

Syntax Instructions

In Moodle Quizzes you often need to enter an answer which is an algebraic expression. The syntax is broadly similar to the syntax used for mathematical formulae in graphical calculators, general programming languages such as Java, C and Basic and in spreadsheet programs, so you will find it useful to master it.

Letters, symbols

π ($\pi \approx 3,14$) can be entered as *pi*,

e ($e \approx 2,71828$) can be entered as *e*

i ($i^2 = -1$) can be entered as *i*

Greek letters can be entered using their English names. For example, $\alpha + \beta + \gamma$ as *alpha + beta + gamma*

Brackets

Brackets are important to group terms in an expression. Try to consciously develop a sense of when you need brackets and avoid putting in too many. Note that in this context you should always use ordinary round bracket ones $(a + b)$, not square $[a+b]$ (means a list) or curly $\{a + b\}$ (means a set).

Fractions

Use fractions rather than decimals where possible: $\frac{1}{4}$ should be entered as *1/4*, not as *0.25*. In the mixed number the whole and the fractional part are separated by a space: $3\frac{1}{5}$ as *3(backspace)1/5*.

The fraction $\frac{a+b}{c+d}$ should be entered as *(a + b)/(c + d)*.

More about fractions

<i>a + b/c + d</i>	means	$a + \frac{b}{c} + d$
<i>a + b/(c + d)</i>	means	$a + \frac{b}{c + d}$
<i>(a + b)/c + d</i>	means	$\frac{a + b}{c} + d$

Multiplication

Use a star for multiplication (*). Forgetting this is by far the most common source of syntax errors. For example $3x$ can be entered as *3 * x*; $x(ax + 1)(bx - 1)$ can be entered as *x * (a * x + 1) * (b * x - 1)*

Powers an Indices

Use a caret (^) for raising something to a power: for example, x^2 should be entered as *x^2*. You can get a caret by holding down the SHIFT key and pressing the 6 key on most keyboards. Negative or fractional powers need brackets: x^{-2} should be entered as *x^(-2)*; 2^{m+n} should be entered as *2^(m + n)*; \sqrt{x} should be entered as *sqrt(x)* or *x^(1/2)*; $\sqrt[3]{x}$ should be entered as *x^(1/3)*. Indices a_2 should be entered as *a_2*.

Functions

Functions, such as sin, cos, tan, exp, log and so on can be entered using their usual names. However, the argument must always be enclosed in brackets:

sin x should be entered as *sin(x)*; $2\cos 3x$ should be entered as *2 * cos(3 * x)*

ln 3 should be entered as *ln(3)*; $e^{ax} \sin(bx)$ should be entered as *e^(a * x) * sin(b * x)* and so on.

Functions like $\arcsin(x)$, $\arccos(x)$, $\arctan(x)$ ja $\operatorname{arccot}(x)$ in Moodles should be entered as *asin(x)*, *acos(x)*, *atan(x)* and *acot(x)*.

Modulus function: The modulus function, sometimes called the absolute value of x , is written as $|x|$ in traditional notation. This must be entered as *abs(x)*.

Equations and Inequalities

Equation $y = x^2 - 2x + 1$ should be entered as *y = x^2 - 2 * x + 1*. Inequalities $<$, $>$, \leq , \geq can be entered using the greater than and less than signs on the keyboard $<$, $>$, $<=$, $>=$. Note there the quality must come second when it is used.