

## Entering Math Expressions in LON-CAPA

In general, you will enter math expressions in LON-CAPA like you would on most calculators. Use / for division, \* for multiplication and ^ for power. Here are some specific rules that I would like to point out.

1. **Always use \* for multiplication to be safe.** When a constant times a variable, \* can be omitted. For example, to express  $2x$ , you can type in either  $2x$  or  $2 * x$ . However, when two variables multiply each other, you must use \* in between them. For example, to express  $xy$ , you have to type in  $x * y$ . Thus, it is a good practice to always use \* for multiplication to be safe.
  
2. **Use and only use () when needed.** Never use [], <> or {}. For example, to express  $\frac{1}{2(x-1)+y}$ , you should enter  $1/(2 * (x - 1) + y)$ , not  $1/[2 * (x - 1) + y]$ .
  
3. **Always use () for the argument of a function.** For example, type  $\sin(x)$  instead of  $\sin x$ . Type  $\ln(x)$  instead of  $\ln x$ .

Below is a list of examples that you will find helpful.

What You Want to Express	What You Type in LON-CAPA
does not exist	DNE
infinity, $\infty$	INF
negative infinity, $-\infty$	-INF
undefined	UNDEFINED
$\pi$	pi
$\frac{2x}{y+1}$	$2 * x / (y + 1)$
$x^y$	$x ^ (y)$
$e^{(x+2)}$	$e ^ (x+2)$
$\sqrt{x}$	sqrt( $x$ ) or $x ^ (1/2)$
$\sqrt[3]{x}$	$x ^ (1/3)$
$x^{\frac{2}{5}}$	$x ^ (2/5)$
$\sin x$	sin( $x$ )
$\ln x$	ln( $x$ )
$\tan^2 x$	$(\tan(x)) ^ 2$ <span style="color: red;">Extra attention needed on this one.</span>