Art of Problem Solving LaTeX:Symbols

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LaTeX

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This article will provide a short list of commonly used LaTeX symbols.

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Operators

SymbolCommand			olCommar	dSymbo	olCommand
±	\pm	Ŧ	\mp	×	\times
÷	\div	•	\cdot	*	\ast
*	\star	†	\dagger	‡	\ddagger
П	\amalg	Π	\cap	U	\cup
\forall	\uplus	П	\sqcap	Ц	\sqcup
V	\vee	Λ	\wedge	\oplus	\oplus
\ominus	\ominus	8	\otimes	0	\circ
•	\bu l let	<	\diamon	d [⊲]	\lhd
\triangleright	\rhd	⊴	\unlhd	\triangleright	\unrhd
0	\oslash	$_{\odot}$	\odot	Ō	\bigcirc
⊲	\triangleleft	\Diamond	\Diamon	dΔ	\bigtriangleup
∇	\bigtriangledow	/n□	\Box	⊳	\triangleright
\	\setminus	≀	\wr	\sqrt{x}	\sqrt{x}
\dot{x}°	x^{\circ}			-	

Relations

SymbolCor	nmand Syml	bolCommand	d Symbo	lCommand
≤ \le ~		\ge	≠	\neq
\sin		\II	>>	\gg
≐ ∖do	teq ≃	\simeq	\subset	\subset
\su	uiv supseteq∝ ∋	\approx \supsete \sqsubse \frown \propto \ni \vdash \succeq		\asymp \cong \sqsupset \sqsubseteq \bowtie \prec \dashv \models
, ,,,,		\parallel	ĺ	\
\mid]			

Negations of many of these relations can be formed by just putting \not before the symbol, or by slipping an n between the \ and the word. Here are a few examples, plus a few other negations; it works for many of the others as well.

Symb	olCommand	Symb	olComman	d Sym	bolCommand
ł	\nmid	≰	\nleq	≱	\ngeq
σú	\nsim	≆	\ncong	¥	\nparallel
≮.	\not<	*	\not>	/	\not=
≰ ≉	\not\le	≱	\not\ge	N	\not\sim
≉	\not\appro		\not\con	g≢	\not\equiv
V.	\not\paralle	el≮	\nless	×	\ngtr
Ş	\Ineq	⊋	\gneq	⋦	\Insim
≨	\Ineqq	≩	\gneqq	-	

To use other relations not listed here, such as =, >, and <, in LaTeX, you may just use the symbols on your keyboard.

Greek Letters

Lower	case Lett	ers					
	Comman	dSymbo	lCommand	Symbo	lComman	dSymbo	Command
α	\alpha	β	\beta	γ	\gamma	δ	\de l ta
ϵ	\epsilon	ε	\varepsiloi	nς	\zeta	η	\eta
θ	\theta	ϑ	\vartheta	L	\iota	κ	\kappa
λ	\lambda	μ	\mu	ν	\nu	ξ	\xi
π	\pi	$\overline{\omega}$	\varpi	ρ	\rho	ϱ	\varrho
σ	\sigma	ς	\varsigma	τ	\tau	v	\upsilon
ϕ	\phi	φ	\varphi	χ	\chi	ψ	\psi
ω	\omega						

Ca	nital	Letters
ca	pical	Letters

SymbolCommandSymbolCommandSymbolCommand							
Γ	\Gamma	Δ	\Delta	Θ	\Theta	Λ	\Lambda
Ξ	\Xi	Π	∖Pi	Σ	\Sigma	Υ	\Upsilon
Φ	\Phi	Ψ	\Psi	Ω	\Omega		

Headline text

Arrows

Symbo	lCommand	Symbo	lCommand
$\downarrow \downarrow \uparrow \uparrow \uparrow \uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow \uparrow \uparrow \uparrow \uparrow \downarrow \uparrow \uparrow$	\gets \leftarrow \rightarrow \leftrightarrow \mapsto \leftharpoonup \rightleftharpoons \Longleftarrow \Longrightarrow \Longleftrightarrow \hookrightarrow \rightharpoondown \uparrow \downarrow	·	\to \Leftarrow \Rightarrow \Leftrightarrow \hookleftarrow \longleftarrow \longrightarrow \longleftrightarrow \longmapsto \rightharpoonup \leadsto \Uparrow \Downarrow
\downarrow^{\times}	\updownarrow	ή	\Updownarrow
//	\nearrow	K, x	\searrow
V	\swarrow	1	\nwarrow

(For those of you who hate typing long strings of letters, \iff and \implies can be used in place of \Longleftrightarrow and \Longrightarrow respectively.)

Dots

```
SymbolCommandSymbolCommandSymbolCommand ... 2 \pmod{2} \pmod{2} \pmod{2} .   
\\dots
```

(The '2's after \ldots and \cdots are only present to make the distinction between the two clear.)

Accents

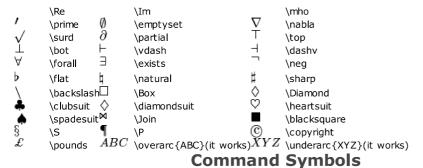
When applying accents to i and j, you can use \imath and \jmath to keep the dots from interfering with the accents:

```
 \begin{array}{ll} {\rm SymbolCommand} & {\rm SymbolCommand} \\ \vec{\jmath} & {\rm vec}\{{\rm SymbolCommand}\} \\ & {\rm Tilde}\{{\rm SymbolCommand}\} \\ \end{array}
```

 $\dot o$ and $\dot o$ wide versions that allow you to accent an expression:

Others

Symb	oolComman	d Sym	bolCommand	Symb	olCommand
∞	\infty	Δ	\triangle	Ź	\angle
И	\aleph	\hbar	\hbar	ı	\imath
J	\jmath	ℓ	\ell	P	\wp
90		C.S.		7.8	



Some symbols are used in commands so they need to be treated in a special way.

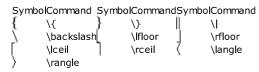
(Warning: Using $\$ for $\$ will result in 036;. This is a bug as far as we know. Depending on the version of LaTex this is not always a problem.)

European Language Symbols

SymbolCommandSymbolCommandSymbolCommandOmmandOmmandOmmandOmmandOmmandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandSymbolCommandS {\oe} {\ae} $\{ \aa \}$ {\o} Œ {\OE} Æ Ø {\AE} {\AA} {\O} ß 1 $\{||$ $\{\ss\}$ SSŁ {\L} {\SS}

Bracketing Symbols

In mathematics, sometimes we need to enclose expressions in brackets or braces or parentheses. Some of these work just as you'd imagine in LaTeX; type (and) for parentheses, [and] for brackets, and | and | for absolute value. However, other symbols have special commands:



You might notice that if you use any of these to typeset an expression that is vertically large, like

(\frac{a}{x})^2

the parentheses don't come out the right size:



If we put \left and \right before the relevant parentheses, we get a prettier expression:

\left(\frac{a}{x} \right)^2

gives

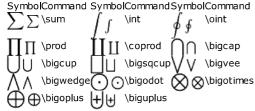


\left and \right can also be used to resize the following symbols:

Multi-Size Symbols

Some symbols render differently in inline math mode and in display mode. Display mode occurs when you use $\[...\]$ or $\...\$, or environments like $\$ equation $\...\$ end{equation}, $\$ equation}, $\$ end{align}...\Read more in the commands section of the guide about how symbols which take arguments above and below the symbols, such as a summation symbol, behave in the two modes.

In each of the following, the two images show the symbol in display mode, then in inline mode.



Examples

- lacktriangle x^y is the same as x^{y}, producing x^y .
- $lack x_{\sf y}$ is the same as x $_{\sf y}$, producing x_y .
- \bullet However, x^10 is *not* the same as x^{10}. The former produces x^10 instead of x^{10} .

See Also

Next: CommandsPrevious: Layout

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