Supported Functions

This is a list of TeX functions supported by KaTeX. It is sorted into logical groups.

There is a similar Support Table, sorted alphabetically, that lists both supported and un-supported functions.

Accents

a' `a'`	$\tilde{a}$ `\tilde{a}`	$\mathring{g}$ `\mathring{g}`
a'' `a''`	$\widetilde{ac}$ `\widetilde{ac}`	$\overgroup{AB}$ `\overgroup{AB}`
a' `a^{\prime}`	$\utilde{AB}$ `\utilde{AB}`	$\undergroup{AB}$ `\undergroup{AB}`
$\acute{a}$ `\acute{a}`	$\vec{F}$ `\vec{F}`	$\Overrightarrow{AB}$ `\Overrightarrow{AB}`
$\bar{y}$ `\bar{y}`	$\overleftarrow{AB}$ `\overleftarrow{AB}`	$\overrightarrow{AB}$ `\overrightarrow{AB}`
$\breve{a}$ `\breve{a}`	$\underleftarrow{AB}$ `\underleftarrow{AB}`	$\underrightarrow{AB}$ `\underrightarrow{AB}`
$\check{a}$ `\check{a}`	$\overleftharpoon{ac}$ `\overleftharpoon{ac}`	$\overrightharpoon{ac}$ `\overrightharpoon{ac}`
$\dot{a}$ `\dot{a}`	$\overleftrightarrow{AB}$ `\overleftrightarrow{AB}`	$\overbrace{AB}$ `\overbrace{AB}`
$\ddot{a}$ `\ddot{a}`	$\underleftrightarrow{AB}$ `\underleftrightarrow{AB}`	$\underbrace{AB}$ `\underbrace{AB}`
$\grave{a}$ `\grave{a}`	$\overline{AB}$ `\overline{AB}`	$\overlinesegment{AB}$ `\overlinesegment{AB}`
$\hat{\theta}$ `\hat{\theta}`	$\underline{AB}$ `\underline{AB}`	$\underlinesegment{AB}$ `\underlinesegment{AB}`
$\widehat{ac}$ `\widehat{ac}`	$\widecheck{ac}$ `\widecheck{ac}`	

Accent functions inside \text{...}

$\acute{a}$ `\'{a}`	$\tilde{a}$ `\~{a}`	$\dot{a}$ `\.{a}`	$\H{a}$ `\H{a}`
$\grave{a}$ `` \`{a} ``	$\bar{a}$ `\={a}`	$\ddot{a}$ `\"{a}`	$\v{a}$ `\v{a}`
$\hat{a}$ `\^{a}`	$\breve{a}$ `\u{a}`	$\r{a}$ `\r{a}`	

See also letters

Delimiters

`( ) ( )`	`( )` `\lparen` `\rparen`	`⌈⌉ ⌊⌋`	`⌈ ⌉` `\lceil` `\rceil`	`↑ \uparrow`
`[] [ ]`	`[ ]` `\lbrack` `\rbrack`	`⌊⌋ ⌊⌋`	`⌊ ⌋` `\lfloor` `\rfloor`	`↓ \downarrow`
`{} \{ \}`	`{ }` `\lbrace` `\rbrace`	`⌠⌡ ⌠⌡`	`⌠ ⌡` `\lmoustache` `\rmoustache`	`↕ \updownarrow`
`⟨⟩ ⟨ ⟩`	`⟨ ⟩` `\langle` `\rangle`	`() ()`	`( )` `\lgroup` `\rgroup`	`⇑ \Uparrow`
`│ │`	`│ \vert`	`⌐¬ ⌐ ⌐`	`⌐¬` `\ulcorner` `\urcorner`	`⇓ \Downarrow`
`‖ |`	`‖ \Vert`	`⌊⌋ ⌊ ⌋`	`⌊⌋` `\llcorner` `\lrcorner`	`⇕ \Updownarrow`
`‖ \lvert` `\rvert`	`‖‖ \lVert` `\rVert`	`\left.`	`\right.`	`\ \backslash`
`⟨⟩ \lang` `\rang`	`< > \lt \gt`	`⟦⟧ ⟦ ⟧`		

Delimiter Sizing

(AB) `\left(\LARGE{AB}\right)`

$(((((\ $ `( \big( \Big( \bigg( \Bigg(`

`\left`	`\big`	`\bigl`	`\bigm`	`\bigr`
`\middle`	`\Big`	`\Bigl`	`\Bigm`	`\Bigr`
`\right`	`\bigg`	`\biggl`	`\biggm`	`\biggr`
	`\Bigg`	`\Biggl`	`\Biggm`	`\Biggr`

Environments

$\begin{matrix} a & b \\ c & d \end{matrix}$	`\begin{matrix}` `a & b \\` `c & d` `\end{matrix}`	$\begin{matrix} a & b \\ c & d \end{matrix}$	`\begin{array}{cc}` `a & b \\` `c & d` `\end{array}`

$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$	`\begin{pmatrix}`
	`a & b \\`
	`c & d`
	`\end{pmatrix}`
		$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$	`\begin{bmatrix}`
			`a & b \\`
			`c & d`
			`\end{bmatrix}`

$\begin{vmatrix} a & b \\ c & d \end{vmatrix}$	`\begin{vmatrix}`
	`a & b \\`
	`c & d`
	`\end{vmatrix}`
		$\begin{Vmatrix} a & b \\ c & d \end{Vmatrix}$	`\begin{Vmatrix}`
			`a & b \\`
			`c & d`
			`\end{Vmatrix}`

$\begin{Bmatrix} a & b \\ c & d \end{Bmatrix}$	`\begin{Bmatrix}`
	`a & b \\`
	`c & d`
	`\end{Bmatrix}`
		$\begin{array}{c:c:c} a & b & c \\ \hline d & e & f \\ \hdashline g & h & i \end{array}$	`\def\arraystretch{1.5}`
			`\begin{array}{c:c:c}`
			`a & b & c \\ \hline`
			`d & e & f \\`
			`\hdashline`
			`g & h & i`
			`\end{array}`

$\begin{aligned} a &= b+c \\ d+e &= f \end{aligned}$	`\begin{aligned}`
	`a&=b+c \\`
	`d+e&=f`
	`\end{aligned}`
		$\begin{alignedat}{2} 10&x+ &3&y = 2 \\ 3&x+&13&y = 4 \end{alignedat}$	`\begin{alignedat}{2}`
			`10&x+ &3&y = 2 \\`
			`3&x+&13&y = 4`
			`\end{alignedat}`

$\begin{gathered} a = b \\ e = b+c \end{gathered}$	`\begin{gathered}`
	`a=b \\`
	`e=b+c`
	`\end{gathered}`
		$x = \begin{cases} a & \text{if } b \\ c & \text{if } d \end{cases}$	`x = \begin{cases}`
			`a &\text{if } b \\`
			`c &\text{if } d`
			`\end{cases}`

KaTeX also supports `darray` and `dcases` .

Acceptable line separators include: `\\` , `\cr` , `\\[distance]` , and `\cr[distance]` . *Distance* can be written with any of the KaTeX units.

The `{array}` environment supports `|` and `:` vertical separators.

The `{array}` environment does not yet support `\cline` or `\multicolumn` .

HTML

$\KaTeX$	`\href{https://katex.org/}{\KaTeX}`
https://katex.org/	`\url{https://katex.org/}`

Letters and Unicode

Greek Letters

Direct Input: ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρστυφχψωεϑϖϱςφ

A `\Alpha`	B `\Beta`	Γ `\Gamma`	Δ `\Delta`
E `\Epsilon`	Z `\Zeta`	H `\Eta`	Θ `\Theta`
I `\Iota`	K `\Kappa`	Λ `\Lambda`	M `\Mu`
N `\Nu`	Ξ `\Xi`	O `\Omicron`	Π `\Pi`
Σ `\Sigma`	T `\Tau`	Υ `\Upsilon`	Φ `\Phi`
X `\Chi`	Ψ `\Psi`	Ω `\Omega`	
Γ `\varGamma`	Δ `\varDelta`	Θ `\varTheta`	Λ `\varLambda`
Ξ `\varXi`	Π `\varPi`	Σ `\varSigma`	Υ `\varUpsilon`
Φ `\varPhi`	Ψ `\varPsi`	Ω `\varOmega`	
α `\alpha`	β `\beta`	γ `\gamma`	δ `\delta`
ε `\epsilon`	ζ `\zeta`	η `\eta`	θ `\theta`
ι `\iota`	κ `\kappa`	λ `\lambda`	μ `\mu`
ν `\nu`	ξ `\xi`	ο `\omicron`	π `\pi`
ρ `\rho`	σ `\sigma`	τ `\tau`	υ `\upsilon`
φ `\phi`	χ `\chi`	ψ `\psi`	ω `\omega`
ε `\varepsilon`	ϰ `\varkappa`	ϑ `\vartheta`	ϑ `\thetasym`
ϖ `\varpi`	ϱ `\varrho`	ς `\varsigma`	φ `\varphi`
Ϝ `\digamma`			

Other Letters

ı `\imath`	∇ `\nabla`	ℑ `\Im`	ℝ `\Reals`	Œ `\text{\OE}`
ȷ `\jmath`	∂ `\partial`	ℑ `\image`	℘ `\wp`	ø `\text{\o}`
ℵ `\aleph`	⅁ `\Game`	𝕜 `\Bbbk`	℘ `\weierp`	Ø `\text{\O}`
ℵ `\alef`	⅂ `\Finv`	ℕ `\N`	ℤ `\Z`	ß `\text{\ss}`
ℵ `\alefsym`	ℂ `\cnums`	ℕ `\natnums`	å `\text{\aa}`	ı `\text{\i}`
ℶ `\beth`	ℂ `\Complex`	ℝ `\R`	Å `\text{\AA}`	ȷ `\text{\j}`
ℷ `\gimel`	ℓ `\ell`	ℜ `\Re`	æ `\text{\ae}`	

ℸ \daleth	ℏ \hbar	ℜ \real	Æ \text{\AE}
ð \eth	ℏ \hslash	ℝ \reals	œ \text{\oe}

Direct Input: ∂∇ℑℜℸℵℶℷℸℏð ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕÖÙÚÛÜÝÞßàáâãäåçèéêëìíîïðñòóôõöùúûüýþÿ

Unicode Mathematical Alphanumeric Symbols

Item	Range	Item	Range
Bold	**A-Z a-z 0-9**	Double-struck	𝔸-ℤ 𝕜
Italic	*A-Z a-z*	Sans serif	A-Z a-z 0-9
Bold Italic	***A-Z a-z***	Sans serif bold	**A-Z a-z 0-9**
Script	𝒜-𝒵	Sans serif italic	*A-Z a-z*
Fractur	𝔄-ℨ 𝔞-𝔷	Monospace	A-Z a-z 0-9

Unicode

The letters listed above will render in any KaTeX rendering mode.

If the KaTeX rendering mode is set to `strict: false` or `strict:"warn"` (default), then KaTeX will accept all Unicode letters. The letters not listed above will be rendered from system fonts, not KaTeX-supplied fonts, so their typography may clash. They may also cause small vertical alignment issues. KaTeX has detailed metrics for glyphs in Latin, Greek, and Cyrillic, but other glyphs are treated as if they are each as tall as the letter M.

For Persian composite characters, a user-supplied plug-in is under development.

Layout

Annotation

5̸ \cancel{5}	$\overbrace{a+b+c}^{\text{note}}$ \overbrace{a+b+c}^{\text{note}}
5̸ \bcancel{5}	$\underbrace{a+b+c}_{\text{note}}$ \underbrace{a+b+c}_{\text{note}}
A̸B̸C̸ \xcancel{ABC}	$\ne$ \not =
a̶b̶c̶ \sout{abc}	$\boxed{\pi=\frac c d}$ \boxed{\pi=\frac c d}

`\tag{hi} x+y^{2x}`

$$x + y^{2x} \tag{hi}$$

```
\tag*{hi} x+y^{2x}
```

$$x + y^{2x} \tag*{hi}$$

Line Breaks

KaTeX 0.10.0+ will insert automatic line breaks in inline math after relations or binary operators such as "="
or "+". These can be suppressed by `\nobreak` or by placing math inside a pair of braces, as in `{F=ma}`.
`\allowbreak` will allow automatic line breaks at locations other than relations or operators.

Hard line breaks are `\\` and `\newline`.

In display math, KaTeX does not insert automatic line breaks. It ignores display math hard line breaks when
rendering option `strict: true`.

Vertical Layout

x_n `x_n`	$\overset{!}{=}$ `\stackrel{!}{=}`	$\genfrac{}{}{0pt}{}{a}{b}$ `a \atop b`	
e^x `e^x`	$\overset{!}{=}$ `\overset{!}{=}`	$a^b c$ `a\raisebox{0.25em}{b}c`	
$\genfrac{}{}{0pt}{}{o}{u}$ `_u^o`	$\underset{!}{=}$ `\underset{!}{=}`		

The second argument of `\raisebox` can contain math if it is nested within `$...$` delimiters, as in
`\raisebox{0.25em}{$\frac a b$}`

Overlap and Spacing

$\neq$ `{=}\mathllap{/\,}`		$\left(x^2\right)$ `\left(x^{\smash{2}}\right)`	
$\neq$ `\mathrlap{\,/}{=}`		$\sqrt{y}$ `\sqrt{\smash[b]{y}}`	

$\sum_{1\le i\le j\le n} x_{ij}$ `\sum_{\mathclap{1\le i\le j\le n}} x_{ij}`

KaTeX also supports `\llap`, `\rlap`, and `\clap`, but they will take only text, not math, as arguments.

Spacing

Function	Produces	Function	Produces
`\,`	³⁄₁₈ em space	`\kern{distance}`	space, width = *distance*
`\thinspace`	³⁄₁₈ em space	`\mkern{distance}`	space, width = *distance*
`\:`	⁴⁄₁₈ em space	`\mskip{distance}`	space, width = *distance*
`\medspace`	⁴⁄₁₈ em space	`\hskip{distance}`	space, width = *distance*

Function	Produces	Function	Produces
`\;`	⁵⁄₁₈ em space	`\hspace{distance}`	space, width = *distance*
`\thickspace`	⁵⁄₁₈ em space	`\hspace*{distance}`	space, width = *distance*
`\enspace`	½ em space	`\phantom{content}`	space the width and height of content
`\quad`	1 em space	`\hphantom{content}`	space the width of content
`\qquad`	2 em space	`\vphantom{content}`	a strut the height of content
`~`	non-breaking space	`\!`	– ³⁄₁₈ em space
`\<space>`	space	`\negthinspace`	– ³⁄₁₈ em space
`\nobreakspace`	non-breaking space	`\negmedspace`	– ⁴⁄₁₈ em space
`\space`	space	`\negthickspace`	– ⁵⁄₁₈ em space

Notes:

`distance` will accept any of the KaTeX units.

`\kern`, `\mkern`, `\mskip`, and `\hspace` accept unbraced distances, as in: `\kern1em`.

`\mkern` and `\mskip` will not work in text mode and both will write a console warning for any unit except `mu`.

Logic and Set Theory

∀ `\forall`	∁ `\complement`	∴ `\therefore`	∅ `\emptyset`
∃ `\exists`	⊂ `\subset`	∵ `\because`	∅ `\empty`
∃ `\exist`	⊃ `\supset`	↦ `\mapsto`	∅ `\varnothing`
∄ `\nexists`	| `\mid`	→ `\to`	⟹ `\implies`
∈ `\in`	∧ `\land`	← `\gets`	⟸ `\impliedby`
∈ `\isin`	∨ `\lor`	↔ `\leftrightarrow`	⟺ `\iff`
∉ `\notin`	∋ `\ni`	∌ `\notni`	¬ `\neg` or `\lnot`

Direct Input: ∀ ∴ ∁ ∵ ∃ | ∈ ∉ ∋ ⊂ ⊃ ∧ ∨ ↦ → ← ↔ ¬ ℂ ℍ ℕ ℙ ℚ ℝ

Macros

$x^2 + x^2$	`\def\foo{x^2} \foo + \foo`
$y^2 + y^2$	`\gdef\bar#1{#1^2} \bar{y} + \bar{y}`
	`\global\def\macroname#1#2…{definition}`
	`\newcommand\macroname[numargs]{definition}`
	`\renewcommand\macroname[numargs]{definition}`
	`\providecommand\macroname[numargs]{definition}`

Macros can also be defined in the KaTeX rendering options.

Macros accept up to nine arguments: #1, #2, etc.

`\gdef` and `\global\def` macros will persist between math expressions.

Available functions include:

`\char` `\mathchoice` `\TextOrMath` `\@ifstar` `\@ifnextchar` `\@firstoftwo` `\@secondoftwo` `\relax`

@ is a valid character for commands, as if `\makeatletter` were in effect.

Operators

Big Operators

$\sum$	`\sum`	$\prod$	`\prod`	$\bigotimes$	`\bigotimes`	$\bigvee$	`\bigvee`
$\int$	`\int`	$\coprod$	`\coprod`	$\bigoplus$	`\bigoplus`	$\bigwedge$	`\bigwedge`
$\iint$	`\iint`	$\intop$	`\intop`	$\bigodot$	`\bigodot`	$\bigcap$	`\bigcap`
$\iiint$	`\iiint`	$\smallint$	`\smallint`	$\biguplus$	`\biguplus`	$\bigcup$	`\bigcup`
$\oint$	`\oint`	$\oiint$	`\oiint`	$\oiiint$	`\oiiint`	$\bigsqcup$	`\bigsqcup`

Direct Input: $\int \iint \iiint \oint \prod \coprod \sum \bigwedge \bigvee \bigcap \bigcup \bigodot \bigoplus \bigotimes \biguplus \bigsqcup$

Binary Operators

$+$	`+`	$\cdot$	`\cdot`	$\gtrdot$	`\gtrdot`	$x \pmod a$	`x \pmod a`
$-$	`-`	$\cdotp$	`\cdotp`	$\intercal$	`\intercal`	$x \pod a$	`x \pod a`
$/$	`/`	$\centerdot$	`\centerdot`	$\land$	`\land`	$\rhd$	`\rhd`
$*$	`*`	$\circ$	`\circ`	$\leftthreetimes$	`\leftthreetimes`	$\rightthreetimes$	`\rightthreetimes`
$\amalg$	`\amalg`	$\circledast$	`\circledast`	$\ldotp$	`\ldotp`	$\rtimes$	`\rtimes`

& `\And`	⊚ `\circledcirc`	⋁ `\lor`	∖ `\setminus`
* `\ast`	⊖ `\circleddash`	⋖ `\lessdot`	╲ `\smallsetminus`
⊼ `\barwedge`	⊌ `\Cup`	◁ `\lhd`	⊓ `\sqcap`
◯ `\bigcirc`	∪ `\cup`	⋉ `\ltimes`	⊔ `\sqcup`
mod `\bmod`	⋎ `\curlyvee`	$x \bmod a$ `x\mod a`	× `\times`
⊡ `\boxdot`	⋏ `\curlywedge`	∓ `\mp`	⊴ `\unlhd`
⊟ `\boxminus`	÷ `\div`	⊙ `\odot`	⊳ `\unrhd`
⊞ `\boxplus`	⁂ `\divideontimes`	⊖ `\ominus`	⊎ `\uplus`
⊠ `\boxtimes`	∔ `\dotplus`	⊕ `\oplus`	⋁ `\vee`
● `\bullet`	⩞ `\doublebarwedge`	⊗ `\otimes`	⊻ `\veebar`
⋒ `\Cap`	⋒ `\doublecap`	⊘ `\oslash`	∧ `\wedge`
∩ `\cap`	⊍ `\doublecup`	± `\pm` or `\plusmn`	≀ `\wr`

Direct Input: $+ - / * \cdot \pm \times \div \mp \dotplus \wedge \vee \cap \cup \wr \uplus \sqcap \sqcup \oplus \ominus \otimes \oslash \odot \circledcirc \circledast \circleddash$

Fractions and Binomials

$\frac{a}{b}$ `\frac{a}{b}`	$\frac{a}{b}$ `\tfrac{a}{b}`	$\left(\frac{a}{a+1}\right)$ `\genfrac ( ] {2pt}{1}a{a+1}`
$\frac{a}{b}$ `{a \over b}`	$\dfrac{a}{b}$ `\dfrac{a}{b}`	$\frac{a}{b+1}$ `{a \above{2pt} b+1}`
a/b `a/b`		$\cfrac{a}{1 + \cfrac{1}{b}}$ `\cfrac{a}{1 + \cfrac{1}{b}}`

$\binom{n}{k}$ `\binom{n}{k}`	$\dbinom{n}{k}$ `\dbinom{n}{k}`	$\left\{n \atop k\right\}$ `{n\brace k}`
$\binom{n}{k}$ `{n \choose k}`	$\tbinom{n}{k}$ `\tbinom{n}{k}`	$\left[n \atop k\right]$ `{n\brack k}`

Math Operators

arcsin `\arcsin`	cotg `\cotg`	ln `\ln`	det `\det`
arccos `\arccos`	coth `\coth`	log `\log`	gcd `\gcd`
arctan `\arctan`	csc `\csc`	sec `\sec`	inf `\inf`

arctg `\arctg`	ctg `\ctg`	sin `\sin`	lim `\lim`
arcctg `\arcctg`	cth `\cth`	sinh `\sinh`	lim inf `\liminf`
arg `\arg`	deg `\deg`	sh `\sh`	lim sup `\limsup`
ch `\ch`	dim `\dim`	tan `\tan`	max `\max`
cos `\cos`	exp `\exp`	tanh `\tanh`	min `\min`
cosec `\cosec`	hom `\hom`	tg `\tg`	Pr `\Pr`
cosh `\cosh`	ker `\ker`	th `\th`	sup `\sup`
cot `\cot`	lg `\lg`	f `\operatorname{f}`	

Functions on the right column of this table can take `\limits` .

\sqrt

$\sqrt{x}$ `\sqrt{x}`

$\sqrt[3]{x}$ `\sqrt[3]{x}`

Relations

$\stackrel{!}{=}$ `\stackrel{!}{=}`

$=$ `=`	$\eqcirc$ `\eqcirc`	$\lesseqgtr$ `\lesseqgtr`	$\sqsupset$ `\sqsupset`
$<$ `<`	$\eqcolon$ `\eqcolon`	$\lesseqqgtr$ `\lesseqqgtr`	$\sqsupseteq$ `\sqsupseteq`
$>$ `>`	$\Eqcolon$ `\Eqcolon`	$\lessgtr$ `\lessgtr`	$\Subset$ `\Subset`
$:$ `:`	$\eqqcolon$ `\eqqcolon`	$\lesssim$ `\lesssim`	$\subset$ `\subset` or `\sub`
$\approx$ `\approx`	$\Eqqcolon$ `\Eqqcolon`	$\ll$ `\ll`	$\subseteq$ `\subseteq` or `\sube`
$\approxeq$ `\approxeq`	$\eqsim$ `\eqsim`	$\lll$ `\lll`	$\subseteqq$ `\subseteqq`
$\asymp$ `\asymp`	$\eqslantgtr$ `\eqslantgtr`	$\llless$ `\llless`	$\succ$ `\succ`
$\backepsilon$ `\backepsilon`	$\eqslantless$ `\eqslantless`	$\lt$ `\lt`	$\succapprox$ `\succapprox`
$\backsim$ `\backsim`	$\equiv$ `\equiv`	$\mid$ `\mid`	$\succcurlyeq$ `\succcurlyeq`
$\backsimeq$ `\backsimeq`	$\fallingdotseq$ `\fallingdotseq`	$\models$ `\models`	$\succeq$ `\succeq`
$\between$ `\between`	$\frown$ `\frown`	$\multimap$ `\multimap`	$\succsim$ `\succsim`
$\bowtie$ `\bowtie`	$\ge$ `\ge`	$\owns$ `\owns`	$\Supset$ `\Supset`
$\bumpeq$ `\bumpeq`	$\geq$ `\geq`	$\parallel$ `\parallel`	$\supset$ `\supset`

≎ \Bumpeq	≧ \geqq	⊥ \perp	⊇ \supseteq or \supe
≗ \circeq	⩾ \geqslant	⋔ \pitchfork	⊇ \supseteqq
:≈ \colonapprox	≫ \gg	≺ \prec	≈ \thickapprox
::≈ \Colonapprox	⋙ \ggg	≾ \precapprox	∼ \thicksim
:− \coloneq	⋙ \gggtr	≼ \preccurlyeq	◁ \trianglelefteq
::− \Coloneq	> \gt	≼ \preceq	≜ \triangleq
:= \coloneqq	≳ \gtrapprox	≾ \precsim	▷ \trianglerighteq
::= \Coloneqq	≷ \gtreqless	∝ \propto	∝ \varpropto
:∼ \colonsim	⋛ \gtreqqless	≓ \risingdotseq	△ \vartriangle
::∼ \Colonsim	≷ \gtrless	∣ \shortmid	◁ \vartriangleleft
≅ \cong	≳ \gtrsim	∥ \shortparallel	▷ \vartriangleright
⋞ \curlyeqprec	∈ \in or \isin	∼ \sim	: \vcentcolon
⋟ \curlyeqsucc	⋈ \Join	≃ \simeq	⊢ \vdash
⊣ \dashv	≤ \le	⌢ \smallfrown	⊨ \vDash
:: \dblcolon	≤ \leq	⌣ \smallsmile	⊩ \Vdash
≐ \doteq	≦ \leqq	⌣ \smile	⊪ \Vvdash
≑ \Doteq	⩽ \leqslant	⊏ \sqsubset	
≒ \doteqdot	≲ \lessapprox	⊑ \sqsubseteq	

Direct Input: =<>:∈∋∝∼∽≈≃≅ ≈≊⋈⋉⋊⋋⋌⋍⋎⋏⩦≡≤≥≦≧≫⫷≷≶⋋≺≻≼≽≾≿⊂⊃⊆⊇⊏
⊐⊑⊒⊢⊣⊤⊥⊦⊧⊨⊩⊪⊫⊸⋈⋇∈∋⋔≫≧⋋≺≻⌢⌣≷≳≩≮≯⋉⋊≈≊⊑⊒≪⋞≲≦⩽≶⊥⊨ := =: ==

Negated Relations

/= \not =

≩ \gnapprox	≱ \ngeqslant	⊈ \nsubseteq	⋨ \precneqq
≩ \gneq	≯ \ngtr	⊈ \nsubseteqq	⋨ \precnsim
≩ \gneqq	≰ \nleq	≻ \nsucc	⊊ \subsetneq
≳ \gnsim	≰ \nleqq	≿ \nsucceq	⊊ \subsetneqq
≩ \gvertneqq	≰ \nleqslant	⊉ \nsupseteq	⋩ \succnapprox

⪉ `\lnapprox`	≮ `\nless`	⊉ `\nsupseteqq`	⪈ `\succneqq`
⪇ `\lneq`	∤ `\nmid`	⋪ `\ntriangleleft`	⋩ `\succnsim`
⪇ `\lneqq`	∉ `\notin`	⋬ `\ntrianglelefteq`	⊋ `\supsetneq`
⋦ `\lnsim`	∌ `\notni`	⋫ `\ntriangleright`	⊋ `\supsetneqq`
⪇ `\lvertneqq`	∦ `\nparallel`	⋭ `\ntrianglerighteq`	⊊ `\varsubsetneq`
≇ `\ncong`	⊀ `\nprec`	⊬ `\nvdash`	⊊ `\varsubsetneqq`
≠ `\ne`	⋠ `\npreceq`	⊭ `\nvDash`	⊋ `\varsupsetneq`
≠ `\neq`	∤ `\nshortmid`	⊯ `\nVDash`	⊋ `\varsupsetneqq`
≱ `\ngeq`	∦ `\nshortparallel`	⊮ `\nVdash`	
≩ `\ngeqq`	≁ `\nsim`	⪵ `\precnapprox`	

Direct Input: ⪉∌∦≁≠=⪇≩≮⊀⪇⋠≱≩⋦∤⪇⊋⊊⊋⊬⊭⊮⊯⋫⋭⋪⋬⋩⋩⪈⪵⊀⋠⊊⊊⊋⊋⊋⊋⪈⪈

Arrows

↺ `\circlearrowleft`	↼ `\leftharpoonup`	⇒ `\rArr`
↻ `\circlearrowright`	⇇ `\leftleftarrows`	→ `\rarr`
↶ `\curvearrowleft`	↔ `\leftrightarrow`	↾ `\restriction`
↷ `\curvearrowright`	⇔ `\Leftrightarrow`	→ `\rightarrow`
⇓ `\Darr`	⇆ `\leftrightarrows`	⇒ `\Rightarrow`
⇓ `\dArr`	⇋ `\leftrightharpoons`	↣ `\rightarrowtail`
↓ `\darr`	↭ `\leftrightsquigarrow`	⇁ `\rightharpoondown`
⇠ `\dashleftarrow`	⇚ `\Lleftarrow`	⇀ `\rightharpoonup`
⇢ `\dashrightarrow`	⟵ `\longleftarrow`	⇄ `\rightleftarrows`
↓ `\downarrow`	⟸ `\Longleftarrow`	⇌ `\rightleftharpoons`
⇓ `\Downarrow`	⟷ `\longleftrightarrow`	⇉ `\rightrightarrows`
⇊ `\downdownarrows`	⟺ `\Longleftrightarrow`	⇝ `\rightsquigarrow`
⇃ `\downharpoonleft`	⟼ `\longmapsto`	⇛ `\Rrightarrow`
⇂ `\downharpoonright`	⟶ `\longrightarrow`	↱ `\Rsh`
← `\gets`	⟹ `\Longrightarrow`	↘ `\searrow`

⟺ \Harr	↢ \looparrowleft	↙ \swarrow
⟺ \hArr	↬ \looparrowright	→ \to
↔ \harr	⟺ \Lrarr	↞ \twoheadleftarrow
↩ \hookleftarrow	⟺ \lrArr	↠ \twoheadrightarrow
↪ \hookrightarrow	↔ \lrarr	⇑ \Uarr
⟺ \iff	↰ \Lsh	⇑ \uArr
⟸ \impliedby	↦ \mapsto	↑ \uarr
⟹ \implies	↗ \nearrow	↑ \uparrow
⟸ \Larr	↚ \nleftarrow	⇑ \Uparrow
⇐ \lArr	↚ \nLeftarrow	↕ \updownarrow
← \larr	↮ \nleftrightarrow	⇕ \Updownarrow
↝ \leadsto	↮ \nLeftrightarrow	↿ \upharpoonleft
← \leftarrow	↛ \nrightarrow	↾ \upharpoonright
⇐ \Leftarrow	⇏ \nRightarrow	⇈ \upuparrows
↢ \leftarrowtail	↖ \nwarrow	
↽ \leftharpoondown	⇒ \Rarr	

Direct Input: ←↑→↓↔↕↖↗↘↙↚↛↜↝↞↟↠↡↢↣↤↥↦↧↩↪↫↬↭↮↯↰↱↲↳↶↷↺↻↼↽↾↿⇀⇁⇂⇃⇄⇆⇇⇈⇉⇊⇋⇌⇍⇎⇏⇐⇑⇒⇓⇔⇕⇚⇛⇜⇝⇠⇢⇦⇨⇩⇪⇧⇫↦⇀⇁

Extensible Arrows

$\xleftarrow{abc}$ \xleftarrow{abc}	$\xrightarrow[under]{over}$ \xrightarrow[under]{over}
$\xLeftarrow{abc}$ \xLeftarrow{abc}	$\xRightarrow{abc}$ \xRightarrow{abc}
$\xleftrightarrow{abc}$ \xleftrightarrow{abc}	$\xLeftrightarrow{abc}$ \xLeftrightarrow{abc}
$\xhookleftarrow{abc}$ \xhookleftarrow{abc}	$\xhookrightarrow{abc}$ \xhookrightarrow{abc}
$\xtwoheadleftarrow{abc}$ \xtwoheadleftarrow{abc}	$\xtwoheadrightarrow{abc}$ \xtwoheadrightarrow{abc}
$\xleftharpoonup{abc}$ \xleftharpoonup{abc}	$\xrightharpoonup{abc}$ \xrightharpoonup{abc}
$\xleftharpoondown{abc}$ \xleftharpoondown{abc}	$\xrightharpoondown{abc}$ \xrightharpoondown{abc}
$\xleftrightharpoons{abc}$ \xleftrightharpoons{abc}	$\xrightleftharpoons{abc}$ \xrightleftharpoons{abc}
$\xtofrom{abc}$ \xtofrom{abc}	$\xmapsto{abc}$ \xmapsto{abc}

$$\overset{abc}{=\!=\!=}$$ `\xlongequal{abc}`

Extensible arrows all can take an optional argument in the same manner as `\xrightarrow[under]{over}` .

Style, Color, Size, and Font

Class Assignment

`\mathbin`   `\mathclose`   `\mathinner`   `\mathop`
`\mathopen`   `\mathord`   `\mathpunct`   `\mathrel`

Color

$F = ma$ `\color{blue} F=ma`

Note that KaTeX `\color` acts like a switch. This aligns with LaTeX and differs from MathJax. Other KaTeX color functions expect the content to be a function argument:

$F = ma$ `\textcolor{blue}{F=ma}`
$F = ma$ `\textcolor{#228B22}{F=ma}`
$\boxed{A}$ `\colorbox{aqua}{A}`
$\boxed{A}$ `\fcolorbox{red}{aqua}{A}`

For color definition, KaTeX color functions will accept the standard HTML predefined color names. They will also accept an RGB argument in CSS hexadecimal style. The "#" is optional before a six-digit specification.

Font

$\mathrm{Ab0}$ `\mathrm{Ab0}`	$\mathbf{Ab0}$ `\mathbf{Ab0}`	Ab `\mathit{Ab}`
$\mathnormal{Ab0}$ `\mathnormal{Ab0}`	$\textbf{Ab0}$ `\textbf{Ab0}`	$\textit{Ab}$ `\textit{Ab}`
$\textrm{Ab0}$ `\textrm{Ab0}`	$\mathbf{Ab0}$ `\bf Ab0`	Ab `\it Ab`
$\mathrm{Ab0}$ `\rm Ab0`	$\mathbf{Ab0}$ `\bold{Ab0}`	$\Bbb{AB}$ `\Bbb{AB}`
$\textnormal{Ab0}$ `\textnormal{Ab0}`	$\boldsymbol{Ab}$ `\boldsymbol{Ab}`	$\mathbb{AB}$ `\mathbb{AB}`
Ab0 `\text{Ab0}`	$\bm{Ab}$ `\bm{Ab}`	$\frak{Ab0}$ `\frak{Ab0}`
$\mathsf{Ab0}$ `\mathsf{Ab0}`	$\mathtt{Ab0}$ `\mathtt{Ab0}`	$\mathfrak{Ab0}$ `\mathfrak{Ab0}`
$\textsf{Ab0}$ `\textsf{Ab0}`	$\texttt{Ab0}$ `\texttt{Ab0}`	$\mathcal{AB0}$ `\mathcal{AB0}`
$\sf Ab0$ `\sf Ab0`	$\tt Ab0$ `\tt Ab0`	$\mathscr{AB}$ `\mathscr{AB}`

One can stack font family, font weight, and font shape by using the `\textXX` versions of the font functions. So `\textsf{\textbf{H}}` will produce **H**. The other versions do not stack, e.g.,

`\mathsf{\mathbf{H}}` will produce **H**.

In cases where KaTeX fonts do not have a bold glyph, `\pmb` can simulate one. For example, `\pmb{\mu}` renders as : $\boldsymbol{\mu}$

Size

AB `\Huge AB`	AB `\normalsize AB`
AB `\huge AB`	AB `\small AB`
AB `\LARGE AB`	AB `\footnotesize AB`
AB `\Large AB`	AB `\scriptsize AB`
AB `\large AB`	AB `\tiny AB`

Style

$\displaystyle\sum_{i=1}^n$	`\displaystyle\sum_{i=1}^n`
$\textstyle\sum_{i=1}^n$	`\textstyle\sum_{i=1}^n`
x `\scriptstyle x`	(The size of a first sub/superscript)
x `\scriptscriptstyle x`	(The size of subsequent sub/superscripts)
$\lim\limits_x$ `\lim\limits_x`	
$\lim_x$ `\lim\nolimits_x`	
`x^2` `\verb!x^2!`	

`\text{…}` will accept nested `$…$` fragments and render them in math mode.

Symbols and Punctuation

%	`comment`	$\dots$	`\dots`	$\mathrm{K\!A\!T\!E\!X}$	`\KaTeX`
$\%$	`\%`	$\cdots$	`\cdots`	$\mathrm{L\!A\!T\!E\!X}$	`\LaTeX`
$\#$	`\#`	$\ddots$	`\ddots`	$\mathrm{T\!E\!X}$	`\TeX`
$\&$	`\&`	$\ldots$	`\ldots`	∇	`\nabla`
$\_$	`\_`	$\vdots$	`\vdots`	∞	`\infty`

Symbol	Command	Symbol	Command	Symbol	Command
_	\text{\textunderscore}	⋯	\dotsb	∞	\infin
−	\text{--}	...	\dotsc	✓	\checkmark
−	\text{\textendash}	⋯	\dotsi	†	\dag
—	\text{---}	⋯	\dotsm	†	\dagger
—	\text{\textemdash}	...	\dotso	†	\text{\textdagger}
~	\text{\textasciitilde}	·	\sdot	‡	\ddag
' `		...	\mathellipsis	‡	\ddagger
'	text{\textquoteleft}	...	\text{\textellipsis}	‡	\text{\textdaggerdbl}
'	\lq	□	\Box	‡	\Dagger
'	\text{\textquoteright}	□	\square	∠	\angle
'	\rq	■	\blacksquare	∡	\measuredangle
"	\text{\textquotedblleft}	△	\triangle	∢	\sphericalangle
" "		▽	\triangledown	⊤	\top
"	\text{\textquotedblright}	◁	\triangleleft	⊥	\bot
:	\colon	▷	\triangleright	$	\$
\	\backprime	▽	\bigtriangledown	$	\text{\textdollar}
′	\prime	△	\bigtriangleup	£	\pounds
<	\text{\textless}	▲	\blacktriangle	£	\mathsterling
>	\text{\textgreater}	▼	\blacktriangledown	£	\text{\textsterling}
|	\text{\textbar}	◀	\blacktriangleleft	¥	\yen
||	\text{\textbardbl}	▶	\blacktriangleright	√	\surd
{	\text{\textbraceleft}	◇	\diamond	°	\degree
}	\text{\textbraceright}	◇	\Diamond	°	\text{\textdegree}
¶	\text{\P}	◇	\lozenge	℧	\mho
§	\text{\S}	♦	\blacklozenge	\	\diagdown
§	\text{\sect}	⋆	\star	/	\diagup
©	\copyright	★	\bigstar	♭	\flat
®	\circledR	♣	\clubsuit	♮	\natural

® `\text{\textregistered}`	♣ `\clubs`	♯ `\sharp`
ⓢ `\circledS`	♢ `\diamondsuit`	♡ `\heartsuit`
ⓐ `\text{\textcircled a}`	♢ `\diamonds`	♡ `\hearts`
✠ `\maltese`	♠ `\spadesuit`	♠ `\spades`

Direct Input: £ ¥ ∇ ∞ · ∠ ∡ ◁ ♠ ♡ ♢ ♣ ♭ ♮ ♯ ✓ … ⋮ ⋯ ⋰ ⋱ ! ‼

Units

In KaTeX, units are proportioned as they are in TeX.
KaTeX units are different than CSS units.

KaTeX Unit	Value	KaTeX Unit	Value
em	CSS em	bp	1/72 inch × F × G
ex	CSS ex	pc	12 KaTeX pt
mu	1/18 CSS em	dd	1238/1157 KaTeX pt
pt	1/72.27 inch × F × G	cc	14856/1157 KaTeX pt
mm	1 mm × F × G	nd	685/642 KaTeX pt
cm	1 cm × F × G	nc	1370/107 KaTeX pt
in	1 inch × F × G	sp	1/65536 KaTeX pt

where:

F = (font size of surrounding HTML text)/(10 pt)

G = 1.21 by default, because KaTeX font-size is normally 1.21 × the surrounding font size. This value can be overridden by the CSS of an HTML page.

The effect of style and size:

Unit	textstyle	scriptscript	huge
em or ex	■	■	■
mu	■	■	■
others	■	■	■