Tip: Print out these pages for later (and quick) reference!

How to use LaTeX on this site To write math equations / symbols just enclose them between dollar signs or `\[`, `\]` tags, as shown below

`$` ····· `$` or as `$$` ····· `$$` or as `\[` ····· `\]`

For example `$$a_1+a^2=\sqrt{a+b}+\frac{x}{y}$$` will yield a centered equation

$$a_1+a^2=\sqrt{a+b}+\frac{x}{y}$$

If you want an inline equation, use just one dollar sign, so `$a_1+a_2+\frac {1}{2}$` will look like this: $a_1+a_2+\frac{1}{2}$, and notice that the fraction has been diminished to the line's height. If you want the fraction (and other large things) to look nice, you can use the `\displaystyle` command, like this `$\displaystyle a_1+a_2+\frac {1}{2}$` which gives $a_1+a_2+\displaystyle\frac{1}{2}$.

If you want to see how a math formula was written by another fellow user, just click on the formula itself or just hold the mouse over the formula, you will see the latex code

You can use classical LaTeXtags like `$, $$, \[, \]`, and I wish that you use them as much as possible. Try to avoid as much as possible `\begin{...}...\end{...}`, and all other such environments.

For security reasons, all mathematical symbols, but only a small subset of LaTeX-commands will work on the forum.

Let's continue with a quick LaTeX course.

Special characters. The following symbols have special meaning in LaTeX: `# $ % _ { } ~ ^ \` You can print the first seven of these by using `\# \$ \% \_ \{ \}` .

Lines and Text. `\\` starts a new line, `\ ` includes a space, `\mbox{...}` includes text.

subSCRIPTS and SUPERscripts. `x^2` yields x^2, `x_{2n}` yields x_{2n}. Here is another example: `\log_{5} 25=2` produces $\log_5 25=2$.

Be advised of the following $\{\cdots\}$ are used to simbolize one item. But if you are only referring to one item, you can skip the brackets. For example: `\x_123` yields x_123, as `x_{123}` yields x_{123}. Also can be used with fractions (see below).

Fractions. Use `\frac` to display fractions. Example: `\frac{\pi^2}{6}` produces $\frac{\pi^2}{6}$.

Again without the brackets `\frac 12` yields $\frac{1}{2}$, `\frac 123` yields $\frac{1}{2}3$ and `\frac 1{23}` yields $\frac{1}{23}$.

Roots. Use `\sqrt`. For instance, `\sqrt{a^2+b^2}` yields $\sqrt{a^2+b^2}$. You can also get roots of higher order: `\sqrt[n]{2x+1}` yields $\sqrt[n]{2x+1}$.

Delimiters (also known as brackets). The inputs `( ) [ ] \{ \}` yield the outputs ( ) [ ] { } .

Greek letters.

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`	π	`\pi`	ρ	`\rho`
σ	`\sigma`	τ	`\tau`	υ	`\upsilon`	ϕ	`\phi`
χ	`\chi`	ψ	`\psi`	ω	`\omega`	ε	`\varepsilon`
ϑ	`\vartheta`	ϖ	`\varpi`	ϱ	`\varrho`	ς	`\varsigma`
φ	`\varphi`	Γ	`\Gamma`	Δ	`\Delta`	Θ	`\Theta`
Λ	`\Lambda`	Ξ	`\Xi`	Π	`\Pi`	Σ	`\Sigma`
Υ	`\Upsilon`	Φ	`\Phi`	Ψ	`\Psi`	Ω	`\Omega`

Functions.

log	`\log`	lg	`\lg`	ln	`\ln`	exp	`\exp`
sin	`\sin`	cos	`\cos`	tan	`\tan`	cot	`\cot`
sec	`\sec`	csc	`\csc`	arcsin	`\arcsin`	arccos	`\arccos`
arctan	`\arctan`	deg	`\deg`	arg	`\arg`	inf	`\inf`
sup	`\sup`	min	`\min`	max	`\max`	lim	`\lim`
lim inf	`\liminf`	lim sup	`\limsup`	det	`\det`	dim	`\dim`
ker	`\ker`	gcd	`\gcd`	mod	`\bmod`		

Miscellaneous Symbols.

$\aleph$	`\aleph`	$\prime$	`\prime`	$\forall$	`\forall`
$\hbar$	`\hbar`	$\emptyset$	`\emptyset`	$\exists$	`\exists`
$\imath$	`\imath`	∇	`\nabla`	$\neg$	`\neg`
$\jmath$	`\jmath`	$\surd$	`\surd`	$\flat$	`\flat`
ℓ	`\ell`	$\top$	`\top`	$\natural$	`\natural`
$\wp$	`\wp`	$\bot$	`\bot`	$\sharp$	`\sharp`
$\Re$	`\Re`	$\|$	`|`	$\clubsuit$	`\clubsuit`
$\Im$	`\Im`	$\angle$	`\angle`	$\diamondsuit$	`\diamondsuit`
∂	`\partial`	$\triangle$	`\triangle`	$\heartsuit$	`\heartsuit`
∞	`\infty`	$\backslash$	`\backslash`	$\spadesuit$	`\spadesuit`

"Large" Operators.

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

Binary Operations.

$\pm$	\pm	$\cap$	\cap	$\vee$	\vee
$\mp$	\mp	$\cup$	\cup	$\wedge$	\wedge
$\setminus$	\setminus	$\uplus$	\uplus	$\oplus$	\oplus
$\cdot$	\cdot	$\sqcap$	\sqcap	$\ominus$	\ominus
$\times$	\times	$\sqcup$	\sqcup	$\otimes$	\otimes
$*$	\ast	$\triangleleft$	\triangleleft	$\oslash$	\oslash
$\star$	\star	$\triangleright$	\triangleright	$\odot$	\odot
$\diamond$	\diamond	$\wr$	\wr	$\dagger$	\dagger
$\circ$	\circ	$\bigcirc$	\bigcirc	$\ddagger$	\ddagger
$\bullet$	\bullet	$\bigtriangleup$	\bigtriangleup	$\amalg$	\amalg
$\div$	\div	$\bigtriangledown$	\bigtriangledown		

Relations.

$\leq$	\leq	$\geq$	\geq	$\equiv$	\equiv
$\prec$	\prec	$\succ$	\succ	$\sim$	\sim
$\preceq$	\preceq	$\succeq$	\succeq	$\simeq$	\simeq
$\ll$	\ll	$\gg$	\gg	$\asymp$	\asymp
$\subset$	\subset	$\supset$	\supset	$\approx$	\approx
$\subseteq$	\subseteq	$\supseteq$	\supseteq	$\cong$	\cong
$\sqsubseteq$	\sqsubseteq	$\sqsupseteq$	\sqsupseteq	$\bowtie$	\bowtie
$\in$	\in	$\ni$	\ni	$\propto$	\propto
$\vdash$	\vdash	$\dashv$	\dashv	$\models$	\models
$\smile$	\smile	$\mid$	\mid	$\doteq$	\doteq
$\frown$	\frown	$\parallel$	\parallel	$\perp$	\perp

Arrows.

$\leftarrow$	\leftarrow	$\rightarrow$	\rightarrow
$\longleftarrow$	\longleftarrow	$\longrightarrow$	\longrightarrow
$\Leftarrow$	\Leftarrow	$\Rightarrow$	\Rightarrow
$\Longleftarrow$	\Longleftarrow	$\Longrightarrow$	\Longrightarrow
$\leftrightarrow$	\leftrightarrow	$\Leftrightarrow$	\Leftrightarrow
$\longleftrightarrow$	\longleftrightarrow	$\Longleftrightarrow$	\Longleftrightarrow
$\hookleftarrow$	\hookleftarrow	$\hookrightarrow$	\hookrightarrow
$\leftharpoonup$	\leftharpoonup	$\rightharpoonup$	\rightharpoonup
$\leftharpoondown$	\leftharpoondown	$\rightharpoondown$	\rightharpoondown
$\uparrow$	\uparrow	$\downarrow$	\downarrow
$\Uparrow$	\Uparrow	$\Downarrow$	\Downarrow
$\updownarrow$	\updownarrow	$\Updownarrow$	\Updownarrow
$\nearrow$	\nearrow	$\nwarrow$	\nwarrow
$\searrow$	\searrow	$\swarrow$	\swarrow
$\mapsto$	\mapsto	$\longmapsto$	\longmapsto
$\rightleftharpoons$	\rightleftharpoons		

Matrices, arrays, etc. `\begin{array}{cc}-1&5\\\sqrt 2&3\end{array}` yields $\begin{array}{cc}-1&5\\\sqrt 2&3\end{array}$. You can produce big delimiters by prefacing with `\left` and closing with `\right`. Example:

`\left(\begin{array}{cc}-1&5\\\sqrt 2&3\end{array}\right)` yields $\left(\begin{array}{cc}-1&5\\\sqrt 2&3\end{array}\right)$.

`\right.` matches a `\left...` and is necessary to "close" the `\left` tag, but does not produce any output. Example:

```
f(x)=\left\{\begin{array}{cc}1,&\mbox{ if }
x\geq 2\\-1, & \mbox{ if } x<2\end{array}\right.
```

yields $f(x) = \begin{cases} 1, & \text{if } x \geq 2 \\ -1, & \text{if } x < 2 \end{cases}$

`{cc}` after the `\begin{array}` command means that the array has two centered columns. Other alignment options are `r` and `l`. Use `|` to insert a vertical line. `\hline` inserts a horizontal line. Example:

```
\begin{array}{l|cr|}3&4&0\\-3&-2&1\\\hline\end{array}
```

yields $\begin{array}{l|cr|} 3 & 4 & 0 \\ -3 & -2 & 1 \\ \hline \end{array}$

OVERlining- and underLINING. `\underline{\overline{x^2}+1}` yields $\underline{\overline{x^2}+1}$, `\underbrace{\overbrace{x^2}+1}` yields $\underbrace{\overbrace{x^2}+1}$. There are also `\hat, \tilde` and `\widehat` and `\widetilde`. Example: $\tilde{x}, \widehat{\sqrt{x^2-1}}$. Other accents: `\check, \bar, \vec, \dot, \ddot`: $\check{a}, \bar{a}, \vec{a}, \dot{x}, \ddot{x}$.

With regards,

AoPS - MathLinks Team.