

# school.sty Reference Sheet

Include the file `school.sty` in your working directory to have access to these commands

Quantum Mechanics		Useful Math Symbols		Calculus and Other Commands	
Code	Result	Code	Result	Code	Result
<code>\ket{a}</code>	$ a\rangle$	<code>\RR</code>	$\mathbb{R}$	<code>\td{x}{y}</code>	$\frac{dx}{dy}$
<code>\bra{a}</code>	$\langle a $	<code>\CC</code>	$\mathbb{C}$	<code>\tdd{x}{y}</code>	$\frac{d^2x}{dy^2}$
<code>\braket{a}{b}</code>	$\langle a b\rangle$	<code>\QQ</code>	$\mathbb{Q}$	<code>\pd{x}{y}</code>	$\frac{\partial x}{\partial y}$
<code>\ketbra{a}{b}</code>	$ a\rangle\langle b $	<code>\NN</code>	$\mathbb{N}$	<code>\pdd{x}{y}</code>	$\frac{\partial^2 x}{\partial y^2}$
<code>\expect{a}</code>	$\langle a $	<code>\trans{a}</code>	$a^T$	<code>\quadratic{a}{b}{c}</code>	$\frac{-b \pm \sqrt{b^2 - 4(a)(c)}}{2(a)}$
<code>\expectdef{a}{b}</code>	$\langle b a\rangle$	<code>\inv{a}</code>	$a^{-1}$	<code>\defint{a}{b}{f(x)}{x}</code>	$\int_a^b f(x) dx$
<code>\comm{a}{b}</code>	$[a, b]$	<code>\del</code>	$\nabla$	<code>\inprod{a}{b}</code>	$\langle a, b \rangle$
<code>\conj{a}</code>	$a^\dagger$	<code>\degr{a}</code>	$a^\circ$	<code>\lound{a}</code>	<b>a</b>

## Vector Calculus Definitions

Code	Result
<code>\divergence{\psi}</code>	$\frac{\partial \psi}{\partial x} + \frac{\partial \psi}{\partial y} + \frac{\partial \psi}{\partial z}$
<code>\sdivergence{\psi}</code>	$\frac{1}{r^2} \frac{\partial}{\partial r} (r^2 \psi_r) + \frac{1}{r \sin \phi} \frac{\partial}{\partial \phi} (\sin \phi \psi_\phi) + \frac{1}{r \sin \phi} \frac{\partial \psi_\theta}{\partial \theta}$
<code>\cdivergence{\psi}</code>	$\frac{1}{r} \frac{\partial}{\partial r} (r \psi_r) + \frac{1}{r} \frac{\partial \psi_\phi}{\partial \phi} + \frac{\partial \psi_z}{\partial z}$
<code>\curl{\psi}</code>	$\left( \frac{\partial \psi_z}{\partial y} - \frac{\partial \psi_y}{\partial z} \right) \hat{x} + \left( \frac{\partial \psi_z}{\partial x} - \frac{\partial \psi_x}{\partial z} \right) \hat{y} + \left( \frac{\partial \psi_y}{\partial x} - \frac{\partial \psi_x}{\partial y} \right) \hat{z}$
<code>\scurl{\psi}</code>	$\frac{1}{r \sin \theta} \left[ \frac{\partial}{\partial \theta} (\sin \theta \psi_\phi) - \frac{\partial \psi_\theta}{\partial \phi} \right] \hat{r} + \frac{1}{r} \left[ \frac{1}{\sin \theta} \frac{\partial \psi_r}{\partial \phi} - \frac{\partial}{\partial r} (r \psi_\phi) \right] \hat{\theta} + \frac{1}{r} \left[ \frac{\partial}{\partial r} (r \psi_\theta) - \frac{\partial \psi_r}{\partial \theta} \right] \hat{\phi}$
<code>\ccurl{\psi}</code>	$\left( \frac{1}{r} \frac{\partial \psi_z}{\partial \theta} - \frac{\partial \psi_\theta}{\partial z} \right) \hat{r} + \left( \frac{\partial \psi_r}{\partial z} - \frac{\partial \psi_z}{\partial r} \right) \hat{\theta} + \frac{1}{r} \left[ \frac{\partial}{\partial r} (r \psi_\theta) - \frac{\partial \psi_r}{\partial \theta} \right] \hat{z}$
<code>\laplacian{\psi}</code>	$\frac{\partial^2 \psi}{\partial x^2} + \frac{\partial^2 \psi}{\partial y^2} + \frac{\partial^2 \psi}{\partial z^2}$
<code>\slaplacian{\psi}</code>	$\frac{1}{r^2} \frac{\partial}{\partial r} \left( r^2 \frac{\partial \psi}{\partial r} \right) + \frac{1}{r^2 \sin^2 \phi} \frac{\partial^2 \psi}{\partial \theta^2} + \frac{1}{r^2 \sin^2 \phi} \frac{\partial}{\partial \phi} \left( \sin \phi \frac{\partial \psi}{\partial \phi} \right)$
<code>\claplacian{\psi}</code>	$\frac{1}{r} \frac{\partial}{\partial r} \left( r \frac{\partial \psi}{\partial r} \right) + \frac{1}{r^2} \frac{\partial^2 \psi}{\partial \theta^2} + \frac{\partial^2 \psi}{\partial z^2}$