp	\wp
Left arrow	leftarrow	\leftarrow
Right arrow	\rightarrow	\rightarrow
Up arrow	\uparrow	\uparrow
Down arrow	\downarrow	\downarrow
Dots at bottom	\dotslow	\dots
Dots at middle	\dotsaxis	\dots
Dots vertical	\dotsvert	\vdots
Dots diagonal upward	\dotsup	\ddots
Dots diagonal downward	\dotsdown	\ddots

Brackets

Operation	Command	Display
Round Brackets	(a)	(a)
Square Brackets	[b]	[b]
Double Square Brackets	ldbracket c rdbarcket	[[c]]
Single line	lline a rline	a
Double line	ldline a rdline	a
Braces	lbrace w rbrace	{w}
Angle Brackets	langle d rangle	<d>
Operator Brackets	langle a mline b rangle	<a b>
Group brackets (used for program control)	{a}	a
Scalable round brackets (add the word "left" before a left bracket and "right" before a right bracket)	left (stack{a # b # z} right)	$\left(\begin{array}{c} a \\ b \\ z \end{array} \right)$
Square brackets scalable (as above)	left [stack{ x # y} right]	$\left[\begin{array}{c} x \\ y \end{array} \right]$
Double square brackets scalable	left ldbracket c right rdbarcket	[[c]]
Line scalable	left lline a right rline	a
Double line scalable	left ldline d right rdline	d
Brace scalable	left lbrace e right rbrace	{e}
Angle bracket scalable	left langle f right rangle	<f>
Operator brackets scalable	left langle g mline h right rangle	<g h>
Over brace scalable	{The brace is above} overbrace a	$\overbrace{\text{The brace is above}}^a$
Under brace scalable	{the brace is below} underbrace {f}	$\underbrace{\text{the brace is below}}_f$

Formats

Operation	Command	Display
Left superscript	<code>a lsup{b}</code>	${}^b a$
Center superscript	<code>a csup{b}</code>	a^b
Right superscript	<code>a^{b}</code>	a^b
Left subscript	<code>a lsub{b}</code>	${}_b a$
Center subscript	<code>a csub{b}</code>	a_b
Right subscript	<code>a_{b}</code>	a_b
Align character to left (text is aligned center by default)	<code>stack { Hello world # alignl (a) }</code>	$\begin{array}{c} \text{Hello world} \\ (a) \end{array}$
Align character to center	<code>stack{Hello world # alignc(a)}</code>	$\begin{array}{c} \text{Hello world} \\ (a) \end{array}$
Align character to right	<code>stack { Hello world # alignr(a)}</code>	$\begin{array}{c} \text{Hello world} \\ (a) \end{array}$
Vertical stack of 2	<code>binom{a}{b}</code>	$\begin{array}{c} a \\ b \end{array}$
Vertical stack, more than 2	<code>stack{a # b # z}</code>	$\begin{array}{c} a \\ b \\ z \end{array}$
Matrix	<code>matrix{ a # b ## c # d }</code>	$\begin{array}{cc} a & b \\ c & d \end{array}$
Equations aligned at '=' (using 'matrix')	<code>matrix{ a # "=" # alignl{b} ## { } # "=" # alignl{c+1} }</code>	$\begin{array}{cc} a & = b \\ \{ \} & = c \end{array}$
Equations aligned at '=' (using 'phantom')	<code>stack{ alignl{a} = b # alignl{phantom{a} = c+1} }</code>	$\begin{array}{cc} a & = b \\ & = c \end{array}$
New line	<code>asldkfjo newline sadkfj</code>	$\begin{array}{l} asldkfjo \\ sadkfj \end{array}$
Small gap (grave)	<code>stuff `stuff</code>	$\text{stuff } \text{stuff}$
Large gap (tilde)	<code>stuff~stuff</code>	$\text{stuff } \text{stuff}$

Caution



In localized versions of Writer, the markup names of Greek and special characters are localized. If this document is not localized to the same language, then the names below *may not work* for input. You may still use the Symbol catalog (Figure 7) to select the desired character by its glyph. This will also display the character's localized markup name.

Once entered, the characters will display properly in any language.

Characters - Greek

%ALPHA	A	%BETA	B	%GAMMA	Γ	%DELTA	Δ	%EPSILON	E
%ZETA	Z	%ETA	H	%THETA	Θ	%IOTA	I	%KAPPA	K
%LAMBDA	Λ	%MU	M	%NU	N	%XI	Ξ	%OMICRON	O
%PI	Π	%RHO	P	%SIGMA	Σ	%TAU	T	%UPSILON	Y
%PHI	Φ	%CHI	X	%PSI	Ψ	%OMEGA	Ω		
%alpha	α	%beta	β	%gamma	γ	%delta	δ	%epsilon	ϵ
%varepsilon	ε	%zeta	ζ	%eta	η	%theta	θ	%vartheta	ϑ
%iota	ι	%kappa	κ	%lambda	λ	%mu	μ	%nu	ν
%xi	ξ	%omicron	o	%pi	π	%varpi	ϖ	%rho	ρ
%varrho	ϱ	%sigma	σ	%varsigma	ς	%tau	τ	%upsilon	υ
%phi	ϕ	%varphi	φ	%chi	χ	%psi	ψ	%omega	ω

Characters - Special

%and \wedge	%angle \sphericalangle	%element \in	%identical \equiv
%infinite ∞	%noelement \notin	%notequal \neq	%or \vee
%perthousand \permil	%strictlygreaterthan \gg	%strictlylessthan \ll	%tendto \rightarrow

Index

B

brackets (Math) 13
brackets commands (Math) 26

C

characters - special (Math) 28
characters - Greek (Math) 28

D

derivative markup (Math) 15

E

equation
 inserting 4
 numbering 16
equation editor 4
equation editor
 brackets 13
 derivative markup 15
 Elements window 5
 equations over more than one line 13
 floating window 11
 font size 12
 formula layout 13
 limits to sum/integral 13
 markup 8
 matrix markup 14

right-click menu 7

F

formats commands (Math) 27
formula editor
 See: equation editor 11
formula layout 13
function commands (Math) 21

L

limits to sum/integral 13

M

mathematical equations 4
mathematical markup 8
mathematical symbols 5
matrix markup (Math) 14
miscellaneous commands (Math) 25

N

numbering equations 16

R

relational operator commands (Math) 19

U

unary / binary operator commands
(Math) 18