

Help: Wiki Math

The Wiki supports [LaTeX](#) markup:

$$pi = \frac{3}{4}\sqrt{3} + 24 \int_0^{1/4} \sqrt{x - x^2} dx$$

Mathematical Formula ([LaTeX](#)) can be inserted into text like this:

```
<math>Insert formula here</math>
```

For example:

```
<math>\alpha^2 + \beta^2 = 1</math>
```

...displays $?^2 + ?^2 = 1$

Displaying a Formula

The Wiki uses a subset of [TeX](#) markup, including some extensions from [LaTeX](#) and [AMSLaTeX](#), for mathematical formulae. It generates either PNG images or simple HTML markup, depending on the complexity of the expression. While it can generate [MathML](#), it is not currently used due to limited browser support. As browsers become more advanced and support for [MathML](#) becomes more wide-spread, this could be the preferred method of output as images have very real disadvantages.

Syntax

Math markup goes inside `$...$`.

Pros of HTML

1. In-line HTML formulae always align properly with the rest of the HTML text.
2. The formula's background, font size and face match the rest of HTML contents and the appearance respects CSS and browser settings.
3. Pages using HTML will load faster.

Pros of [TeX](#)

1. [TeX](#) is semantically superior to HTML. In [TeX](#), “x” means “mathematical variable x”, whereas in HTML “x” could mean anything. Information has been irrevocably lost.
2. [TeX](#) has been specifically designed for typesetting formulae, so input is easier and more natural, and output is more aesthetically pleasing.
3. One consequence of point 1 is that [TeX](#) can be transformed into HTML, but not vice-versa. This means that on the server side we can always transform a formula, based on its complexity and location within the text, user preferences, type of browser, etc. Therefore, where possible, all the benefits of HTML can be retained, together with the benefits of [TeX](#). It’s true that the current situation is not ideal, but that’s not a good reason to drop information/contents. It’s more a reason to help improve the situation.
4. Another consequence of point 1 is that [TeX](#) can be converted to MathML for browsers which support it, thus keeping its semantics and allowing it to be rendered vectorially.
5. When writing in [TeX](#), editors need not worry about whether this or that version of this or that browser supports this or that HTML entity. The burden of these decisions is put on the server. This doesn’t hold for HTML formulae, which can easily end up being rendered wrongly or differently from the editor’s intentions on a different browser.
6. [TeX](#) is the preferred text formatting language of most professional mathematicians, scientists, and engineers. It is easier to persuade them to contribute if they can write in [TeX](#).

Example Formulas

The following are a few examples of formulas:

```
<math>\sqrt{1-e^2}</math>
```

$$\sqrt{1 - e^2}$$

```
<math>\overbrace{1+2+\cdots+100}^{5050}</math>
```

$$\overbrace{1 + 2 + \cdots + 100}^{5050}$$

```
<math>ax^2 + bx + c = 0</math>
```

$$ax^2 + bx + c = 0$$

`$\int_{-N}^N e^x \, dx$`

$$\int_{-N}^N e^x dx$$

Functions, symbols, special characters

Accents/Diacritics

`\acute{a}` `\grave{a}` `\hat{a}` `\tilde{a}` `\breve{a}` *á à â ã ä*
`\check{a}` `\bar{a}` `\ddot{a}` `\dot{a}` *ǎ ā ä à*

Standard functions

`\sin a` `\cos b` `\tan c` `\sec d` `\csc e` `\cot f` *sin a cos b tan c sec d csc e cot f*
`\arcsin h` `\arccos i` `\arctan j` *arcsin h arccos i arctan j*
`\sinh k` `\cosh l` `\tanh m` `\coth n` *sinh k cosh l tanh m coth n*
`\operatorname{sh}` `\operatorname{ch}` `\operatorname{th}` `\operatorname{th}` `\operatorname{th}` `\operatorname{th}` *sh o ch p th q*
`\operatorname{arsinh}` `\operatorname{arcosh}` `\operatorname{artanh}` `\operatorname{artanh}` `\operatorname{artanh}` `\operatorname{artanh}` *arsinh r arcosh s artanh t*
`\lim u` `\limsup v` `\liminf w` `\min x` `\max y` *lim u lim sup v lim inf w min x max y*
`\inf z` `\sup a` `\exp b` `\ln c` `\lg d` `\log e` `\log_{10} f` `\ker g` *inf z sup a exp b ln c lg d log e log₁₀ f ker g*
`\deg h` `\gcd i` `\Pr j` `\det k` `\hom l` `\arg m` `\dim n` *deg h gcd i Pr j det k hom l arg m dim n*

Modular arithmetic

`s_k \equiv 0 \pmod{m}` *s_k ≡ 0 (mod m)*
`a \bmod b` *a mod b*

Derivatives

`\nabla` `\partial x` `\, dx` `\, \dot{x}` `\, \ddot{y}` `\frac{dy}{dx}` `\frac{\partial^2 y}{\partial x_1 \partial x_2}` $\nabla \partial x \, dx \, \dot{x} \, \ddot{y} \, dy/dx \frac{dy}{dx} \frac{\partial^2 y}{\partial x_1 \partial x_2}$

$x_1, \partial x_2$

Sets

<code>\forall</code>	<code>\exists</code>	<code>\empty</code>	<code>\emptyset</code>	<code>\varnothing</code>	$\forall \exists \emptyset$					
<code>\in</code>	<code>\ni</code>	<code>\notin</code>	<code>\in</code>	<code>\notin</code>	<code>\subset</code>	<code>\subseteq</code>	<code>\supset</code>	<code>\supseteq</code>	<code>\supseteq</code>	$\in \ni \notin \subset \subseteq \supset \supseteq$
<code>\cap</code>	<code>\bigcap</code>	<code>\cup</code>	<code>\bigcup</code>	<code>\biguplus</code>	<code>\setminus</code>	<code>\setminus</code>	<code>\setminus</code>	<code>\setminus</code>	<code>\setminus</code>	$\cap \bigcap \cup \bigcup \biguplus \setminus$
<code>\sqsubset</code>	<code>\sqsubseteq</code>	<code>\sqsupset</code>	<code>\sqsupseteq</code>	<code>\sqsubset</code>	<code>\sqsubseteq</code>	<code>\sqsupset</code>	<code>\sqsupseteq</code>	<code>\sqsubset</code>	<code>\sqsubseteq</code>	$\sqsubset \sqsubseteq \sqsupset \sqsupseteq$
<code>\sqcap</code>	<code>\sqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	<code>\bigsqcup</code>	$\sqcap \sqcup \bigsqcup$

Operators

<code>+</code>	<code>\oplus</code>	<code>\bigoplus</code>	<code>\pm</code>	<code>\mp</code>	<code>-</code>	$+ \oplus \bigoplus \pm \mp -$
<code>\times</code>	<code>\otimes</code>	<code>\bigotimes</code>	<code>\cdot</code>	<code>\circ</code>	<code>\bullet</code>	$\times \otimes \bigotimes \cdot \circ \bullet$
<code>\star</code>	<code>*</code>	<code>\div</code>	<code>\frac{1}{2}</code>	<code>\frac{1}{2}</code>	<code>\frac{1}{2}</code>	$\star * / \div \frac{1}{2}$

Logic

<code>\land</code> (or <code>\and</code>)	<code>\wedge</code>	<code>\bigwedge</code>	<code>\bar{q}</code>	<code>\to</code>	<code>p</code>	$\wedge \bigwedge \bar{q} \rightarrow p$
<code>\lor</code> (or <code>\vee</code>)	<code>\bigvee</code>	<code>\lnot</code>	<code>\neg</code>	<code>q</code>	<code>\And</code>	$\vee \bigvee \lnot \neg q \ \&$

Root

<code>\sqrt{2}</code>	<code>\sqrt[n]{x}</code>	$\sqrt{2} \sqrt[n]{x}$
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Relations








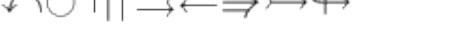







<code>\sim</code>	<code>\approx</code>	<code>\simeq</code>	<code>\cong</code>	<code>\dot{=}</code>	$\sim \approx \simeq \cong \overset{\cdot}{=}$					
<code>\overset{\{ \underset{\{\mathrm{def}\}\}\}\{=}</code>	<code>\le</code>	<code>\ll</code>	<code>\gg</code>	<code>\ge</code>	<code>></code>	<code>\equiv</code>	<code>\neq</code>	or <code>\neq</code>	<code>\alpha</code>	$\le \ll \gg \ge > \equiv \neq \alpha$

Geometric

<code>\Diamond</code>	<code>\Box</code>	<code>\triangle</code>	<code>\angle</code>	<code>\perp</code>	<code>\mid</code>	<code>\nmid</code>	<code>\ </code>	<code>45^\circ</code>	$\diamond \square \triangle \angle \perp \mid \nmid \ 45^\circ$
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Arrows










<code>\leftarrow</code> (or <code>\gets</code>)	<code>\rightarrow</code> (or <code>\to</code>)	$\leftarrow \rightarrow$				
<code>\nleftarrow</code>	<code>\nrightarrow</code>	<code>\leftleftarrows</code>	<code>\leftrightarrows</code>	<code>\rightleftarrows</code>	<code>\rightrightarrows</code>	$\nleftarrow \nrightarrow \leftleftarrows \leftrightarrows \rightleftarrows \rightrightarrows$

<code>\longleftarrow \longrightarrow \longleftrightarrow</code>	
<code>\Leftarrow \Rightarrow \Leftrightarrow</code>	
<code>\nrightarrow \leftarrow \leftrightarrow</code>	
<code>\Longleftarrow \longrightarrow</code>	
<code>\Leftrightarrow</code> (or <code>\iff</code>)	
<code>\uparrow \downarrow \updownarrow \Uparrow</code>	
<code>\Downarrow \Updownarrow \nearrow \searrow</code>	
<code>\swarrow \nwarrow</code>	
<code>\rightharpoonup \rightharpoondown</code>	
<code>\leftharpoonup \leftharpoondown \upharpoonleft</code>	
<code>\upharpoonright \downharpoonleft</code>	
<code>\downharpoonright \rightleftharpoons</code>	
<code>\leftrightharpoons</code>	
<code>\curvearrowleft \circlearrowleft \Lsh</code>	
<code>\upuparrows \rightrightarrows \rightleftarrows</code>	
<code>\Rrightarrow \rightarrowtail \looparrowright</code>	
<code>\curvearrowright \circlearrowright \Rsh</code>	
<code>\downdownarrows \leftleftarrows \leftrightarrows</code>	
<code>\Lleftarrow \leftarrowtail \looparrowleft</code>	
<code>\mapsto \longmapsto \hookrightarrow</code>	
<code>\hookleftarrow \multimap \leftrightsquigarrow</code>	
<code>\rightsquigarrow</code>	

Special

<code>\And \eth \S \P \% \dagger \ddagger \ldots</code>	
<code>\cdots</code>	
<code>\smile \frown \wr \triangleleft \triangleright \infty</code>	
<code>\bot \top</code>	
<code>\vdash \Vdash \Vdash \models \VVert \rVert</code>	
<code>\imath \hbar</code>	
<code>\ell \mathbb{U} \mathbb{R} \mathbb{S} \mathbb{C}</code>	
<code>\diamondsuit \heartsuit \clubsuit \spadesuit</code>	
<code>\Game \flat \natural \sharp</code>	

Unsorted (new stuff)

<code>\vartriangle \triangledown \lozenge \circledS</code>	
<code>\measuredangle \nexists \Bbbk \backprime</code>	
<code>\blacktriangle \blacktriangledown</code>	
<code>\blacksquare \blacklozenge \bigstar</code>	
<code>\sphericalangle \diagup \diagdown \dotplus</code>	
<code>\Cap \Cup \barwedge</code>	
<code>\veebar \doublebarwedge \boxminus \boxtimes</code>	
<code>\boxdot \boxplus \divideontimes \ltimes \rtimes</code>	
<code>\leftthreetimes</code>	

<code>\rightthreetimes \curlywedge \curlyvee</code>	
<code>\circleddash \circledast \circledcirc \centerdot</code>	
<code>\intercal \leqq \leqslant</code>	
<code>\leqslantless \lessapprox \approxeq \lessdot \lll</code>	
<code>\lessgtr \lesseqgtr \lesseqqgtr \doteqdot</code>	
<code>\risingdotseq</code>	
<code>\fallingdotseq \backsimeq \backsimeq \subseteqq</code>	
<code>\Subset \preccurlyeq \curlyeqprec \precsim</code>	
<code>\precapprox \vartriangleleft</code>	
<code>\Vdash \bumpeq \Bumpeq \geqq \geqslant</code>	
<code>\eqslantgtr \gtrsim \gtrapprox \eqsim \gtrdot</code>	
<code>\ggg \gtrless \gtreqless \gtreqqless \eqcirc</code>	
<code>\circeq \triangleq \thicksim \thickapprox</code>	
<code>\supseteqq</code>	
<code>\Supset \succcurlyeq \curlyeqsucc \succsim</code>	
<code>\succapprox \vartriangleright \shortmid</code>	
<code>\shortparallel \between \pitchfork</code>	
<code>\varpropto \blacktriangleleft \therefore</code>	
<code>\backepsilon \blacktriangleright \because</code>	
<code>\nleqslant \nleqq \lneq \lneqq</code>	
<code>\lvertneqq \lnsim \lnapprox \nprec \npreceq</code>	
<code>\preceq \precsim \precnapprox \nsim</code>	
<code>\nshortmid</code>	
<code>\nvdash \Ndash \ntriangleleft \ntrianglelefteq</code>	
<code>\nsubseteq \nsubseteqq \varsubsetneq</code>	
<code>\subsetneqq \varsubsetneqq \ngtr</code>	
<code>\subseteq</code>	
<code>\ngeqslant \ngeqq \gneq \gneqq \gvertneqq</code>	
<code>\gnsim \gnapprox \nsucc \nsucceq \succneqq</code>	
<code>\succnsim \succnapprox \ncong \nshortparallel</code>	
<code>\nparallel \nVDash \nVDash \ntriangleright</code>	
<code>\ntrianglerigiteq \nsupseteq</code>	
<code>\nsupseteqq \varsupsetneq \supsetneqq</code>	
<code>\varsupsetneqq</code>	
<code>\jmath \surd \ast \uplus \diamond \bigtriangleup</code>	
<code>\bigtriangledown \ominus</code>	
<code>\oslash \odot \bigcirc \amalg \prec \succ</code>	
<code>\preceq \succeq</code>	
<code>\dashv \asymp \doteq \parallel</code>	
<code>\ulcorner \urcorner \llcorner \lrcorner</code>	

Larger Expressions

Parentesizing big expressions, brackets, bars

Feature	Syntax	How it looks rendered
Bad	<code>(\frac{1}{2})</code>	$\left(\frac{1}{2}\right)$
Good	<code>\left (\frac{1}{2} \right)</code>	$\left(\frac{1}{2}\right)$

You can use various delimiters with `\left` and `\right`:

Feature	Syntax	How it looks rendered
Parentheses	<code>\left (\frac{a}{b} \right)</code>	$\left(\frac{a}{b}\right)$
Brackets	<code>\left [\frac{a}{b} \right] \quad \left \lbrack \frac{a}{b} \right \rbrack</code>	$\left[\frac{a}{b}\right] \quad \left[\frac{a}{b}\right]$
Braces	<code>\left { \frac{a}{b} \right } \quad \left \lbrace \frac{a}{b} \right \rbrace</code>	$\left\{\frac{a}{b}\right\} \quad \left\{\frac{a}{b}\right\}$
Angle brackets	<code>\left \langle \frac{a}{b} \right \rangle</code>	$\left\langle\frac{a}{b}\right\rangle$
Bars and double bars	<code>\left \frac{a}{b} \right \vert \left \lvert \frac{c}{d} \right \rvert</code>	$\left \frac{a}{b}\right \left \frac{c}{d}\right $
Floor and ceiling functions:	<code>\left \lfloor \frac{a}{b} \right \rfloor \left \lceil \frac{c}{d} \right \rceil</code>	$\left\lfloor\frac{a}{b}\right\rfloor \left\lceil\frac{c}{d}\right\rceil$
Slashes and backslashes	<code>\left / \frac{a}{b} \right \backslash</code>	$\left/\frac{a}{b}\backslash$
Up, down and up-down arrows	<code>\left \uparrow \frac{a}{b} \right \downarrow \quad \left \Uparrow \frac{a}{b} \right \Downarrow \quad \left \updownarrow \frac{a}{b} \right \Updownarrow</code>	$\left\uparrow\frac{a}{b}\right\downarrow \quad \left\Uparrow\frac{a}{b}\right\Downarrow \quad \left\updownarrow\frac{a}{b}\right\Updownarrow$
Delimiters can be mixed, as long as <code>\left</code> and <code>\right</code> match	<code>\left [0,1 \right) \left \langle \psi \right \lvert</code>	$[0, 1) \langle\psi\rvert$
Use <code>\left.</code> and <code>\right.</code> if you don't want a delimiter to appear:	<code>\left . \frac{A}{B} \right . \to X</code>	$\frac{A}{B} \rightarrow X$
Size of the delimiters	<code>\big(\Big(\bigg(\Bigg(\dots \Bigg) \bigg) \Big) \big)</code>	$\left(\left(\left(\left(\dots\right)\right)\right)\right)$
.	<code>\big\{ \Big\{ \bigg\{ \Bigg\{ \dots \Bigg\} \bigg\} \Big\} \big\}</code>	$\left\{\left\{\left\{\left\{\dots\right\}\right\}\right\}\right\}$

.	<code>\big \Big \bigg \Bigg \dots</code> <code>\Bigg \bigg \Big \big </code>	
.	<code>\big\lfloor \Big\lfloor \bigg\lfloor</code> <code>\Bigg\lfloor \dots \Bigg\rceil</code> <code>\bigg\rceil \Big\rceil \big\rceil</code>	
.	<code>\big\uparrow \Big\uparrow</code> <code>\bigg\uparrow \Bigg\uparrow</code> <code>\dots \Bigg\downarrow</code> <code>\bigg\downarrow</code> <code>\Big\downarrow</code> <code>\big\downarrow</code>	
.	<code>\big\updownarrow</code> <code>\Big\updownarrow</code> <code>\bigg\updownarrow</code> <code>\Bigg\updownarrow \dots</code> <code>\Bigg\Updownarrow</code> <code>\bigg\Updownarrow</code> <code>\Big\Updownarrow</code> <code>\big\Updownarrow</code>	
.	<code>\big / \Big / \bigg / \Bigg / \dots</code> <code>\Bigg\backslash \bigg\backslash</code> <code>\Big\backslash \big\backslash</code>	

Alphabets and typefaces

Texvc cannot render arbitrary Unicode characters. Those it can handle can be entered by the expressions below. For others, such as Cyrillic, they can be entered as Unicode or HTML entities in running text, but cannot be used in displayed formulas.

Greek alphabet

<code>\Alpha \Beta \Gamma \Delta \Epsilon \Zeta</code>	ΑΒΓΔΕΖ
<code>\Eta \Theta \Iota \Kappa \Lambda \Mu</code>	ΗΘΙΚΑΜ
<code>\Nu \Xi \Pi \Rho \Sigma \Tau</code>	ΝΞΠΡΣΤ
<code>\Upsilon \Phi \Chi \Psi \Omega</code>	ΥΦΧΨΩ
<code>\alpha \beta \gamma \delta \epsilon \zeta</code>	αβγδεζ
<code>\eta \theta \iota \kappa \lambda \mu</code>	ηθικλμ
<code>\nu \xi \pi \rho \sigma \tau</code>	νξπρστ
<code>\upsilon \phi \chi \psi \omega</code>	υφχψω
<code>\varepsilon \digamma \vartheta \kappa</code>	εϜϑκ
<code>\varpi \varrho \varsigma \varphi</code>	ωρςφ

Blackboard Bold/Scripts

<code>\mathbb{A} \mathbb{B} \mathbb{C} \mathbb{D}</code>	ΑΒCDEF
----------------------------------------------------------	--------

$\backslash\mathbb{E}$ $\backslash\mathbb{F}$ $\backslash\mathbb{G}$
 $\backslash\mathbb{H}$ $\backslash\mathbb{I}$ $\backslash\mathbb{J}$ $\backslash\mathbb{K}$ HIJKLM
 $\backslash\mathbb{L}$ $\backslash\mathbb{M}$
 $\backslash\mathbb{N}$ $\backslash\mathbb{O}$ $\backslash\mathbb{P}$ $\backslash\mathbb{Q}$ NOPQRST
 $\backslash\mathbb{R}$ $\backslash\mathbb{S}$ $\backslash\mathbb{T}$
 $\backslash\mathbb{U}$ $\backslash\mathbb{V}$ $\backslash\mathbb{W}$ $\backslash\mathbb{X}$ UVWXYZ
 $\backslash\mathbb{Y}$ $\backslash\mathbb{Z}$

boldface (vectors)

$\backslash\mathbf{A}$ $\backslash\mathbf{B}$ $\backslash\mathbf{C}$ $\backslash\mathbf{D}$ ABCDEFG
 $\backslash\mathbf{E}$ $\backslash\mathbf{F}$ $\backslash\mathbf{G}$
 $\backslash\mathbf{H}$ $\backslash\mathbf{I}$ $\backslash\mathbf{J}$ $\backslash\mathbf{K}$ HIJKLM
 $\backslash\mathbf{L}$ $\backslash\mathbf{M}$
 $\backslash\mathbf{N}$ $\backslash\mathbf{O}$ $\backslash\mathbf{P}$ $\backslash\mathbf{Q}$ NOPQRST
 $\backslash\mathbf{R}$ $\backslash\mathbf{S}$ $\backslash\mathbf{T}$
 $\backslash\mathbf{U}$ $\backslash\mathbf{V}$ $\backslash\mathbf{W}$ $\backslash\mathbf{X}$ UVWXYZ
 $\backslash\mathbf{Y}$ $\backslash\mathbf{Z}$
 $\backslash\mathbf{a}$ $\backslash\mathbf{b}$ $\backslash\mathbf{c}$ $\backslash\mathbf{d}$ abcdefg
 $\backslash\mathbf{e}$ $\backslash\mathbf{f}$ $\backslash\mathbf{g}$
 $\backslash\mathbf{h}$ $\backslash\mathbf{i}$ $\backslash\mathbf{j}$ $\backslash\mathbf{k}$ hijklm
 $\backslash\mathbf{l}$ $\backslash\mathbf{m}$
 $\backslash\mathbf{n}$ $\backslash\mathbf{o}$ $\backslash\mathbf{p}$ $\backslash\mathbf{q}$ nopqrst
 $\backslash\mathbf{r}$ $\backslash\mathbf{s}$ $\backslash\mathbf{t}$
 $\backslash\mathbf{u}$ $\backslash\mathbf{v}$ $\backslash\mathbf{w}$ $\backslash\mathbf{x}$ uvwxyz
 $\backslash\mathbf{y}$ $\backslash\mathbf{z}$
 $\backslash\mathbf{0}$ $\backslash\mathbf{1}$ $\backslash\mathbf{2}$ $\backslash\mathbf{3}$ 01234
 $\backslash\mathbf{4}$
 $\backslash\mathbf{5}$ $\backslash\mathbf{6}$ $\backslash\mathbf{7}$ $\backslash\mathbf{8}$ 56789
 $\backslash\mathbf{9}$

Boldface (greek)

$\backslash\boldsymbol{\Alpha}$ $\backslash\boldsymbol{\Beta}$ ABΓΔEZ
 $\backslash\boldsymbol{\Gamma}$ $\backslash\boldsymbol{\Delta}$
 $\backslash\boldsymbol{\Epsilon}$ $\backslash\boldsymbol{\Zeta}$
 $\backslash\boldsymbol{\Eta}$ $\backslash\boldsymbol{\Theta}$ HΘIKΛM
 $\backslash\boldsymbol{\Iota}$ $\backslash\boldsymbol{\Kappa}$
 $\backslash\boldsymbol{\Lambda}$ $\backslash\boldsymbol{\Mu}$
 $\backslash\boldsymbol{\Nu}$ $\backslash\boldsymbol{\Xi}$ NΞΠΡΣΤ
 $\backslash\boldsymbol{\Pi}$ $\backslash\boldsymbol{\Rho}$
 $\backslash\boldsymbol{\Sigma}$ $\backslash\boldsymbol{\Tau}$
 $\backslash\boldsymbol{\Upsilon}$ $\backslash\boldsymbol{\Phi}$ ΥΦΧΨΩ
 $\backslash\boldsymbol{\Chi}$ $\backslash\boldsymbol{\Psi}$
 $\backslash\boldsymbol{\Omega}$
 $\backslash\boldsymbol{\alpha}$ $\backslash\boldsymbol{\beta}$ αβγδεζ
 $\backslash\boldsymbol{\gamma}$ $\backslash\boldsymbol{\delta}$
 $\backslash\boldsymbol{\epsilon}$ $\backslash\boldsymbol{\zeta}$
 $\backslash\boldsymbol{\eta}$ $\backslash\boldsymbol{\theta}$ ηθικλμ
 $\backslash\boldsymbol{\iota}$ $\backslash\boldsymbol{\kappa}$

<code>\boldsymbol{\lambda}</code> <code>\boldsymbol{\mu}</code>	
<code>\boldsymbol{\nu}</code> <code>\boldsymbol{\xi}</code>	<i>νξ</i>
<code>\boldsymbol{\pi}</code> <code>\boldsymbol{\rho}</code>	<i>πρ</i>
<code>\boldsymbol{\sigma}</code> <code>\boldsymbol{\tau}</code>	<i>στ</i>
<code>\boldsymbol{\upsilon}</code> <code>\boldsymbol{\phi}</code>	<i>υφ</i>
<code>\boldsymbol{\chi}</code> <code>\boldsymbol{\psi}</code>	<i>χψ</i>
<code>\boldsymbol{\omega}</code>	<i>ω</i>
<code>\boldsymbol{\varepsilon}</code>	<i>ε</i>
<code>\boldsymbol{\digamma}</code> <code>\boldsymbol{\vartheta}</code>	<i>Ϝϑ</i>
<code>\boldsymbol{\varkappa}</code>	<i>Ϝ</i>
<code>\boldsymbol{\varpi}</code> <code>\boldsymbol{\varrho}</code>	<i>ϖϗ</i>
<code>\boldsymbol{\varsigma}</code> <code>\boldsymbol{\varphi}</code>	<i>Ϙϙ</i>
Italics	
<code>\mathit{A}</code> <code>\mathit{B}</code> <code>\mathit{C}</code> <code>\mathit{D}</code>	<i>ABCDEF</i>
<code>\mathit{E}</code> <code>\mathit{F}</code> <code>\mathit{G}</code>	<i>HIJKL</i>
<code>\mathit{H}</code> <code>\mathit{I}</code> <code>\mathit{J}</code> <code>\mathit{K}</code>	<i>MNOPQR</i>
<code>\mathit{L}</code> <code>\mathit{M}</code>	<i>STUVW</i>
<code>\mathit{N}</code> <code>\mathit{O}</code> <code>\mathit{P}</code> <code>\mathit{Q}</code>	<i>XYZ</i>
<code>\mathit{R}</code> <code>\mathit{S}</code> <code>\mathit{T}</code>	<i>abc</i>
<code>\mathit{U}</code> <code>\mathit{V}</code> <code>\mathit{W}</code> <code>\mathit{X}</code>	<i>defg</i>
<code>\mathit{Y}</code> <code>\mathit{Z}</code>	<i>hijklm</i>
<code>\mathit{a}</code> <code>\mathit{b}</code> <code>\mathit{c}</code> <code>\mathit{d}</code>	<i>nopqrst</i>
<code>\mathit{e}</code> <code>\mathit{f}</code> <code>\mathit{g}</code>	<i>vwxyz</i>
<code>\mathit{h}</code> <code>\mathit{i}</code> <code>\mathit{j}</code> <code>\mathit{k}</code>	<i>01234</i>
<code>\mathit{l}</code> <code>\mathit{m}</code>	<i>56789</i>
<code>\mathit{n}</code> <code>\mathit{o}</code> <code>\mathit{p}</code> <code>\mathit{q}</code>	
<code>\mathit{r}</code> <code>\mathit{s}</code> <code>\mathit{t}</code>	
<code>\mathit{u}</code> <code>\mathit{v}</code> <code>\mathit{w}</code> <code>\mathit{x}</code>	
<code>\mathit{y}</code> <code>\mathit{z}</code>	
<code>\mathit{0}</code> <code>\mathit{1}</code> <code>\mathit{2}</code> <code>\mathit{3}</code>	
<code>\mathit{4}</code>	
<code>\mathit{5}</code> <code>\mathit{6}</code> <code>\mathit{7}</code> <code>\mathit{8}</code>	
<code>\mathit{9}</code>	
Roman typeface	
<code>\mathrm{A}</code> <code>\mathrm{B}</code> <code>\mathrm{C}</code> <code>\mathrm{D}</code>	<i>ABCDEF</i>
<code>\mathrm{E}</code> <code>\mathrm{F}</code> <code>\mathrm{G}</code>	<i>HIJKL</i>
<code>\mathrm{H}</code> <code>\mathrm{I}</code> <code>\mathrm{J}</code> <code>\mathrm{K}</code>	<i>MNOPQR</i>
<code>\mathrm{L}</code> <code>\mathrm{M}</code>	<i>STUVW</i>
<code>\mathrm{N}</code> <code>\mathrm{O}</code> <code>\mathrm{P}</code>	<i>XYZ</i>
<code>\mathrm{Q}</code> <code>\mathrm{R}</code> <code>\mathrm{S}</code> <code>\mathrm{T}</code>	<i>abc</i>
<code>\mathrm{U}</code> <code>\mathrm{V}</code> <code>\mathrm{W}</code>	<i>defg</i>
<code>\mathrm{X}</code> <code>\mathrm{Y}</code> <code>\mathrm{Z}</code>	<i>hijklm</i>
<code>\mathrm{a}</code> <code>\mathrm{b}</code> <code>\mathrm{c}</code> <code>\mathrm{d}</code>	
<code>\mathrm{e}</code> <code>\mathrm{f}</code> <code>\mathrm{g}</code>	
<code>\mathrm{h}</code> <code>\mathrm{i}</code> <code>\mathrm{j}</code> <code>\mathrm{k}</code>	
<code>\mathrm{l}</code> <code>\mathrm{m}</code>	

n o p q nopqrst
 r s t
 u v w x uvwxyz
 y z
 $\mathrm{0}$ $\mathrm{1}$ $\mathrm{2}$ $\mathrm{3}$ 01234
 $\mathrm{4}$
 $\mathrm{5}$ $\mathrm{6}$ $\mathrm{7}$ $\mathrm{8}$ 56789
 $\mathrm{9}$

Fraktur typeface

\mathfrak{A} \mathfrak{B} \mathfrak{C} ABCDEFG
 \mathfrak{D} \mathfrak{E} \mathfrak{F}
 \mathfrak{G}
 \mathfrak{H} \mathfrak{I} \mathfrak{J} HIJKLM
 \mathfrak{K} \mathfrak{L} \mathfrak{M}
 \mathfrak{N} \mathfrak{O} \mathfrak{P} NOPQRST
 \mathfrak{Q} \mathfrak{R} \mathfrak{S}
 \mathfrak{T}
 \mathfrak{U} \mathfrak{V} \mathfrak{W} UVWXYZ
 \mathfrak{X} \mathfrak{Y} \mathfrak{Z}
 \mathfrak{a} \mathfrak{b} \mathfrak{c} abcdefg
 \mathfrak{d} \mathfrak{e} \mathfrak{f}
 \mathfrak{g}
 \mathfrak{h} \mathfrak{i} \mathfrak{j} hijklm
 \mathfrak{k} \mathfrak{l} \mathfrak{m}
 \mathfrak{n} \mathfrak{o} \mathfrak{p} nopqrst
 \mathfrak{q} \mathfrak{r} \mathfrak{s}
 \mathfrak{t}
 \mathfrak{u} \mathfrak{v} \mathfrak{w} uvwxyz
 \mathfrak{x} \mathfrak{y} \mathfrak{z}
 $\mathfrak{0}$ $\mathfrak{1}$ $\mathfrak{2}$ 01234
 $\mathfrak{3}$ $\mathfrak{4}$
 $\mathfrak{5}$ $\mathfrak{6}$ $\mathfrak{7}$ 56789
 $\mathfrak{8}$ $\mathfrak{9}$

Calligraphy/Script

\mathcal{A} \mathcal{B} \mathcal{C} ABCDEFG
 \mathcal{D} \mathcal{E} \mathcal{F}
 \mathcal{G}
 \mathcal{H} \mathcal{I} \mathcal{J} \mathcal{K} HIJKLM
 \mathcal{L} \mathcal{M}
 \mathcal{N} \mathcal{O} \mathcal{P} NOPQRST
 \mathcal{Q} \mathcal{R} \mathcal{S}
 \mathcal{T}
 \mathcal{U} \mathcal{V} \mathcal{W} UVWXYZ
 \mathcal{X} \mathcal{Y} \mathcal{Z}

Hebrew

\aleph \beth \gimel \daleth אבגד

Formatting issues

Spacing

Note that [TeX](#) handles most spacing automatically, but you may sometimes want manual control.

Feature	Syntax	How it looks rendered
double quad space	<code>a \quad b</code>	<i>a b</i>
quad space	<code>a \quad b</code>	<i>a b</i>
text space	<code>a\ b</code>	<i>a b</i>
text space without PNG conversion	<code>a \mbox{ } b</code>	<i>a b</i>
large space	<code>a\;b</code>	<i>a b</i>
medium space	<code>a\>b</code>	(not supported)
small space	<code>a\,b</code>	<i>a b</i>
no space	<code>ab</code>	<i>ab</i>
small negative space	<code>a!\b</code>	<i>ab</i>