

## Introduction

This appendix lists the operators and commands that are available for use in the Formula Editor when you are creating formulas.

The more common operators and commands can be entered by clicking on the appropriate icon in the Elements dock. Where there is no icon displayed in the following tables for the Elements dock, then you have to enter the operator or command into the Formula Editor using markup language.

### Note

In the markup language shown in the following tables, you have to replace the place holder `<?>` with the value you want to use in your formulas.

## Unary/binary operator commands

To access the icons used for entering markup language for unary/binary operator commands into the Formula Editor, select *Unary/Binary Operators* from the drop-down list at the top of the Elements dock.

Table 3: *Unary/binary commands*

Operation	Markup language	Example formula
Plus	<code>+</code>	$+1$
Minus	<code>-</code>	$-1$
Plus/minus	<code>+ -</code> or <code>plusminus</code>	$\pm 1$
Minus/plus	<code>- +</code> or <code>minusplus</code>	$\mp 1$
Addition	<code>&lt;?&gt; + &lt;?&gt;</code>	$A+B$
Subtraction	<code>&lt;?&gt; - &lt;?&gt;</code>	$A-B$
Multiplication (Dot)	<code>&lt;?&gt; cdot &lt;?&gt;</code>	$A\cdot B$
Multiplication	<code>&lt;?&gt; times &lt;?&gt;</code>	$A\times B$
Multiplication (*)	<code>&lt;?&gt; * &lt;?&gt;</code>	$A*B$
Division (Fraction)	<code>{&lt;?&gt;} over {&lt;?&gt;}</code>	$\frac{A}{B}$
Frac (Fraction)	<code>frac {&lt;?&gt;} {&lt;?&gt;}</code>	$\frac{A}{B}$
Division	<code>&lt;?&gt; div &lt;?&gt;</code>	$A\div B$
Division (Slash)	<code>&lt;?&gt; / &lt;?&gt;</code> or <code>&lt;?&gt; slash &lt;?&gt;</code>	$A/B$
Division (Wideslash)	<code>{&lt;?&gt;} wideslash {&lt;?&gt;}</code>	$A/\!B$
Division (Counter Wideslash)	<code>&lt;?&gt; widebslash &lt;?&gt;</code>	$A\!/\!B$
Concatenate	<code>&lt;?&gt; circ &lt;?&gt;</code>	$A\circ B$
Boolean NOT	<code>neg &lt;?&gt;</code>	$\neg A$
Boolean AND	<code>&lt;?&gt; and &lt;?&gt;</code> or <code>&lt;?&gt; &amp; &lt;?&gt;</code>	$A\wedge B$
Boolean OR	<code>&lt;?&gt; or &lt;?&gt;</code>	$A\vee B$

Backslash	<code>&lt;?&gt; bslash &lt;?&gt;</code>	$A \setminus B$
Slash in circle	<code>&lt;?&gt; odivide &lt;?&gt;</code>	$A \oslash B$
Small multiply symbol in circle	<code>&lt;?&gt; odot &lt;?&gt;</code>	$A \odot B$
Subtract symbol in circle	<code>&lt;?&gt; ominus &lt;?&gt;</code>	$A \ominus B$
Add symbol in circle	<code>&lt;?&gt; oplus &lt;?&gt;</code>	$A \oplus B$
Multiply symbol in circle	<code>&lt;?&gt; otimes &lt;?&gt;</code>	$A \otimes B$
User defined binary operator	<code>&lt;?&gt; boper ?????? &lt;?&gt;</code>	$A \mathit{binOp} B$
User defined unary operator	<code>uoper ?????? &lt;?&gt;</code>	$\mathit{unOp} B$

## Relation commands

To access the icons used for entering markup language for relations commands into the Formula Editor, select *Relations* from the drop-down list at the top of the Elements dock.

Table 4: Relation commands

Operation	Markup language	Example formula
Is equal	<code>&lt;?&gt; = &lt;?&gt;</code>	$A = B$
Is not equal	<code>&lt;?&gt; &lt;&gt; &lt;?&gt;</code> or <code>&lt;?&gt; neq &lt;?&gt;</code>	$A \neq B$
Is less than	<code>&lt;?&gt; &lt; &lt;?&gt;</code> or <code>&lt;?&gt; lt &lt;?&gt;</code>	$A < B$
Is less than or equal to	<code>&lt;?&gt; &lt;= &lt;?&gt;</code>	$A \leq B$
Is less than or equal to	<code>&lt;?&gt; leslant &lt;?&gt;</code>	$A \leqq B$
Is greater than	<code>&lt;?&gt; &gt; &lt;?&gt;</code> or <code>&lt;?&gt; gt &lt;?&gt;</code>	$A > B$
Is greater than or equal to	<code>&lt;?&gt; &gt;= &lt;?&gt;</code>	$A \geq B$
Is greater than or equal to	<code>&lt;?&gt; geslant &lt;?&gt;</code>	$A \geqq B$
Is much less than	<code>&lt;?&gt; &lt;&lt; &lt;?&gt;</code> or <code>&lt;?&gt; ll &lt;?&gt;</code>	$A \ll B$
Is much greater than	<code>&lt;?&gt; &gt;&gt; &lt;?&gt;</code> or <code>&lt;?&gt; gg &lt;?&gt;</code>	$A \gg B$
Is approximately equal	<code>&lt;?&gt; approx &lt;?&gt;</code>	$A \approx B$
Is similar to	<code>&lt;?&gt; sim &lt;?&gt;</code>	$A \sim B$
Is similar to or equal	<code>&lt;?&gt; simeq &lt;?&gt;</code>	$A \simeq B$
Is congruent to	<code>&lt;?&gt; equiv &lt;?&gt;</code>	$A \equiv B$
Is proportional to	<code>&lt;?&gt; prop &lt;?&gt;</code>	$A \propto B$
Is parallel to	<code>&lt;?&gt; parallel &lt;?&gt;</code>	$A \parallel B$
Is orthogonal to	<code>&lt;?&gt; ortho &lt;?&gt;</code>	$A \perp B$
Divides	<code>&lt;?&gt; divides &lt;?&gt;</code>	$A \mid B$
Does not divide	<code>&lt;?&gt; ndivides &lt;?&gt;</code>	$A \nmid B$
Toward	<code>&lt;?&gt; toward &lt;?&gt;</code>	$A \rightarrow B$
Double arrow left	<code>&lt;?&gt; dlarrow &lt;?&gt;</code>	$A \Leftarrow B$
Double arrow left and right	<code>&lt;?&gt; dlarrow &lt;?&gt;</code>	$A \Leftrightarrow B$
Double arrow right	<code>&lt;?&gt; drarrow &lt;?&gt;</code>	$A \Rightarrow B$

Precedes	<code>&lt;?&gt; prec &lt;?&gt;</code>	$A < B$
Succeeds	<code>&lt;?&gt; succ &lt;?&gt;</code>	$A > B$
Precedes or equal to	<code>&lt;?&gt; preccurlyeq &lt;?&gt;</code>	$A \leq B$
Succeeds or equal to	<code>&lt;?&gt; succcurlyeq &lt;?&gt;</code>	$A \geq B$
Precedes or equivalent to	<code>&lt;?&gt; precsim &lt;?&gt;</code>	$A \lesssim B$
Succeeds or equivalent to	<code>&lt;?&gt; sucssim &lt;?&gt;</code>	$A \gtrsim B$
Not precedes	<code>&lt;?&gt; nprec &lt;?&gt;</code>	$A \not< B$
Not succeeds	<code>&lt;?&gt; nsucc &lt;?&gt;</code>	$A \not> B$
Definition	<code>&lt;?&gt; def &lt;?&gt;</code>	$A \stackrel{\text{def}}{=} B$
Corresponding symbol image of	<code>&lt;?&gt; transl &lt;?&gt;</code>	$A \leftrightarrow B$
Corresponding symbol original of	<code>&lt;?&gt; transr &lt;?&gt;</code>	$A \leftrightarrow B$

## Set operation commands

To access the icons used for entering markup language for set operation commands into the Formula Editor, select *Set Operations* from the drop-down list at the top of the Elements dock.

Table 5: Set operation commands

Operation	Markup language	Example formula
Is in	<code>&lt;?&gt; in &lt;?&gt;</code>	$A \in B$
Is not in	<code>&lt;?&gt; notin &lt;?&gt;</code>	$A \notin B$
Owns	<code>&lt;?&gt; owns &lt;?&gt;</code> or <code>&lt;?&gt; ni &lt;?&gt;</code>	$A \ni B$
Intersection	<code>&lt;?&gt; intersection &lt;?&gt;</code>	$A \cap B$
Union	<code>&lt;?&gt; union &lt;?&gt;</code>	$A \cup B$
Difference	<code>&lt;?&gt; setminus &lt;?&gt;</code> or <code>&lt;?&gt; bslash &lt;?&gt;</code>	$A \setminus B$
Quotient set (slash) between characters	<code>&lt;?&gt; slash &lt;?&gt;</code>	$A / B$
Subset	<code>&lt;?&gt; subset &lt;?&gt;</code>	$A \subset B$
Subset or equal to	<code>&lt;?&gt; subseteq &lt;?&gt;</code>	$A \subseteq B$
Superset	<code>&lt;?&gt; supset &lt;?&gt;</code>	$A \supset B$
Superset or equal to	<code>&lt;?&gt; supseteq &lt;?&gt;</code>	$A \supseteq B$
Not subset	<code>&lt;?&gt; nsubset &lt;?&gt;</code>	$A \not\subset B$
Not subset or equal to	<code>&lt;?&gt; nsubseteq &lt;?&gt;</code>	$A \not\subseteq B$
Not superset	<code>&lt;?&gt; nsupset &lt;?&gt;</code>	$A \not\supset B$
Not superset or equal to	<code>&lt;?&gt; nsupseteq &lt;?&gt;</code>	$A \not\supseteq B$
Empty set	<code>emptyset</code>	$\emptyset$
Aleph (cardinal numbers)	<code>aleph</code>	$\aleph$
Natural numbers set	<code>setN</code>	$\mathbb{N}$

Integers set	setZ	$\mathbb{Z}$
Set of rational numbers	setQ	$\mathbb{Q}$
Real numbers set	setR	$\mathbb{R}$
Complex numbers set	setC	$\mathbb{C}$

## Functions

To access the icons used for entering markup language for function commands into the Formula Editor, select *Functions* from the drop-down list at the top of the Elements dock.

Table 6: Function commands

Operation	Markup language	Example formula
Absolute value	abs{<?>}	$ A $
Factorial	fact{<?>}	$A!$
Square root	sqrt{<?>}	$\sqrt{A}$
Nth root	nroot{<?>}{<?>}	$\sqrt[A]{B}$
Power	<?>^<?>	$A^B$
Natural exponential function	func e^<?>	$e^A$
Natural logarithm	ln(<?>)	$\ln(A)$
Exponential function	exp(<?>)	$\exp(A)$
Logarithm	log(<?>)	$\log(A)$
Sine	sin(<?>)	$\sin(A)$
Cosine	cos(<?>)	$\cos(A)$
Tangent	tan(<?>)	$\tan(A)$
Cotangent	cot(<?>)	$\cot(A)$
Hyperbolic sine	sinh(<?>)	$\sinh(A)$
Hyperbolic cosine	cosh(<?>)	$\cosh(A)$
Hyperbolic tangent	tanh(<?>)	$\tanh(A)$
Hyperbolic cotangent	coth(<?>)	$\coth(A)$
Inverse sine or arcsine	arcsin(<?>)	$\arcsin(A)$
Inverse cosine or arccosine	arccos(<?>)	$\arccos(A)$
Inverse tangent or arctangent	arctan(<?>)	$\arctan(A)$
Inverse cotangent or arccotangent	arccot(<?>)	$\text{arccot}(A)$
Inverse or area hyperbolic sine	arsinh(<?>)	$\text{arsinh}(A)$
Inverse or area hyperbolic cosine	arcosh(<?>)	$\text{arcosh}(A)$
Inverse or area hyperbolic tangent	artanh(<?>)	$\text{artanh}(A)$
Inverse or area hyperbolic cotangent	arcoth(<?>)	$\text{arcoth}(A)$
Back epsilon	backepsilon	$\epsilon$

Subscript	<code>&lt;?&gt; sub &lt;?&gt;</code>	$A_B$
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## Operators

To access the icons used for entering markup language for operator commands into the Formula Editor, select *Operators* from the drop-down list at the top of the Elements dock.

Table 7: Operator commands

Operation	Markup language	Example formula
Limes	<code>lim &lt;?&gt;</code>	$\lim A$
Limes subscript bottom	<code>lim from{&lt;?&gt;} &lt;?&gt;</code>	$\lim_A B$
Limes superscript top	<code>lim to{&lt;?&gt;} &lt;?&gt;</code>	$\lim^A B$
Limes sup/sub script	<code>lim from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\lim_{A}^B C$
Limes inferior	<code>liminf &lt;?&gt;</code>	$\liminf A$
Limes superior	<code>limsup &lt;?&gt;</code>	$\limsup A$
Sum	<code>sum &lt;?&gt;</code>	$\sum a$
Sum subscript bottom	<code>sum from{&lt;?&gt;} &lt;?&gt;</code>	$\sum_A B$
Sum superscript top	<code>sum to{&lt;?&gt;} &lt;?&gt;</code>	$\sum^A B$
Sum sup/sub script	<code>sum from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\sum_{A}^B C$
Product	<code>prod &lt;?&gt;</code>	$\prod A$
Product subscript bottom	<code>prod from{&lt;?&gt;} &lt;?&gt;</code>	$\prod_A B$
Product superscript top	<code>prod to{&lt;?&gt;} &lt;?&gt;</code>	$\prod^A B$
Product sup/sub script	<code>prod from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\prod_{A}^B C$
Coproduct	<code>coprod &lt;?&gt;</code>	$\coprod A$
Coproduct subscript bottom	<code>coprod from{&lt;?&gt;} &lt;?&gt;</code>	$\coprod_A B$
Coproduct superscript top	<code>coprod to{&lt;?&gt;} &lt;?&gt;</code>	$\coprod^A B$
Coproduct sup/sub script	<code>coprod from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\coprod_{A}^B C$
Integral	<code>int &lt;?&gt;</code>	$\int A$
Integral subscript bottom	<code>int from{&lt;?&gt;} &lt;?&gt;</code>	$\int_A B$

Integral superscript top	<code>int to{&lt;?&gt;} &lt;?&gt;</code>	$\int^A B$
Integral sup/sub script	<code>int from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\int_A^B C$
Double integral	<code>iint &lt;?&gt;</code>	$\iint A$
Double integral subscript bottom	<code>iint from{&lt;?&gt;} &lt;?&gt;</code>	$\iint_A B$
Double integral superscript top	<code>iint to{&lt;?&gt;} &lt;?&gt;</code>	$\iint^A B$
Double integral sup/sub script	<code>iint from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\iint_A^B C$
Triple integral	<code>iiint &lt;?&gt;</code>	$\iiint A$
Triple integral subscript bottom	<code>iiint from{&lt;?&gt;} &lt;?&gt;</code>	$\iiint_A B$
Triple integral superscript top	<code>iiint to{&lt;?&gt;} &lt;?&gt;</code>	$\iiint^A B$
Triple integral sup/sub script	<code>iiint from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\iiint_A^B C$
Curve integral	<code>lint &lt;?&gt;</code>	$\oint A$
Curve integral subscript bottom	<code>lint from{&lt;?&gt;} &lt;?&gt;</code>	$\oint_A B$
Curve integral superscript top	<code>lint to{&lt;?&gt;} &lt;?&gt;</code>	$\oint^A B$
Curve integral sup/sub script	<code>lint from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\oint_A^B C$
Double curve integral	<code>llint &lt;?&gt;</code>	$\oiint A$
Double curve integral subscript bottom	<code>llint from{&lt;?&gt;} &lt;?&gt;</code>	$\oiint_A B$
Double curve integral superscript top	<code>llint to{&lt;?&gt;} &lt;?&gt;</code>	$\oiint^A B$
Double curve integral sup/sub script	<code>llint from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\oiint_A^B C$
Triple curve integral	<code>lllnt &lt;?&gt;</code>	$\oiiint A$
Triple curve integral subscript bottom	<code>lllnt from{&lt;?&gt;} &lt;?&gt;</code>	$\oiiint_A B$
Triple curve integral superscript top	<code>lllnt to{&lt;?&gt;} &lt;?&gt;</code>	$\oiiint^A B$
Triple curve integral sup/sub script	<code>lllnt from{&lt;?&gt;} to{&lt;?&gt;} &lt;?&gt;</code>	$\oiiint_A^B C$

 **Note**

For customized operators, use the command `oper` followed by your custom operator. For example, entering `oper OP from 0 to 1 A` will give the formula

$${}^1_0OP A .$$

## Attributes

To access the icons used for entering markup language for attribute commands into the Formula Editor, select *Attributes* from the drop-down list at the top of the Elements dock, or click the Attributes icon in the Elements dialog.

Table 8: Attribute commands

Operation	Markup language	Example formula
Acute accent	<code>acute &lt;?&gt;</code>	Á
Grave accent	<code>grave &lt;?&gt;</code>	À
Breve	<code>breve &lt;?&gt;</code>	Ă
Circle	<code>circle &lt;?&gt;</code>	Å
Dot	<code>dot &lt;?&gt;</code>	Ȧ
Double dot	<code>ddot &lt;?&gt;</code>	Ä
Triple dot	<code>dddots &lt;?&gt;</code>	Ë
Line above	<code>bar &lt;?&gt;</code>	Ā
Vector arrow	<code>vec &lt;?&gt;</code>	→
Harpoon	<code>harpoon &lt;?&gt;</code>	↷
Tilde	<code>tilde &lt;?&gt;</code>	Ã
Circumflex	<code>hat &lt;?&gt;</code>	Â
Reverse circumflex	<code>check &lt;?&gt;</code>	Ȧ
Large vector arrow	<code>widevec {&lt;?&gt;}</code>	→
Large harpoon	<code>wideharpoon &lt;?&gt;</code>	↷
Large tilde	<code>widetilde {&lt;?&gt;}</code>	Ã
Large circumflex	<code>widehat {&lt;?&gt;}</code>	Â
Line over	<code>overline {&lt;?&gt;}</code>	AB
Line below	<code>underline {&lt;?&gt;}</code>	AB
Line through	<code>overstrike {&lt;?&gt;}</code>	AB
Transparent (blank placeholder to create space)	<code>phantom {&lt;?&gt;}</code>	A B
Bold font	<code>bold &lt;?&gt;</code>	<b>AB</b>
Not bold font	<code>nbold &lt;?&gt;</code>	AB
Italic font	<code>ital &lt;?&gt;</code> or <code>italic &lt;?&gt;</code>	<i>AB</i>
Not italic font	<code>nitalic &lt;?&gt;</code>	AB

Resize	<code>size &lt;?&gt; {&lt;?&gt;}</code>	<i>AB</i>
Change font	<code>font &lt;?&gt; {&lt;?&gt;}</code>	<i>AB</i>
Color black	<code>color black {&lt;?&gt;}</code>	<i>AB</i>
Color blue	<code>color blue {&lt;?&gt;}</code>	<i>AB</i>
Color green	<code>color green {&lt;?&gt;}</code>	<i>AB</i>
Color red	<code>color red {&lt;?&gt;}</code>	<i>AB</i>
Color cyan	<code>color cyan {&lt;?&gt;}</code>	<i>AB</i>
Color aqua (same as cyan)	<code>color aqua {&lt;?&gt;}</code>	<i>AB</i>
Color magenta	<code>color magenta {&lt;?&gt;}</code>	<i>AB</i>
Color fuchsia (same as magenta)	<code>color fuchsia {&lt;?&gt;}</code>	<i>AB</i>
Color yellow	<code>color yellow {&lt;?&gt;}</code>	<i>AB</i>
Color gray	<code>color gray {&lt;?&gt;}</code>	<i>AB</i>
Color lime	<code>color lime {&lt;?&gt;}</code>	<i>AB</i>
Color maroon	<code>color maroon {&lt;?&gt;}</code>	<i>AB</i>
Color navy	<code>color navy {&lt;?&gt;}</code>	<i>AB</i>
Color olive	<code>color olive {&lt;?&gt;}</code>	<i>AB</i>
Color purple	<code>color purple {&lt;?&gt;}</code>	<i>AB</i>
Color silver	<code>color silver {&lt;?&gt;}</code>	<i>AB</i>
Color teal	<code>color teal {&lt;?&gt;}</code>	<i>AB</i>
RGB colors	<code>color rgb R G B {&lt;?&gt;}</code>	<i>AB</i>
Hexadecimal colors	<code>color hex 000000 {&lt;?&gt;}</code>	<i>AB</i>
Color coral	<code>color coral {&lt;?&gt;}</code>	<i>AB</i>
Color midnight	<code>color midnightblue {&lt;?&gt;}</code>	<i>AB</i>
Color crimson	<code>color crimson {&lt;?&gt;}</code>	<i>AB</i>
Color violet	<code>color violet {&lt;?&gt;}</code>	<i>AB</i>
Color orange	<code>color orange {&lt;?&gt;}</code>	<i>AB</i>
Color orangered	<code>color orangered {&lt;?&gt;}</code>	<i>AB</i>
Color seagreen	<code>color seagreen {&lt;?&gt;}</code>	<i>AB</i>
Color indigo	<code>color indigo {&lt;?&gt;}</code>	<i>AB</i>
Color hotpink	<code>color hotpink {&lt;?&gt;}</code>	<i>AB</i>
Color lavender	<code>color lavender {&lt;?&gt;}</code>	<i>AB</i>

### Note

The font command changes the font type. The first placeholder is replaced with the name of the font and the second placeholder is replaced with your formula values or text. The default fonts are Serif, Sans, or Fixed. If you have added custom fonts to Math (see “Formula fonts” on page 26), then you can replace the first placeholder with the custom font name.



## Brackets

To access the icons used for entering markup language for bracket commands into the Formula Editor, select *Brackets* from the drop-down list at the top of the Elements dock.

Table 9: Bracket commands

Operation	Markup language	Example formula
Group brackets (not displayed in formula)	{<?>}	$AB$
Round brackets	(<?>)	$(AB)$
Left round bracket only	\(<?>	$(A$
Right round bracket only	<?>\)	$A)$
Square brackets	[<?>]	$[AB]$
Left square bracket only	\[<?>	$[A$
Right square bracket only	<?>\]	$A]$
Double square brackets	ldbracket <?> rdbracket	$\ AB\ $
Left double square bracket only	\ldbracket <?>	$\ A$
Right double square bracket only	<?> \rdbracket	$A\ $
Braces	lbrace <?> rbrace	$\{AB\}$
Left brace only	\lbrace <?>	$\{A$
Right brace only	<?> \rbrace	$A\}$
Angle brackets	langle <?> rangle	$\langle AB \rangle$
Left angle bracket only	\langle <?>	$\langle A$
Right angle bracket only	<?> \rangle	$A \rangle$
Operator brackets	langle <?> mline <?> rangle	$\langle AB CD \rangle$
Ceiling (upper half square brackets)	lceil <?> rceil	$\lceil AB \rceil$
Left ceiling only	\lceil <?>	$\lceil A$
Right ceiling only	<?> \rceil	$A \rceil$
Floor (lower half square brackets)	lfloor <?> rfloor	$\lfloor AB \rfloor$
Left floor only	\lfloor <?>	$\lfloor A$
Right floor only	<?> \rfloor	$A \rfloor$
Single lines	lline <?> rline	$ AB $
Left single line only	\lline <?>	$ A$
Right single line only	<?> \rline	$A $
Double lines	ldline <?> rdline	$\ AB\ $
Left double line only	\ldline <?>	$\ A$
Right double line only	<?> \rdline	$A\ $

Scalable round brackets	left ( <?> right )	$\left(\frac{A}{B}\right)$
Scalable left round bracket only	left ( <?> right none	$\left(\frac{A}{B}\right.$
Scalable right round bracket only	left none <?> right )	$\left.\frac{A}{B}\right)$
Scalable square brackets	left [ <?> right ]	$\left[\frac{A}{B}\right]$
Scalable left square bracket only	left [ <?> right none	$\left[\frac{A}{B}\right.$
Scalable right square bracket only	left none <?> right ]	$\left.\frac{A}{B}\right]$
Scalable double square brackets	left ldbracket <?> right rdbaracket	$\left[\left[\frac{A}{B}\right]\right]$
Scalable left double square bracket only	left ldbracket <?> right none	$\left[\left[\frac{A}{B}\right].\right]$
Scalable right double square bracket only	left none <?> right rdbaracket	$\left.\left[\frac{A}{B}\right]\right]$
Scalable braces	left lbrace <?> right rbrace	$\left\{\frac{A}{B}\right\}$
Scalable left brace only	left lbrace {<?>} right none	$\left\{\frac{A}{B}\right\.$
Scalable right brace only	left none {<?>} right rbrace	$\left.\frac{A}{B}\right\}$
Scalable angle brackets	left langle <?> right rangle	$\left\langle\frac{A}{B}\right\rangle$
Scalable left angle bracket only	left langle {<?>} right none	$\left\langle\frac{A}{B}\right\rangle.$
Scalable right angle bracket only	left none {<?>} right rangle	$\left.\frac{A}{B}\right\rangle$
Scalable operator brackets	left langle <?> mline <?> right none	$\left\langle\frac{A}{B}\middle \frac{C}{D}\right\rangle$
Scalable left operator bracket	left langle <?> mline <?> right none	$\left\langle\frac{A}{B}\middle \frac{C}{D}\right\rangle.$
Scalable right operator bracket	left none <?> mline <?> right rangle	$\left.\frac{A}{B}\middle \frac{C}{D}\right\rangle$
Scalable ceiling (upper half square brackets)	left lceil <?> right rceil	$\left\lceil\frac{A}{B}\right\rceil$

Scalable left ceiling	<code>left lceil &lt;?&gt; right none</code>	$\left\lceil \frac{A}{B} \right\rceil$
Scalable right ceiling	<code>left none &lt;?&gt; right rceil</code>	$\left\lceil \frac{A}{B} \right\rceil$
Scalable floor (lower half square brackets)	<code>left lfloor &lt;?&gt; right rfloor</code>	$\left\lfloor \frac{A}{B} \right\rfloor$
Scalable left floor	<code>left lfloor &lt;?&gt; right none</code>	$\left\lfloor \frac{A}{B} \right\rfloor$
Scalable right floor	<code>left none &lt;?&gt; right rfloor</code>	$\left\lfloor \frac{A}{B} \right\rfloor$
Scalable single lines	<code>left lline &lt;?&gt; right rline</code>	$\left  \frac{A}{B} \right $
Scalable left single line	<code>left lline &lt;?&gt; right none</code>	$\left  \frac{A}{B} \right $
Scalable right single line	<code>left none &lt;?&gt; right rline</code>	$\left  \frac{A}{B} \right $
Scalable double lines	<code>left ldline &lt;?&gt; right rdline</code>	$\left\  \frac{A}{B} \right\ $
Scalable left double line	<code>left ldline &lt;?&gt; right none</code>	$\left\  \frac{A}{B} \right\ $
Scalable right double line	<code>left none &lt;?&gt; right rdline</code>	$\left\  \frac{A}{B} \right\ $
Scalable top brace	<code>{&lt;?&gt;} overbrace {&lt;?&gt;}</code>	$\overset{D}{ABC}$
Scalable bottom brace	<code>{&lt;?&gt;} underbrace {&lt;?&gt;}</code>	$\underset{D}{ABC}$

## Formats

To access the icons used for entering markup language for format commands into the Formula Editor, select *Formats* from the drop-down list at the top of the Elements dock.

Table 10: Format commands

Operation	Markup language	Example formula
Power (superscript right)	<code>&lt;?&gt;^{&lt;?&gt;}</code> or <code>&lt;?&gt;sup{&lt;?&gt;}</code> or <code>&lt;?&gt;rsup{&lt;?&gt;}</code>	$20^{10}$
Subscript right	<code>&lt;?&gt;_{&lt;?&gt;}</code> or <code>&lt;?&gt;sub{&lt;?&gt;}</code> or <code>&lt;?&gt;rsub{&lt;?&gt;}</code>	$20_{10}$
Superscript left	<code>&lt;?&gt;lsup{&lt;?&gt;}</code>	$^{10}20$
Subscript left	<code>&lt;?&gt;lsub{&lt;?&gt;}</code>	$_{10}20$
Superscript center	<code>&lt;?&gt;csup{&lt;?&gt;}</code>	$^{10}20$

Subscript center	<code>&lt;?&gt;csub{&lt;?&gt;}</code>	$20_{10}$
New line	<code>newline</code>	$123$ $CD$
Small gap	<code>~</code>	$123\ 456$
Blank or large gap	<code>~</code>	$123\ 456$
No space (suppresses space between elements)	<code>nospace {&lt;?&gt;}</code>	$12+4+5$
Align left	<code>alignl &lt;?&gt;</code>	$ABC$ $D$
Align center	<code>alignc &lt;?&gt;</code>	$ABC$ $D$
Align right	<code>alignr &lt;?&gt;</code>	$ABC$ $D$
Vertical stack (2 elements)	<code>binom{&lt;?&gt;}{&lt;?&gt;}</code>	$AB$ $12$
Vertical stack (more than 2 elements)	<code>stack{&lt;?&gt; # &lt;?&gt; # &lt;?&gt;}</code>	$AB$ $12$ $CD$
Matrix stack	<code>matrix{&lt;?&gt; # &lt;?&gt; ## &lt;?&gt; # &lt;?&gt;}</code>	$AB\ 12$ $34\ CD$

### ✓ Note

By default, text characters are aligned to the center in a formula. Use the `alignl` and `alignr` commands to align text characters in a formula to the left or right when a formula has more than one line. You can also use the align commands in conjunction with the stack commands to align multi-line formulas on a specific formula element, for example, the equals sign (=).

## Others

To access the icons used for entering markup language for other commands into the Formula Editor, select *Others* from the drop-down list at the top of the Elements dock, or click the *Others* icon in the Elements dialog.

Table 11: Other commands

Operation	Markup language	Example formula
Placeholder	<code>&lt;?&gt;</code>	
Infinity	<code>infinity</code> or <code>infty</code>	$\infty$
Partial derivative or set margin	<code>partial</code>	$\partial$
Nabla vector operator	<code>nabla</code>	$\nabla$
Existential quantifier, there is at least one	<code>exists</code>	$\exists$
Existential quantifier, there does not exist	<code>notexists</code>	$\nexists$
Universal quantifier, for all	<code>forall</code>	$\forall$

H-bar constant	<code>hbar</code>	$\hbar$
Lambda bar	<code>lambdabar</code>	$\bar{\lambda}$
Real part of a complex number	<code>re</code>	$\Re$
Imaginary part of a complex number	<code>im</code>	$\Im$
Weierstrass p function	<code>wp</code>	$\wp$
Laplace transformation	<code>laplace</code>	$\mathcal{L}$
Left arrow	<code>leftarrow</code>	$\leftarrow$
Right arrow	<code>rightarrow</code>	$\rightarrow$
Up arrow	<code>uparrow</code>	$\uparrow$
Down arrow	<code>downarrow</code>	$\downarrow$
Ellipsis	<code>dotslow</code>	$\dots$
Math axis ellipsis	<code>dotsaxis</code>	$\cdots$
Vertical ellipsis	<code>dotsvert</code>	$\vdots$
Upward diagonal ellipsis	<code>dotsup</code> or <code>dotsdiag</code>	$\ddots$
Downward diagonal ellipsis	<code>dotsdown</code>	$\doteq$
Back epsilon	<code>backepsilon</code>	$\epsilon$

## Greek characters

Greek characters are normally entered into a formula using the Symbols dialog (see “Greek characters” on page 15 for more information). However, if you know the name of the Greek character, you can type a percentage sign (%) followed by the name of the Greek character into the Formula Editor.

For uppercase Greek characters, type the name using uppercase characters, for example `%BETA`  $\text{B}$  (see Table 12 for a full list of uppercase Greek characters). For lowercase Greek characters, type the name using lowercase characters, for example `%beta`  $\beta$  (see Table 13 for a full list of lowercase Greek characters)

Italic Greek characters can also be entered into a formula by typing the character *i* after the percentage sign (%) and before the name of the Greek character, for example, `%iPI`  $\textit{\Pi}$  for uppercase and `%ipi` for lowercase  $\textit{\pi}$ . See Table 14 for a full list of italic uppercase Greek characters and Table 15 for a full list of italic lowercase Greek characters.

### Note

In localized versions of LibreOffice, the names of Greek characters are also localized. If a document is not localized to the same language, then the names of Greek characters in the following tables may not work correctly. If this happens, you can use the Symbols dialog to select the required Greek character. When selected in the Symbols dialog, the name of the Greek character is displayed at the bottom of the Symbols dialog in the correct language. See “Greek characters” on page 15 for more information on Greek characters and the Symbols dialog.

Table 12: Uppercase Greek characters

<code>%ALPHA</code>	A	<code>%BETA</code>	B	<code>%GAMMA</code>	Γ	<code>%DELTA</code>	Δ
<code>%EPSILON</code>	E	<code>%ZETA</code>	Z	<code>%ETA</code>	H	<code>%THETA</code>	Θ
<code>%IOTA</code>	I	<code>%KAPPA</code>	K	<code>%LAMBDA</code>	Λ	<code>%MU</code>	M
<code>%NU</code>	N	<code>%XI</code>	Ξ	<code>%OMICRON</code>	O	<code>%PI</code>	Π
<code>%RHO</code>	P	<code>%SIGMA</code>	Σ	<code>%TAU</code>	T	<code>%UPSILON</code>	Υ
<code>%PHI</code>	Φ	<code>%CHI</code>	X	<code>%PSI</code>	Ψ	<code>%OMEGA</code>	Ω

Table 13: Lowercase Greek characters

<code>%alpha</code>	α	<code>%beta</code>	β	<code>%gamma</code>	γ	<code>%delta</code>	δ
<code>%varepsilon</code>	ε	<code>%zeta</code>	ζ	<code>%eta</code>	η	<code>%theta</code>	θ
<code>%iota</code>	ι	<code>%kappa</code>	κ	<code>%lambda</code>	λ	<code>%mu</code>	μ
<code>%nu</code>	ν	<code>%xi</code>	ξ	<code>%omicron</code>	ο	<code>%pi</code>	π
<code>%rho</code>	ρ	<code>%varsigma</code>	ς	<code>%sigma</code>	σ	<code>%tau</code>	τ
<code>%upsilon</code>	υ	<code>%varphi</code>	φ	<code>%chi</code>	χ	<code>%psi</code>	ψ
<code>%omega</code>	ω	<code>%vartheta</code>	ϑ	<code>%phi</code>	φ	<code>%varpi</code>	ϖ
<code>%varrho</code>	ϱ	<code>%epsilon</code>	ε				

Table 14: Uppercase italic Greek characters

<code>%iALPHA</code>	<i>A</i>	<code>%iBETA</code>	<i>B</i>	<code>%iGAMMA</code>	<i>Γ</i>	<code>%iDELTA</code>	<i>Δ</i>
<code>%iEPSILON</code>	<i>E</i>	<code>%iZETA</code>	<i>Z</i>	<code>%iETA</code>	<i>H</i>	<code>%iTHETA</code>	<i>Θ</i>
<code>%iIOTA</code>	<i>I</i>	<code>%iKAPPA</code>	<i>K</i>	<code>%iLAMBDA</code>	<i>Λ</i>	<code>%iMU</code>	<i>M</i>
<code>%iNU</code>	<i>N</i>	<code>%iXI</code>	<i>Ξ</i>	<code>%iOMICRON</code>	<i>O</i>	<code>%iPI</code>	<i>Π</i>
<code>%iRHO</code>	<i>P</i>	<code>%iSIGMA</code>	<i>Σ</i>	<code>%iTAU</code>	<i>T</i>	<code>%iUPSILON</code>	<i>Υ</i>
<code>%iPHI</code>	<i>Φ</i>	<code>%iCHI</code>	<i>X</i>	<code>%iPSI</code>	<i>Ψ</i>	<code>%iOMEGA</code>	<i>Ω</i>

Table 15: Lowercase italic Greek characters

<code>%ialpha</code>	<i>α</i>	<code>%ibeta</code>	<i>β</i>	<code>%igamma</code>	<i>γ</i>	<code>%idelta</code>	<i>δ</i>
<code>%ivarepsilon</code>	<i>ε</i>	<code>%izeta</code>	<i>ζ</i>	<code>%ieta</code>	<i>η</i>	<code>%itheta</code>	<i>θ</i>
<code>%iiota</code>	<i>ι</i>	<code>%ikappa</code>	<i>κ</i>	<code>%ilambda</code>	<i>λ</i>	<code>%imu</code>	<i>μ</i>
<code>%inu</code>	<i>ν</i>	<code>%ixi</code>	<i>ξ</i>	<code>%iomicron</code>	<i>ο</i>	<code>%ipi</code>	<i>π</i>
<code>%irho</code>	<i>ρ</i>	<code>%ivarsigma</code>	<i>ς</i>	<code>%isigma</code>	<i>σ</i>	<code>%itau</code>	<i>τ</i>
<code>%iupsilon</code>	<i>υ</i>	<code>%ivarphi</code>	<i>φ</i>	<code>%ichi</code>	<i>χ</i>	<code>%ipsi</code>	<i>ψ</i>
<code>%iomega</code>	<i>ω</i>	<code>%ivartheta</code>	<i>ϑ</i>	<code>%iphi</code>	<i>φ</i>	<code>%ivarpi</code>	<i>ϖ</i>
<code>%ivarrho</code>	<i>ϱ</i>	<code>%iepsilon</code>	<i>ε</i>				

## Special characters

Special characters are normally entered into a formula using the Symbols dialog (see “Symbols dialog” on page 16 and “Catalog customization” on page 50 for more information). However, if you know the name of the special character, you can type a percentage sign (%) followed by the name of the special character into the Formula Editor. Table 16 Shows the full list of special characters that are available in LibreOffice.

## ✓ Note

In localized versions of LibreOffice, the names of special characters are also localized. If a document is not localized to the same language, then the names of special characters in the following table may not work correctly. If this happens, you can use the Symbols dialog to select the required special character. When selected in the Symbols dialog, the name of the special character is displayed at the bottom of the Symbols dialog in the correct language.

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Table 16: Special characters

<code>%perthousand</code>	‰	<code>%tendto</code>	→
<code>%noelement</code>	∉	<code>%infinite</code>	∞
<code>%angle</code>	∠	<code>%and</code>	∧
<code>%or</code>	∨	<code>%notequal</code>	≠
<code>%identical</code>	≡	<code>%strictlylessthan</code>	≪
<code>%strictlygreaterthan</code>	≫		

## Reserved words

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A reserved word is a word that is used by LibreOffice as a command in the Math markup language and it cannot be used as a variable name or entered into a formula as text. However, if you want to use a reserved word as text in a formula then you must place the reserved word between double quotes.

For example, consider that you want to use the word “purple” in a formula and you do not want the formula elements to be changed to the color purple. If you simply type `A purple B` in the Formula Editor, the resulting formula is  $A \text{?} B$ , which is incorrect and the error is shown by the inverted question mark. To correct this error, type `A "purple" B` in the Formula Editor using double quotes each side of the word purple and the resulting correct formula is  $A \text{purple} B$ .

If you want the word “purple” written in italic, as you would normally have with variables, you can type `A italic{ "purple" } B` in the formula editor, which will result in  $A \textit{purple} B$ .

The reserved words used in Math are listed in the above tables for commands in markup language.