Syntax for T_EX Commands available in MathJax

The following syntax is used in [TeX Commands available in MathJax](#):

- ARGUMENTS:
  Arguments are denoted by #1, #2, #3, etc.
  Multi-token arguments should be enclosed in (curly) braces: ' { } '

- GROUPING CONSTRUCTS:
  There are two basic grouping constructs that use braces;
  I refer to them as 'arguments' versus 'braced groups'.
  If you're not aware which construct is in force, then you can get unexpected results.
  [These examples illustrate the difference.](#)

- DIMENSIONS:
  ⟨dimen⟩ denotes:
  ⟨optional sign⟩⟨number⟩⟨unit⟩
  Examples: `-5pt` or `-5 pt` or `3.5pt`
  [Click here for a table of dimension units](#)

- CLASS INFORMATION:
  Math operators are divided into several distinct classes, which control the spacing between elements in the typeset expression.
  For example, REL uses a little more space than BIN.
  - ORD: an 'ordinary' item, like a variable name or Greek letter
  - OP: a 'big operator', usually having moveable limits (though not always)
    and different sizes for display and in-line modes (though not always)
    [Click here for a table of Big Operators classifying mode behavior](#)
  - BIN: a 'binary operator' like $+$ and $-$
  - REL: a 'binary relation' like $<$ and $\leq$
  - OPEN: an 'opening delimiter' like $($
  - CLOSE: a 'closing delimiter' like $)$
  - PUNCT: a 'punctuation' like $:$
  - INNER: a special class used for fractions and some other things

- DELIMITERS:
  Delimiters are symbols used to enclose expressions (e.g., parentheses, brackets, and braces)
  or used as operators (e.g., vertical lines for absolute value).
  In MathJax, delimiters can be of class OPEN, CLOSE, REL, or ORD.
  [Click here for a table of MathJax Delimiters](#)

- BROWSER-SPECIFIC SUGGESTIONS:
  - Set explicit widths for table-cells that contain math content;
    in native MathML environments, some unusual line-breaking in math can occur otherwise.

DIMENSION UNITS:

em	a relative measure; depends on current font	approximately the width of capital 'M' in current font	1 em spaces: | | | compare with M in a small font | | | compare with M in a medium font | | | compare with M in a large font ||| in scriptstyle (medium font) ||| in scriptscriptstyle (medium font)
ex	a relative measure; depends on current font	1 ex = 0.43 em approximately the height of lowercase 'x' in current font; gives information about the height of lowercase letters	1 ex spaces: ||| compare with x in a small font ||| compare with x in a medium font ||| compare with x in a large font ||| in scriptstyle (medium font) ||| in scriptscriptstyle (medium font)

pt	point a relative measure; depends on current font; not affected by superscript level	$1 \text{ pt} = \frac{1}{10}\text{em}$	10 pt (1 em) spaces: | | | in a small font | | | in a medium font | | | in a large font | | | in scriptstyle (medium font) ||| in scriptscriptstyle (medium font)
pc	pica a relative measure; depends on current font; not affected by superscript level	$1 \text{ pc} = 12 \text{ pt}$	1 pc spaces: | | | in a small font | | | in a medium font | | | in a large font | | | in scriptstyle (medium font) | | | in scriptscriptstyle (medium font)
mu	a relative measure; depends on current font; changes with superscript level	$1 \text{ mu} = \frac{1}{18}\text{em}$	18 mu (1 em) spaces: | | | in a small font | | | in a medium font | | | in a large font | | | in scriptstyle (medium font) ||| in scriptscriptstyle (medium font)
cm mm	centimeter millimeter absolute measure; does not depend on current font	$10 \text{ mm} = 1 \text{ cm}$	1 cm (10 mm) spaces: | | | in a small font | | | in a medium font | | | in a large font | | | in scriptstyle (medium font) | | | in scriptscriptstyle (medium font)
in	inch absolute measure; does not depend on current font	$1 \text{ in} = 2.54 \text{ cm}$	1 in spaces: | | in a small font | | in a medium font | | in a large font | | in scriptstyle (medium font) | | in scriptscriptstyle (medium font)
px	screen pixel		10 px spaces on your own screen: | | | in a small font | | | in a medium font | | | in a large font | | | in scriptstyle (medium font) | | | in scriptscriptstyle (medium font)

VARIABLE-SIZED DELIMITERS

When used with `\left` and `\right`, these symbols expand to the height of the enclosed math expression.
They can also be used with \Bigg, \bigg, \Big, \big (or, the left/right/middle versions) to produce fixed-height large delimiters.
Each is illustrated below in sizes: normal, \big, \Big, \bigg, \Bigg

Symbol		Symbol	
`(` class OPEN		`)` class CLOSE	
`\lgroup` class OPEN		`\rgroup` class CLOSE	
`[` class OPEN		`]` class CLOSE	
`\{` class OPEN		`\}` class CLOSE	
`\uparrow` class REL		`\Uparrow` class REL	
`\downarrow` class REL		`\Downarrow` class REL	
`\updownarrow` class REL		`\Updownarrow` class REL	
`\langle` class OPEN		`\rangle` class CLOSE	
`<` class REL		`>` class REL	
`|` or `\vert` class ORD		`|` or `\Vert` class ORD	
`\arrowvert` class ORD		`\Arrowvert` class PUNCT	
`\bracevert` class ORD			
`\lceil` class OPEN		`\rceil` class CLOSE	
`\lfloor` class OPEN		`\rfloor` class CLOSE	
`/` class ORD		`\backslash` class ORD	
`\lmoustache` class OPEN		`\rmoustache` class CLOSE	

BIG OPERATORS

For some of these operators (as indicated in the table), default limit positions can be changed using the `\limits` and `\nolimits` commands. Both commands should follow immediately after the base symbol to which they apply. For example, compare:

`\coprod_{i=1}^n` (inline mode)	`\coprod\limits_{i=1}^n` (inline mode)	`\coprod_{i=1}^n` (display mode)	`\coprod\nolimits_{i=1}^n` (display mode)
$\coprod_{i=1}^n$	$\coprod\limits_{i=1}^n$	$\coprod_{i=1}^n$	$\coprod\nolimits_{i=1}^n$

operator name	default inline mode behavior	inline with `\limits`	default display mode behavior	display with `\nolimits` (unless otherwise indicated)
`\arccos`, `\arcsin`, `\arctan` do not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\arccos_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\arccos}}$	$\arccos_{sub}^{sup}$	display with `\limits` $\underset{sub}{\overset{sup}{\arccos}}$
`\arg` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\arg_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\arg}}$	$\arg_{sub}^{sup}$	display with `\limits` $\underset{sub}{\overset{sup}{\arg}}$
`\bigcap`, `\bigcup` both change size; can change limit placement using `\limits` and `\nolimits`	$\bigcap_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\bigcap}}$	$\underset{sub}{\overset{sup}{\bigcap}}$	$\bigcap_{sub}^{sup}$
`\bigodot`, `\bigoplus`, `\bigotimes` all change size; can change limit placement using `\limits` and `\nolimits`	$\bigodot_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\bigodot}}$	$\underset{sub}{\overset{sup}{\bigodot}}$	$\bigodot_{sub}^{sup}$
`\bigsqcup` changes size; can change limit placement using `\limits` and `\nolimits`	$\bigsqcup_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\bigsqcup}}$	$\underset{sub}{\overset{sup}{\bigsqcup}}$	$\bigsqcup_{sub}^{sup}$
`\biguplus` changes size; can change limit placement using `\limits` and `\nolimits`	$\biguplus_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\biguplus}}$	$\underset{sub}{\overset{sup}{\biguplus}}$	$\biguplus_{sub}^{sup}$
`\bigvee`, `\bigwedge` both change size; can change limit placement using `\limits` and `\nolimits`	$\bigvee_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\bigvee}}$	$\underset{sub}{\overset{sup}{\bigvee}}$	$\bigvee_{sub}^{sup}$
`\coprod` changes size; can change limit placement using `\limits` and `\nolimits`	$\coprod_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\coprod}}$	$\underset{sub}{\overset{sup}{\coprod}}$	$\coprod_{sub}^{sup}$
`\cos`, `\sin`, `\tan`, `\sec`, `\cot`, `\csc` `\cosh`, `\sinh`, `\tanh`, `\coth` do not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\cos_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\cos}}$	$\cos_{sub}^{sup}$	display with `\limits` $\underset{sub}{\overset{sup}{\cos}}$
`\deg` does not change size;	$\deg_{sub}^{sup}$	$\underset{sub}{\overset{sup}{\deg}}$	$\deg_{sub}^{sup}$	

default limit placement is the same in both inline and display modes; can change limit placement using `\limits`				display with `\limits` $$\deg_{\text{sub}}^{\text{sup}}$$
`\det` does not change size; can change limit placement using `\limits` and `\nolimits`	$\det_{\text{sub}}^{\text{sup}}$	$\det_{\text{sub}}^{\text{sup}}$	$\det_{\text{sub}}^{\text{sup}}$	$\det_{\text{sub}}^{\text{sup}}$
`\dim` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\dim_{\text{sub}}^{\text{sup}}$	$\dim_{\text{sub}}^{\text{sup}}$	$\dim_{\text{sub}}^{\text{sup}}$	display with `\limits` $\dim_{\text{sub}}^{\text{sup}}$
`\exp` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\exp_{\text{sub}}^{\text{sup}}$	$\exp_{\text{sub}}^{\text{sup}}$	$\exp_{\text{sub}}^{\text{sup}}$	display with `\limits` $\exp_{\text{sub}}^{\text{sup}}$
`\gcd` does not change size; can change limit placement using `\limits` and `\nolimits`	$\gcd_{\text{sub}}^{\text{sup}}$	$\gcd_{\text{sub}}^{\text{sup}}$	$\gcd_{\text{sub}}^{\text{sup}}$	display with `\limits` $\gcd_{\text{sub}}^{\text{sup}}$
`\hom` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\hom_{\text{sub}}^{\text{sup}}$	$\hom_{\text{sub}}^{\text{sup}}$	$\hom_{\text{sub}}^{\text{sup}}$	display with `\limits` $\hom_{\text{sub}}^{\text{sup}}$
`\idotsint` changes size; can change limit placement using `\limits`	$\int\cdots\int_{\text{sub}}^{\text{sup}}$	$\int\cdots\int_{\text{sub}}^{\text{sup}}$	$\int\cdots\int_{\text{sub}}^{\text{sup}}$	display with `\limits` $$\int\cdots\int_{\text{sub}}^{\text{sup}}$$
`\iiiint, \iiint, \iint, \int` all change size; can change limit placement using `\limits`; common behavior is illustrated here using `\iint`	$\iint_{\text{sub}}^{\text{sup}}$	$\iint_{\text{sub}}^{\text{sup}}$	$\iint_{\text{sub}}^{\text{sup}}$	display with `\limits` $$\iint_{\text{sub}}^{\text{sup}}$$
`\intop` changes size; can change limit placement using `\limits` and `\nolimits`	$\int_{\text{sub}}^{\text{sup}}$	$\int_{\text{sub}}^{\text{sup}}$	$\int_{\text{sub}}^{\text{sup}}$	$\int_{\text{sub}}^{\text{sup}}$
`\inf, \sup` do not change size; can change limit placement using `\limits` and `\nolimits`	$\inf_{\text{sub}}^{\text{sup}}$	$\inf_{\text{sub}}^{\text{sup}}$	$\inf_{\text{sub}}^{\text{sup}}$	$\inf_{\text{sub}}^{\text{sup}}$
`\injlim, \varinjlim` do not change size; can change limit placement using `\limits` and `\nolimits`	$\text{inj lim}_{\text{sub}}^{\text{sup}}$	$\text{inj lim}_{\text{sub}}^{\text{sup}}$	$\text{inj lim}_{\text{sub}}^{\text{sup}}$	$\text{inj lim}_{\text{sub}}^{\text{sup}}$
`\ker` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\ker_{\text{sub}}^{\text{sup}}$	$\ker_{\text{sub}}^{\text{sup}}$	$\ker_{\text{sub}}^{\text{sup}}$	display with `\limits` $\ker_{\text{sub}}^{\text{sup}}$

`\lg` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\lg_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\lg}}$	$\lg_{\text{sub}}^{\text{sup}}$	display with `\limits` $\overset{\text{sup}}{\underset{\text{sub}}{\lg}}$

`\lim, \liminf, \limsup, \varliminf,`
`\varlimsup`
 	
do not change size;
can change limit placement using `\limits` and `\nolimits`
	$\lim_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\lim}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\lim}}$	$\lim_{\text{sub}}^{\text{sup}}$

`\ln, \log` does not change size; default limit placement is the same in both inline and display modes; can change limit placement using `\limits`	$\ln_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\ln}}$	$\ln_{\text{sub}}^{\text{sup}}$	display with `\limits` $\overset{\text{sup}}{\underset{\text{sub}}{\ln}}$
`\max, \min` do not change size; can change limit placement using `\limits` and `\nolimits`	$\max_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\max}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\max}}$	$\max_{\text{sub}}^{\text{sup}}$
`\oint` changes size; can change limit placement using `\limits`	$\oint_{\text{sub}}^{\text{sup}}$	$\oint_{\text{sub}}^{\text{sup}}$	$\oint_{\text{sub}}^{\text{sup}}$	display with `\limits` $\overset{\text{sup}}{\underset{\text{sub}}{\oint}}$
`\Pr` does not change size; can change limit placement using `\limits` and `\nolimits`	$\Pr_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\Pr}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\Pr}}$	$\Pr_{\text{sub}}^{\text{sup}}$
`\prod` changes size; can change limit placement using `\limits` and `\nolimits`	$\prod_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\prod}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\prod}}$	$\prod_{\text{sub}}^{\text{sup}}$
`\projlim, \varprojlim` does not change size; can change limit placement using `\limits` and `\nolimits`	$\operatorname{proj\,lim}_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\operatorname{proj\,lim}}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\operatorname{proj\,lim}}}$	$\operatorname{proj\,lim}_{\text{sub}}^{\text{sup}}$
`\sum` changes size; can change limit placement using `\limits` and `\nolimits`	$\sum_{\text{sub}}^{\text{sup}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\sum}}$	$\overset{\text{sup}}{\underset{\text{sub}}{\sum}}$	$\sum_{\text{sub}}^{\text{sup}}$