1 Operations

higher order roots	$\sqrt[mn]{x+y} \quad \sqrt[3]{2}$	`\sqrt[mn]{x+y} \quad \sqrt[3]{2}`
root sign	$\surd[x+y]$	`\surd[x+y]`
force large fraction	$\frac{a+b}{x+\log\dfrac{Y}{Z}}$	`\frac{a+b}{x+\log\dfrac{Y}{Z}}`
Continued fraction	$1+\cfrac{2}{3+\cfrac{4}{5+\cfrac{6}{7+\cdots}}} = \frac{1}{\sqrt{e}-1}$	`1+\cfrac{2}{ 3+\cfrac{4}{ 5+\cfrac{6}{7+\dotsb}}} = \frac{1}{\sqrt e - 1}`
prime	$y'' + y' + y = u$	`y'' + y' + y = u`

mod	$a \bmod n = b$
	$a \equiv b \pmod n$
	$a \equiv b \mod n$
	$a \equiv b \pod n$
		`\begin{array}{l}`
		`  a\bmod n = b \\`
		`  a\equiv b\pmod n \\`
		`  a\equiv b\mod n \\`
		`  a\equiv b\pod n`
		`\end{array}`

2 Subscripts and superscripts

multilevel subscripts	$\sum_{\substack{1\le m\le N,\\ m \text{ odd}}} P(m)$	`\sum_{\substack{`
		`  1 \le m \le N,`
		`\\`
		`  m\text{ odd}}} P(m)`

sub- and superscripts before the symbol	${}_nC_k$	`{}_n C_k`
subscripts and superscripts for large symbols	${}_b^a\sum_c^{'}$	`\sideset{^a_b}{'_c}` `\sum`

3 Sums, integrals, and products

contour integral	$\oint_C$	`\oint_C`
double and triple integrals	$\iint_S \quad \iiint_S$	`\iint_S \quad \iiint_S`
even more integrals	$\iiiint_S \quad \int \cdots \int_S$	`\iiiint_S \quad \idotsint_S`
integrals with alternative limit placement	$\int\limits_\alpha^\beta \quad \iint\limits_S$	`\int\limits_\alpha^\beta \quad \iint\limits_S`
Unions and intersections	$\bigcup_{\alpha\in S} \quad \bigcap_{V\in\mathfrak{V}}$	`\bigcup_{\alpha\in S}\quad \bigcap_{V\in\mathfrak{V}}`

Direct sums, coproducts, and so on	$\bigodot \quad \bigoplus$
	$\bigotimes \quad \bigsqcup$
	$\biguplus \quad \coprod$
	$\bigvee \quad \bigwedge$
		`\begin{array}{c}`
		`\bigodot \quad \bigoplus\\`
		`\bigotimes \quad \bigsqcup\\`
		`\biguplus \quad \coprod\\`
		`\bigvee \quad \bigwedge\\`
		`\end{array}`

4 Brackets

pairing brackets	$( ), [ ], \{ \}$
	$\lvert \rvert, \lVert \rVert$
	$\lceil \rceil, \lfloor \rfloor$
	$\langle \rangle$
		`( \; ), [ \; ], \{ \; \}`
		`\lvert\;\rvert, \lVert\;\rVert`
		`\lceil\;\rceil, \lfloor\;\rfloor`

Bracket size can be specified explicitly	$\Big(\bigg(\Big(\bigg(\quad \bigg\}\Big\}\bigg\}\Big\}$	`\Biggl( \biggl( \Bigl( \bigl( \quad \Biggr\} \biggr\} \Bigr\} \bigr\}`

visually to large	$\left[\sum_j \left\lvert \sum_i x_{ij} \right\rvert^2 \right]^{1/2}$	`\left[ \sum_j`
		`  \left\lvert\sum_i x_{ij}\right\rvert^2`
		`\right]^{1/2}`

manually-sized	$\biggl[\sum_j \Bigl\lvert \sum_i x_{ij} \Bigr\rvert^2 \biggr]^{1/2}$	`\biggl[ \sum_j \Bigl|\sum_i x_{ij}\Bigr|^2 \biggr]^{1/2}`

5 Multilien formulas and piecewise functions

plecewise function/cases	$a_k = \begin{cases} k & \text{for } k \le n/2 \\ n & \text{for } k = n/2 \\ k-1 & \text{otherwise} \end{cases}$	`a_k = \begin{cases} k & \text{for $k \le n/2$}\\ n & \text{for $k=n/2$}\\ k-1 & \text{otherwise} \end{cases}`
multiline equations	$\begin{aligned} \tan^2 x &= \sin^2 x / \cos^2 x \\ &= 1/\cos^2 x - 1 \end{aligned}$	`\begin{split}\tan^2 x &= \sin^2 x/\cos^2 x\\ &= 1/\cos^2 x - 1 \end{split}`
Systems of equations	$\left\{ \begin{array}{l} ax+by=r_1\\ cx+dy=r_2 \end{array} \right.$	`\left\{\begin{array}{l} ax+by=r_1\\ cx+dy=r_2 \end{array}\right.`

6 Arrows