${\scriptstyle \rhd}\, Size\text{-adaptive math: } {\sf leftX...} {\sf rightX}$

	(x)	parantheses
	[x]	brackets
	x	absolute value
	$ x ^2$	absolute value squared
{}	[x, y]	commutator
	$\langle x \rangle$	mean value

⊳ Fixed-size math (for quickly changing from adaptive style)

	(x)	big parantheses
	(x)	Big parantheses
	$\begin{bmatrix} x \end{bmatrix}$	big brackets
	x	Big brackets
	x	big absolute value
	x	Big absolute value
	$ x _2^2$	big absolute value squared
	$ x ^2$	Big absolute value squared
{}	[x,y]	big commutator
{}	[x,y]	Big commutator
	$\langle x \rangle$	big mean value
	$\langle x \rangle$	Big mean value

▷ Braket notation

	$\langle x $	bra
	$ x\rangle$	ket
{}	$\langle x y\rangle$	scalar product
{}	$ x\rangle\langle y $	ket-bra operator

{}{}	$\langle x y z\rangle$	matrix element
$\strut_{\ldots} \$	$\langle x y z\rangle$	small matrix element
Special functions		
	$\delta(x)$	delta function
	$\theta(x)$	theta function
	$\exp(x)$	exponential function
	e^x	exponential function
	Re(x)	real part, function form
	Im(x)	imaginary part, function form
\Re	Re	real part
\Im	Im	imaginary part
Named states		
\ketPsi	$ \Psi angle$	
\ketpsi	$ \psi angle$	
\ketphi	arphi angle	
\ketup	$ \!\!\uparrow\rangle$	spin up
\ketdn	$ \downarrow\rangle$	spin down
\ketzero	$ 0\rangle$	
\ketone	$ 1\rangle$	
\ketg	g angle	ground state
\kete	$ e\rangle$	excited state
\vac	$ { m vac}\rangle$	vacuum
⊳ Pauli matrices		
\sx	σ^x	
\sy	σ^y	

\sz	σ^z	
\splus	σ^+	
\sminus	σ^{-}	
> Vectors		
\vecr	\mathbf{r}	
\vecrone	$\mathbf{r_1}$	
\vecrtwo	$\mathbf{r_2}$	
\vecrn	${ m r_N}$	
\vecri	$\mathbf{r_{i}}$	
\vecrj	$\mathbf{r_{j}}$	
\vecR	\mathbf{R}	
\vecx	x	
\vecy	y	
\vecz	${f z}$	
\vecxi	$\mathbf{x_i}$	
\vecxj	$\mathbf{x_j}$	
\veck	k	
\vecq	\mathbf{q}	
\vecp	p	
\vecd	d	
\vecmu	μ	
\vecsigma	σ	
Differentiation		
	$\frac{\partial}{\partial x}$	partial differentiation
\laplace	∇^2	laplace operator

▶ Integration

\integral{..} $\int dx$ integral $\int_{1}^{y} dz$ \integralb{..}{..}{..} integral with boundaries $\int \frac{\mathrm{d}x}{y}$ \integralf{..}{..} integral with fraction $\int d^3r$ \intvol integral over r space $\int d^3r'$ integral over r' space \intvolp $\int d^3r \int d^3r'$ double integral over space \intvold $\int d^3k$ integral over k space \intk $\int d^3k'$ integral over k' space \intkp $\int \frac{\mathrm{d}^3 k}{(2\pi)^3} \int \frac{\mathrm{d}^3 k'}{(2\pi)^3}$ \intkn normalized integral over k space normalized integral over k' space \intkpn

\hc h.c. hermitian conjugate Ĥ Hamilton operator \hamil <u>!</u> \hastobe has to be $\hat{=}$ \eqhat corresponds to, is equivalent 1 \id identity matrix \const hermitian conjugate const.

⊳ Second quantization

\aop annihilation operator a a^{\dagger} \aopd creation operator annihilation operator \bop b b^{\dagger} \bopd creation operator annihilation operator \cop c c^{\dagger} \copd creation operator number operator \nop n

\psiop $\hat{\psi}$ field operator \psiopd $\hat{\psi}^{\dagger}$ \PsiOp $\hat{\Psi}$

\PsiOpd $\hat{\Psi}^{\dagger}$

Differences

\Dx Δx \Dy Δy \Dt Δt

▶ Trigonometry

\asin asin \acos \atan atan

⊳ Figures

\igopt(2 arguments) options, filename

\ig(2 arguments) width in units of textwidth, filename

\figopt(4 arguments) width, filename, caption, placement (h, t, ht)

\fig(3 arguments) width, filename, caption

\doublefigopt(8 arguments) w1, f1, c1, w2, f2, c2, main caption, placement

\doublefig(7 arguments) w1, f1, c1, w2, f2, c2, main caption