Hi, I'm David
I'm working with and blogging about data, software development, machine learning and all things technology.

Follow

Want to work with me? Send me an email.

LaTeX mathematics cheat sheet

10 minute read

LaTeX is the de facto standard typesetting system for scientific writing. A lot of the nice looking equations you see in books and all around the web are written using LaTeX commands. Knowing a few of the mathematics commands is not only helpful if you want to write a book or an article (or do some extreme stuff), but can come in handy in a lot of places, as many systems support LaTeX. You can use LaTeX in MathJax to display expressions on the web (like here), you can make yourself good looking mathematics flashcards in Anki, you can even nerd out and send formulas built with LaTeX commands to your friends via an iMessage app. Also, Apple's latest Pages release now supports LaTeX equations.

Reasons enough to get familiar with the standard commands!

While a lot of commands can be written out in plain (e.g. 1+1=2), there are other frequently used commands you will need to look up or memorise.

I plan to update this post continuously as I find myself looking for a common symbol I haven't listed yet. Feel free to drop me an email or comment when you land here and don't find the answer to a frequently used symbol.

Here is the cheat sheet (naturally incomplete):

Fractions

Command	Description	Output

Command	Description	Output
\frac	Build a fraction like so: \frac{1}{2}	$\frac{1}{2}$
\frac{\frac{}}{}	You can nest fractions: \frac{\frac{1}{2}}{2}	$\frac{\frac{1}{2}}{2}$

Greek letters

(capitalize by capitalizing the command)

Command	Description	Output
\alpha	alpha	α
\beta	beta	β
\gamma	gamma	γ
\delta	delta	δ
\epsilon	epsilon	ϵ
\zeta	zeta	ζ
\eta	eta	η

Command	Description	Output
\theta	theta	θ
\iota	iota	ι
\kappa	kappa	κ
\lambda	lambda	λ
\mu	mu	μ
\nu	nu	ν
\xi	xi	ξ
o	omicron	o
\pi	pi	π
\rho	rho	ρ
\sigma	sigma	σ
\tau	tau	τ

Command	Description	Output
\upsilon	upsilon	υ
\phi	phi	ϕ
\chi	chi	χ
\psi	psi	ψ
\omega	omega	ω

Logic

Command	Description	Output
\forall	For all	$\forall$
\exists	Exists	$\exists$
\lor	Or	$\lor$
\land	And	$\land$
\veebar	Xor	$\veebar$

Command	Description	Output
\neg	Not	¬

Operators

Command	Description	Output
\times	Times	×
\cdot	Dot	·
\div	Division	÷
\pm	Plus minus	±

Relation

Command	Description	Output
\neq	Not equal	≠
\approx	Approximately equal	≈
\leq	Less than or equal	≤

Command	Description	Output
\geq	Greater than or equal	$\geq$
\ll	Much less than	$\ll$
\gg	Much greater than	$\gg$

Sets

(Often you can put an “n” before the command and get the negation)

Command	Description	Output
\supset	Proper superset	$\supset$
\supseteq	Superset	$\supseteq$
\subset	Proper Subset	$\subset$
\subseteq	Subset	$\subseteq$
\in	Member	$\in$
\emptyset	Empty set	$\emptyset$

Command	Description	Output
\mathbb{R}	Set of real numbers	$\mathbb{R}$
\cup	Set union (belonging to A OR B)	$\cup$
\cap	Set intersection (belonging to A AND B)	$\cap$

Super-/Subscript (Exponents / Indices)

Command	Description	Output
^	Use ^ for superscript. Example: x^2	x^2
^{}	Use ^{} for exponents with >1 digit. Example: x^{10}	x^{10}
_	Use _ for subscript. Example: x_0	x_0
_{}	Use _{} for subscript with >1 digit. Example: x_{10}	x_{10}

Others

Command	Description	Output
\infty	Infinity	∞

Command	Description	Output
\partial	Partial	∂
\hat{}	Estimator	$\hat{\theta}$
\sqrt[root]{}	Square root	$\sqrt[3]{4}$

Tags: Cheat sheet LaTeX MathJax

Categories: Miscellaneous

Updated: June 12, 2017

by David Hamann

Previous Next

LEAVE A COMMENT

Olivia Zhang • 2 months ago

One small thing want to comment here for future readers, if you are working on a project with your friend(s) using LaTeX, you might be interested in using the online sharelatex website. Here's the link https://www.sharelatex.com/
It's kind of like google doc. You can also compile your latex file and preview your document online.

David Mod ➚ Olivia Zhang • 2 months ago

Hi Olivia, Thanks for the additional tip.