enclose math symbols by \[tex\] . . . . . . . . . \[/tex].

For instance \[tex\] x^2 \sqrt{x} \[/tex] will produce “\(x^2\sqrt{x}\)”.

If you want to find out how a math formula was input by another user, click on the message’s "quote" button!

For those of you who know \LaTeX: \[tex\] is equivalent to $...$. Thus you cannot use $, $$, \[, \]. Avoid \begin{...}...\end{...}, etc. All mathematical symbols, but only a small subset of \LaTeX-commands will work on our CyberBoard.

A \LaTeX crash-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, \ \$ \{ \} includes text.

**Sub- and Superscripts.** \(x^2\) produces \(x^2\), \(x_{2n}\) produces \(x^{2n}\). Here is another example: \(\log_5 25 = 2\) gives \(\log_{5} 25 = 2\).

**Fractions.** Use \(\frac{}{}\) to display fractions. Example: \(\frac{\pi^2}{6}\) gives \(\pi^2/6\).

**Roots.** Use \(\sqrt{}\). For instance, \(\sqrt{a^2+b^2}\) produces \(\sqrt{a^2+b^2}\). You can also get “other” roots: \(\sqrt[3]{2}\) yields \(\sqrt[3]{2}\).

**Delimiters.** The inputs ( ) [ ] \{ \} yield the outputs ( ) [ ] \{ \}.

**Greek letters.**

| \(\alpha\) | \(\beta\) | \(\gamma\) | \(\delta\) | \(\Delta\) | \(\epsilon\) | \(\zeta\) | \(\eta\) | \(\theta\) | \(\Theta\) | \(i\) | \(\iota\) | \(\kappa\) | \(\lambda\) | \(\Lambda\) | \(\nu\) | \(\xi\) | \(\pi\) | \(\rho\) | \(\chi\) | \(\vartheta\) | \(\varpi\) | \(\varphi\) | \(\varpi\) | \(\psi\) | \(\phi\) | \(\varphi\) | \(\chi\) | \(\varsigma\) | \(\varphi\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) |
| \(\alpha\) | \(\beta\) | \(\gamma\) | \(\delta\) | \(\Delta\) | \(\epsilon\) | \(\zeta\) | \(\eta\) | \(\theta\) | \(\Theta\) | \(i\) | \(\iota\) | \(\kappa\) | \(\lambda\) | \(\Lambda\) | \(\nu\) | \(\xi\) | \(\pi\) | \(\rho\) | \(\chi\) | \(\vartheta\) | \(\varpi\) | \(\varphi\) | \(\varpi\) | \(\psi\) | \(\phi\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) | \(\varsigma\) | \(\varphi\) |

**Functions.**

| \(\log\) | \(\log\) | \(\lg\) | \(\log\) | \(\ln\) | \(\ln\) | \(\exp\) | \(\exp\) | \(\sin\) | \(\sin\) | \(\cos\) | \(\cos\) | \(\tan\) | \(\tan\) | \(\cot\) | \(\cot\) | \(\sec\) | \(\sec\) | \(\csc\) | \(\csc\) | \(\arcsin\) | \(\arcsin\) | \(\arccos\) | \(\arccos\) | \(\arctan\) | \(\arctan\) | \(\deg\) | \(\deg\) | \(\arg\) | \(\arg\) | \(\inf\) | \(\inf\) | \(\sup\) | \(\sup\) | \(\min\) | \(\min\) | \(\max\) | \(\max\) | \(\lim\) | \(\lim\) | \(\liminf\) | \(\liminf\) | \(\limsup\) | \(\limsup\) | \(\det\) | \(\det\) | \(\dim\) | \(\dim\) | \(\ker\) | \(\ker\) | \(\gcd\) | \(\gcd\) | \(\mod\) | \(\bmod\) |
### Miscellaneous Symbols.

- $\aleph$ \texttt{	extbackslash aleph}
- $\prime$ \texttt{	extbackslash prime}
- $\forall$ \texttt{	extbackslash forall}
- $\hbar$ \texttt{	extbackslash hbar}
- $\emptyset$ \texttt{	extbackslash emptyset}
- $\exists$ \texttt{	extbackslash exists}
- $\nabla$ \texttt{	extbackslash nabla}
- $\neg$ \texttt{	extbackslash neg}
- $\flat$ \texttt{	extbackslash flat}
- $\top$ \texttt{	extbackslash top}
- $\natural$ \texttt{	extbackslash natural}
- $\wp$ \texttt{	extbackslash wp}
- $\bot$ \texttt{	extbackslash bot}
- $\clubsuit$ \texttt{	extbackslash clubsuit}
- $\imath$ \texttt{	extbackslash imath}
- $\square$ \texttt{	extbackslash square}
- $\flat$ \texttt{	extbackslash flat}
- $\ell$ \texttt{	extbackslash ell}
- $\jmath$ \texttt{	extbackslash jmath}
- $\surd$ \texttt{	extbackslash surd}
- $\sharp$ \texttt{	extbackslash sharp}
- $\Re$ \texttt{	extbackslash Re}
- $\clubsuit$ \texttt{	extbackslash clubsuit}
- $\Im$ \texttt{	extbackslash Im}
- $\angle$ \texttt{	extbackslash angle}
- $\diamondsuit$ \texttt{	extbackslash diamondsuit}
- $\partial$ \texttt{	extbackslash partial}
- $\heartsuit$ \texttt{	extbackslash heartsuit}
- $\infty$ \texttt{	extbackslash infty}
- $\spadesuit$ \texttt{	extbackslash spadesuit}

### “Large” Operators.

- $\sum$ \texttt{	extbackslash sum}
- $\bigcap$ \texttt{	extbackslash bigcap}
- $\bigodot$ \texttt{	extbackslash bigodot}
- $\prod$ \texttt{	extbackslash prod}
- $\bigcup$ \texttt{	extbackslash bigcup}
- $\bigotimes$ \texttt{	extbackslash bigotimes}
- $\coprod$ \texttt{	extbackslash coprod}
- $\bigsqcup$ \texttt{	extbackslash bigsqcup}
- $\bigoplus$ \texttt{	extbackslash bigoplus}
- $\int$ \texttt{	extbackslash int}
- $\bigvee$ \texttt{	extbackslash bigvee}
- $\biguplus$ \texttt{	extbackslash biguplus}
- $\oint$ \texttt{	extbackslash oint}
- $\bigwedge$ \texttt{	extbackslash bigwedge}

### Binary Operations.

- $\pm$ \texttt{	extbackslash pm}
- $\mp$ \texttt{	extbackslash mp}
- $\cap$ \texttt{	extbackslash cap}
- $\cup$ \texttt{	extbackslash cup}
- $\cap$ \texttt{	extbackslash cap}
- $\cup$ \texttt{	extbackslash cup}
- $\sqcap$ \texttt{	extbackslash sqcap}
- $\sqcup$ \texttt{	extbackslash sqcup}
- $\triangledown$ \texttt{	extbackslash triangledown}
- $\bigcirc$ \texttt{	extbackslash bigcirc}
- $\bigtriangledown$ \texttt{	extbackslash bigtriangledown}

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Relations.

\[ \leq \quad \geq \quad \equiv \quad \ll \quad \gg \quad \preceq \quad \succeq \quad \sim \quad \subseteq \quad \supseteq \quad \asymp \quad \prec \quad \succ \quad \bowtie \quad \in \quad \ni \quad \propto \quad \vdash \quad \models \quad \beam \quad \doteq \quad \frown \quad \parallel \quad \perp \]

Arrows.

\[ \leftarrow \quad \longleftarrow \quad \Rightarrow \quad \Leftarrow \quad \Longleftarrow \quad \Leftrightarrow \quad \hookrightarrow \quad \rightharpoonup \quad \nabla \quad \uparrow \quad \Downarrow \quad \downarrow \quad \nearrow \quad \searrow \quad \mapsto \quad \longmapsto \]

Matrices, arrays, etc. \( \begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array} \) produces \( \begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array} \). You can produce big delimiters by prefacing with \( \left \) and closing with \( \right \). Example:

\[ \left( \begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array} \right) \] produces \((1 \, 0 \, 0 \, 1)\).

\( \right. \) matches a \( \left \) and is necessary to “close” the \( \left \) tag, but does not produce any output. Example:

\[ f(x)=\left\{\begin{array}{cc} 0, & \text{if } x \leq 0 \\ 1, & \text{if } x > 0 \end{array}\right. \]

produces \( f(x) = \left\{ \begin{array}{cl} 0, & \text{if } x \leq 0 \\ 1, & \text{if } x > 0 \end{array} \right. \).
\{cc\} after the \texttt{\begin{array}} command means that the array has two centered columns. Other alignment options are \texttt{r} and \texttt{l}. Use \texttt{|} to insert a vertical line. \texttt{\hline} inserts a horizontal line. Example:

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

\texttt{\begin{array}}\{1\texttt{cr}\}4\&1\&2\texttt{\\\n-4\&-1\&-2\texttt{\\hline\end{array}}

yields
\[
\begin{array}{c|c|c}
4 & 1 & 2 \\
-4 & -1 & -2 \\
\hline
\end{array}
\]

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

Font size. Use \texttt{\displaystyle} to make formulas bigger;
compare \texttt{\frac{1}{2}} to \texttt{\displaystyle\frac{1}{2}}: $\frac{1}{2}$ versus $\frac{1}{2}$. 