Expression	*Mathematica* syntax
xy	`x y` (don't forget the space)
e	`E` (or use Basic Math Assistant palette)
π	`Pi` (or use Basic Math Assistant palette)
∞	`Infinity` (or use Basic Math Assistant palette)
$\sqrt{32}$	`Sqrt[32]` (or use Basic Math Assistant palette)
$\sqrt[4]{40}$	`40^(1/4)` (or use Basic Math Assistant palette)
$\lvert x-3\rvert$	`Abs[x-3]`
$\sin\pi$	`Sin[Pi]`
$\cos(x(y+1))$	`Cos[x(y+1)]`
$\cot\left(\frac{2\pi}{3}+\frac{3\pi}{4}\right)$	`Cot[2 Pi/3 + 3 Pi/4]`
$\arctan 1$	`ArcTan[1]`
$\ln 3$	`Log[3]`
$\log_6 63$	`Log[6,63]`
$\log 18$	`Log10[18]`
2^{7y}	`2^(7y)` (or use Basic Math Assistant palette)
e^{x-5+x^2}	`E^(x-5+x^2)` or `Exp[x-5+x^2]` (or use Basic Math Assistant palette)
$f(x+3)$ (if f is a function)	`f[x+3]`
$xf(2x)-x^2f(x)$	`x f[2x] - x^2 f[x]`
$(f\circ g)(x)$	`f[g[x]]`
$\lim_{x\to 4} f(x)$	`Limit[f[x], x -> 4]`
$f'(3)$	`f'[3]`
$g'''(x)$	`g'''[x]` or `D[g[x],{x,3}]`
$\int x^2\,dx$	`Integrate[x^2,x]` (or use Basic Math Assistant palette)
$\int_2^5 \cos x\,dx$	`Integrate[Cos[x], {x, 2, 5}]` (or use Basic Math Assistant palette) (for decimal approximation, use `NIntegrate`)
$\sum_{k=1}^{12} f(k)$	`Sum[f[k], {k, 1, 12}]`
30! (factorial)	`30!`

Object	keyboard shortcut
raised exponent	type base, then [Control]+6, then exponent
horizontal fraction bar	type [Control]+/, then numerator, then [Tab], then denominator
square root sign	[Control]+2

Objective	*Mathematica* syntax
To call the preceding output	`%`
To get a decimal approximation to the preceding output	`N[%]` (or click **numerical value**)
Define a function $f(x) = formula$	`f[x_] =` $formula$ (one equals sign, underscore after `x`)
Generate table of values for f	`Table[{x,f[x]}, {x,`$xmin$`,`$xmax$`,`$step$`}]`
Plot the graph of $f(x) = formula$	`Plot[`$formula$`, {x,`$xmin$`,`$xmax$`}]`
Plot multiple graphs at once	`Plot[{`$formula$`,`$formula$, ..., $formula$`}, {x,`$xmin$`,`$xmax$`}]`
Plot the graph of $f(x) = formula$ with range of $y-$values specified	`Plot[`$formula$`, {x,`$xmin$`,`$xmax$`}, PlotRange -> {`$ymin$`,`$ymax$`}]`
Plot the graph of $f(x) = formula$ with x- and y-axes on same scale	`Plot[`$formula$`, {x,`$xmin$`,`$xmax$`}, PlotRange -> {`$ymin$`,`$ymax$`}, AspectRatio -> Automatic]`
Find exact solution(s) to equation of form $lhs = rhs$	`Solve[`lhs`==`rhs`,x]` (two equals signs) (works only with polynomials or other relatively "easy" equations)
Find decimal approx. to solutions of equation $lhs = rhs$	`NSolve[`lhs`==`rhs`,x]` (two equals signs) (works only with "easy" equations)
Find decimal approx. to solutions of equation $lhs = rhs$	`FindRoot[`lhs`==`rhs`,{x,`$guess$`}]` (two equals signs)
Partial fraction decomposition	`Apart[ ]`
Define parametric function $x = f(t), y = g(t)$	`f[t_] = {`$f(t)$`,`$g(t)$`}`
Plot graph of a set of parametric equations (after defining them as $f(t)$)	`ParametricPlot[f[t], {t, -20,20}, PlotRange -> {{`$xmin$`,`$xmax$`}, {`$ymin$`,`$ymax$`}}]`