

# LaTeX Math Symbols

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## Math Mode Accents

`\acute{a}`

á

`\bar{a}`

$\bar{a}$

`\breve{a}`

ă

`\check{a}`

ǎ

`\ddot{a}`

ä

`\dot{a}`

ȁ

`\grave{a}`

à

`\hat{a}`

â

`\mathring{a}`

å

`\tilde{a}`

ã

`\vec{a}`

$\vec{a}$

`\widehat{AAA}`

$\widehat{AAA}$

`\widetilde{AAA}`

$\widetilde{AAA}$

# Greek Letters

\alpha

$\alpha$

\beta

$\beta$

\gamma

$\gamma$

\delta

$\delta$

\epsilon

$\epsilon$

\varepsilon

$\varepsilon$

\zeta

$\zeta$

\eta

$\eta$

\Gamma

$\Gamma$

\Delta

$\Delta$

\Theta

$\Theta$

\theta

$\theta$

\vartheta

$\vartheta$

\iota

$\iota$

\kappa

$\kappa$

\lambda

$\lambda$

`\mu`  $\mu$

`\nu`  $\nu$

`\xi`  $\xi$

`\Lambda`  $\Lambda$

`\Xi`  $\Xi$

`\Pi`  $\Pi$

`o`  $O$

`\pi`  $\pi$

`\varpi`  $\varpi$

`\rho`  $\rho$

`\varrho`  $\varrho$

`\sigma`  $\sigma$

`\varsigma`  $\varsigma$

`\tau`  $\tau$

`\Sigma`  $\Sigma$

`\Upsilon`  $\Upsilon$

<code>\Phi</code>	$\Phi$
<code>\Upsilon</code>	$\Upsilon$
<code>\phi</code>	$\phi$
<code>\varphi</code>	$\varphi$
<code>\chi</code>	$\chi$
<code>\psi</code>	$\psi$
<code>\omega</code>	$\omega$
<code>\Psi</code>	$\Psi$
<code>\Omega</code>	$\Omega$

# Binary Relations

 $<$  $<$  $>$  $>$  $=$  $=$  $\leq$  $\leq$  $\leq$  $\geq$  $\geq$  $\geq$  $\equiv$  $\equiv$  $\ll$  $\ll$  $\gg$  $\gg$  $\doteq$  $\doteq$  $\prec$  $\prec$  $\succ$  $\succ$  $\sim$  $\sim$  $\preceq$  $\preceq$  $\succeq$  $\succeq$

<code>\simeq</code>	$\simeq$
<code>\subset</code>	$\subset$
<code>\supset</code>	$\supset$
<code>\approx</code>	$\approx$
<code>\subseteq</code>	$\subseteq$
<code>\supseteq</code>	$\supseteq$
<code>\cong</code>	$\cong$
<code>\sqsubset</code>	$\sqsubset$ (Require the <code>latexsym</code> package)
<code>\sqsupset</code>	$\sqsupset$ (Require the <code>latexsym</code> package)
<code>\Join</code>	$\Join$ (Require the <code>latexsym</code> package)
<code>\sqsubseteq</code>	$\sqsubseteq$
<code>\sqsupseteq</code>	$\sqsupseteq$
<code>\bowtie</code>	$\bowtie$
<code>\in</code>	$\in$
<code>\ni</code>	$\ni$
<code>\owns</code>	$\owns$
<code>\propto</code>	$\propto$

<code>\vdash</code>	$\vdash$
<code>\dashv</code>	$\dashv$
<code>\models</code>	$\models$
<code>\mid</code>	$\mid$
<code>\parallel</code>	$\parallel$
<code>\perp</code>	$\perp$
<code>\smile</code>	$\smile$
<code>\frown</code>	$\frown$
<code>\asymp</code>	$\asymp$
<code>:</code>	$:$
<code>\notin</code>	$\notin$
<code>\neq</code>	$\neq$
<code>\ne</code>	

# Binary Operators

`+` $+$ `-` $-$ `\pm` $\pm$ `\mp` $\mp$ `\triangleleft` $\triangleleft$ `\cdot` $\cdot$ `\div` $\div$ `\triangleright` $\triangleright$ `\times` $\times$ `\setminus` $\setminus$ `\star` $\star$ `\cup` $\cup$ `\cap` $\cap$ `\ast` $\ast$ `\sqcup` $\sqcup$ `\sqcap` $\sqcap$



`\circ`

○

`\vee`

∨

`\lor`

`\wedge`

∧

`\land`

`\bullet`

●

`\oplus`

⊕

`\ominus`

⊖

`\diamond`

◇

`\odot`

⊙

`\oslash`

⊘

`\uplus`

⊕

`\otimes`

⊗

`\bigcirc`

○

`\amalg`

⧿

`\bigtriangleup`

△

`\bigtriangledown`

▽

`\dagger`

†

`\lhd`

◁ (Require the `latexsym` package)

`\rhd`

▷ (Require the `latexsym` package)

`\ddagger`

‡

`\unlhd`

⊲ (Require the `latexsym` package)

`\unrhd`

⊳ (Require the `latexsym` package)

`\wr`

ℳ

# BIG Operators

`\sum` $\Sigma$ `\bigcup` $\bigcup$ `\bigvee` $\bigvee$ `\prod` $\prod$ `\bigcap` $\bigcap$ `\bigwedge` $\bigwedge$ `\coprod` $\coprod$ `\bigsqcup` $\bigsqcup$ `\biguplus` $\biguplus$ `\int` $\int$ `\oint` $\oint$ `\bigodot` $\bigodot$ `\bigoplus` $\bigoplus$ `\bigotimes` $\bigotimes$

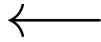
# Arrows

`\leftarrow`



`\gets`

`\longleftarrow`

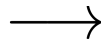


`\rightarrow`



`\to`

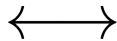
`\longrightarrow`



`\leftrightharrow`



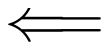
`\longleftrightharrow`



`\Leftarrow`



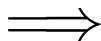
`\Longleftarrow`



`\Rightarrow`



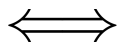
`\Longrightarrow`



`\Leftrightarrow`



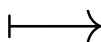
`\Longleftrightarrow`








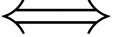











`\mapsto`



`\longmapsto`



<code>\hookleftarrow</code>	
<code>\hookrightarrow</code>	
<code>\leftharpoonup</code>	
<code>\rightharpoonup</code>	
<code>\leftharpoondown</code>	
<code>\rightharpoondown</code>	
<code>\rightleftharpoons</code>	
<code>\iff</code>	 (bigger spaces)
<code>\uparrow</code>	
<code>\downarrow</code>	
<code>\updownarrow</code>	
<code>\Uparrow</code>	
<code>\Downarrow</code>	
<code>\Updownarrow</code>	
<code>\nearrow</code>	
<code>\searrow</code>	
<code>\swarrow</code>	

`\nrightarrow`



`\leadsto`



(Require the `latexsym` package)

## Arrows as Accents

`\overrightarrow{AB}`



`\underrightarrow{AB}`



`\overleftarrow{AB}`



`\underleftarrow{AB}`



`\overleftrightharrow{AB}`



`\underleftrightharrow{AB}`



# Delimiters

(

)

\uparrow

↑

\lbrack

[

[

\rbrack

]

]

\downarrow

↓

\lbrace

\{

{

\rbrace

\}

}

\updownarrow

↕

\langle

⟨

\rangle

⟩

\Uparrow

⇑

\vert

|

\Vert	
\	
\Downarrow	⇓
/	/
\backslash	\
\Updownarrow	⇕
\lfloor	⌊
\rfloor	⌋
\rceil	⌈
\lceil	⌊



## Large Delimiters

`\lgroup`

(

`\rgroup`

)

`\lmoustache`

}

`\arrowvert`

|

`\Arrowvert`

||

`\bracevert`

|

`\rmoustache`

\

## Miscellaneous Symbols

<code>\dots</code>	$\cdots$
<code>\cdots</code>	$\cdots$
<code>\vdots</code>	$\vdots$
<code>\ddots</code>	$\ddots$
<code>\hbar</code>	$\hbar$
<code>\imath</code>	$\imath$
<code>\jmath</code>	$\jmath$
<code>\ell</code>	$\ell$
<code>\Re</code>	$\Re$
<code>\Im</code>	$\Im$
<code>\aleph</code>	$\aleph$
<code>\wp</code>	$\wp$
<code>\forall</code>	$\forall$
<code>\exists</code>	$\exists$
<code>\mho</code>	$\mho$ (Require the <code>latexsym</code> package)
<code>\partial</code>	$\partial$

'	'
\prime	'
\emptyset	$\emptyset$
\infty	$\infty$
\nabla	$\nabla$
\triangle	$\triangle$
\Box	$\Box$ (Require the <code>latexsym</code> package)
\Diamond	$\Diamond$ (Require the <code>latexsym</code> package)
\bot	$\bot$
\top	$\top$
\angle	$\angle$
\surd	$\surd$
\diamondsuit	$\diamondsuit$
\heartsuit	$\heartsuit$
\clubsuit	$\clubsuit$
\spadesuit	$\spadesuit$

<code>\neg</code>	¬
<code>\not</code>	
<code>\flat</code>	♭
<code>\natural</code>	♮
<code>\sharp</code>	♯

Non-Mathematical Symbols	
<code>\dag</code>	†
<code>\ddag</code>	‡
<code>\S</code>	§
<code>\P</code>	¶
<code>\copyright</code>	©
<code>\pounds</code>	£
<code>\textregistered</code>	®
<code>\%</code>	%

## AMS Delimiters

<code>\ulcorner</code>	⌈
<code>\urcorner</code>	⌊
<code>\llcorner</code>	⌞
<code>\lrcorner</code>	⌟
<code>\lvert</code>	
<code>\rvert</code>	
<code>\lVert</code>	
<code>\rVert</code>	

## AMS Greek and Hebrew

<code>\digamma</code>	<i>ƒ</i>
<code>\varkappa</code>	<i>κ</i>
<code>\beth</code>	⠋
<code>\gimel</code>	⠊
<code>\daleth</code>	⠌

# Math Alphabets

Command	Example	Required Package
<code>\mathrm{ABCDEabcde1234}</code>	ABCDEabcde1234	
<code>\mathit{ABCDEabcde1234}</code>	<i>ABCDEabcde1234</i>	
<code>\mathnormal{ABCDEabcde1234}</code>	<i>ABCDEabcde1234</i>	
<code>\mathcal{ABCDEabcde1234}</code>	<i>ABCDEF</i> $\mathcal{E}$ $\mathcal{H}$ $\mathcal{I}$ $\mathcal{J}$ $\infty$ $\epsilon$ $\exists$ $\Delta$	
<code>\mathscr{ABCDEabcde1234}</code>	<i>A B C D E</i>	<code>mathrsfs</code>
<code>\mathfrak{ABCDEabcde1234}</code>	<i>A B C D E</i> <i>a b c d e</i> <i>1 2 3 4</i>	<code>amsfonts</code> or <code>amssymb</code>
<code>\mathbb{ABCDEabcde1234}</code>	<i>A B C D E</i> <i>a b c d e</i> <i>1 2 3 4</i>	<code>amsfonts</code> or <code>amssymb</code>

## AMS Binary Operators

<code>\dotplus</code>	$\dot{+}$
<code>\centerdot</code>	$\cdot$
<code>\ltimes</code>	$\ltimes$
<code>\rtimes</code>	$\rtimes$
<code>\divideontimes</code>	$\div$
<code>\doublecup</code>	$\cup$
<code>\doublecap</code>	$\cap$
<code>\smallsetminus</code>	$\setminus$
<code>\veebar</code>	$\vee$
<code>\barwedge</code>	$\bar{\wedge}$
<code>\doublebarwedge</code>	$\bar{\bar{\wedge}}$
<code>\boxplus</code>	$\boxplus$
<code>\boxminus</code>	$\boxminus$
<code>\circleddash</code>	$\ominus$
<code>\boxtimes</code>	$\boxtimes$
<code>\boxdot</code>	$\boxdot$

<code>\circledcirc</code>	⊙
<code>\intercal</code>	⌞
<code>\circledast</code>	⊛
<code>\rightthreetimes</code>	⌞
<code>\curlyvee</code>	⋈
<code>\curlywedge</code>	⋈
<code>\leftthreetimes</code>	⌞



# AMS Binary Relations

`\lessdot`

$\lessdot$

`\gtrdot`

$\gtrdot$

`\doteqdot`

$\doteqdot$

`\leqslant`

$\leqslant$

`\geqslant`

$\geqslant$

`\risingdotseq`

$\risingdotseq$

`\eqslantless`

$\eqslantless$

`\eqslantgtr`

$\eqslantgtr$

`\fallingdotseq`

$\fallingdotseq$

`\leqq`

$\leqq$

`\geqq`

$\geqq$

`\eqcirc`

$\eqcirc$

`\lll`

$\lll$

`\llless`

$\llless$

`\ggg`

$\ggg$

`\circeq`

$\circeq$

`\lesssim`

$\lesssim$

`\gtrsim`

$\gtrsim$

`\triangleq`

$\triangleq$

`\lessapprox`

$\lessapprox$

`\gtrapprox`

$\gtrapprox$

`\bumpeq`

$\bumpeq$

`\lessgtr`

$\lessgtr$

`\gtrless`

$\gtrless$

`\Bumpeq`

$\Bumpeq$

`\lesseqgtr`

$\lesseqgtr$

`\gtreqless`

$\gtreqless$

`\thicksim`

$\thicksim$

`\lesseqqgtr`

$\lesseqqgtr$

`\gtreqqless`

$\gtreqqless$

`\thickapprox`

$\thickapprox$

`\preccurlyeq`

$\preccurlyeq$

`\succcurlyeq`

$\succcurlyeq$

`\approxeq`

$\approx$

`\curlyeqprec`

$\curvearrowleft$

`\curlyeqsucc`

$\curvearrowright$

`\backsim`

$\sim$

`\precsim`

$\preccurlyeq$

`\succsim`

$\succcurlyeq$

`\backsimeq`

$\smile$

`\precapprox`

$\preccurlyeq\sim$

`\succapprox`

$\succcurlyeq\sim$

`\vDash`

$\models$

`\subseteq`

$\subseteq$

`\supseteq`

$\supseteq$

`\Vdash`

$\Vdash$

`\shortparallel`

$\parallel$

`\Supset`

$\supset$

`\Vvdash`

$\Vdash$

<code>\blacktriangleleft</code>	◀
<code>\sqsupset</code>	⊃
<code>\backepsilon</code>	ε
<code>\vartriangleright</code>	▷
<code>\because</code>	∴
<code>\varpropto</code>	∝
<code>\blacktriangleright</code>	▶
<code>\Subset</code>	⊆
<code>\between</code>	⋈
<code>\trianglerighteq</code>	⊇
<code>\smallfrown</code>	⋈
<code>\pitchfork</code>	⋈
<code>\vartriangleleft</code>	◁
<code>\shortmid</code>	
<code>\smallsmile</code>	⋈
<code>\trianglelefteq</code>	⊆
<code>\therefore</code>	∴

`\sqsubset`



## Notes

- Based on [The not so Short Introduction to LaTeX](#).

You can modify and improve this cheat sheet [here](#)