

# Mathematical Expressions in LON-CAPA<sup>1</sup>

Mathematical expressions in LON-CAPA are generally entered in the same way as you would on a calculator: use / for division, \* for multiplication, and ^ for power. Here are some specific rules that will make your life easier.

1. **Always use \* for multiplication.** If you're multiplying a constant times a variable, \* can be omitted. For example, 2 times  $x$  can be expressed as either  $2x$  or  $2 * x$ . However, when multiplying two variables, like  $x$  times  $y$ , a \* must exist between them:  $x * y$ .
2. **Always use ( ) for the argument of a function.** The sine of  $x$  is  $\sin(x)$ , not  $\sin x$ . The natural log of  $x$  is  $\ln(x)$ , not  $\ln x$ .
3. **Use ( ) only when needed.** Never use [ ], { }, or <>. For example,  $\frac{1}{2(x-1)+y}$  would be entered as  $1/(2*(x-1)+y)$ , not  $1/[2*(x-1)+y]$ .

Your Expression	LON-CAPA's Expression	Notes
$\pi$	pi	Lowercase letters.
$x^y$	$x^y$	
$e^x$	$e^x$	
$\sqrt{x}$	$\text{sqrt}(x)$ or $x^{(1/2)}$	
$\sin x$	$\sin(x)$	
$\tan^2 x$	$(\tan(x))^2$	
$\ln x$	$\ln(x)$	
$\sqrt[3]{x}$	$x^{(1/3)}$	
$x^{2/5}$	$x^{(2/5)}$	
does not exist	DNE	
infinity, $\infty$	INF	All caps.
negative infinity, $-\infty$	-INF	
undefined	UNDEFINED	

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<sup>1</sup>Borrowed from Purdue.