Numbas: Getting Started

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1 Introduction

Numbas is a web-based e-assessment system, developed by the School of Mathematics & Statistics at Newcastle University.

You will use this system to complete assignments as part of your in-course assessment.

Assignments can be in 'practice' mode (where you can make as many attempts as you like, reveal the answers, and your score does not count), or 'assessed' mode (where you can make only one attempt, cannot reveal the answers, and your score counts toward the module total).

Assignments are usually in practice mode for one week, after which assessed mode is available for a further week. Practice mode is disabled while assessed mode is active. Practice mode for all CBAs is re-enabled after the final CBA has ended, to help with exam revision.

Timetables for all CBAs can be found at

`http://www.ncl.ac.uk/maths/students/teaching/cba/timetables/`

and you should refer to this page regularly to be aware of any changes. Changes will also be announced in lectures.

An interactive *Getting Started* Numbas CBA is also available within the Getting Started module. You should attempt this to get comfortable with the question types you will see, and how to enter your answers.

If you have any problems with the system in any way, please send an e-mail to numbas.ncl.ac.uk.

2 Starting an assignment

Click on the link for whichever assignment you want to attempt, and you are taken to an introductory page, which shows some details about the assignment. Click on the *Start* button to begin. Questions are *randomised*, so that each time you restart the assignment various aspects of a question (e.g. variables, and sometimes wording) will change.

3 Question layout

Down the left of the page is the list of questions in the assignment; you can click on questions and attempt them in any order you want. Be sure to submit your answers to a question (see below) before moving on, as any unsubmitted answer boxes are cleared when leaving a question. You can also use the *Previous* and *Next* buttons to move between questions.

Answers are entered in the input boxes on the page, and then clicking the *Submit answer* button at the bottom of the page will mark your answers. In practice mode you will then see your score for that

question. In assessed mode you will only see that you have successfully submitted an answer. If a question has multiple parts, you can either answer each part individually, by clicking the *Submit part* button, or all at once, by clicking the *Submit all parts* button.

In practice mode, if you click the *Try another question like this one* button, the question will be redisplayed, with new randomised variables. This button is not available in assessed mode.

When you are finished answering all questions, click the *End Assignment* button, and you will then see a summary of your attempt.

4 Steps and videos

In some questions there is a *Steps* button. Clicking on this will show a hint about how to answer the question. You will sometimes lose marks by doing this, but the question will say so, should this be the case.

Within some steps you may also have the opportunity to play a video. These videos show worked examples of questions similar to the ones in the assignments (although not necessarily exactly the same), and you can play them as many times as you like.

5 Reveal

In practice mode, if you press the *Reveal* button, you will see a fully-worked solution to the question, but you will receive no marks for it. This button is not available in assessed mode.

6 How to enter algebraic expressions

In some of the questions you are required to enter algebraic expressions, e.g. if you were asked to differentiate x^2, you would be expected to enter $2x$ as your answer. Table 1 shows how to enter some common mathematical expressions using simple *calculator syntax*. Note that a real-time display of how Numbas

Mathematical expression	Numbas input
x^2+1	`x^2+1`
$\frac{1-x+x^3}{1+x}$	`(1-x+x^3)/(1+x)`
$x^2+3x\sin(x^3)$	`x^2+3*x*sin(x^3)`
e^{-2x}	`exp(-2*x)`
e^{-x^4}	`exp(-x^4)`
$\ln\left\lvert\frac{x-y}{x+y}\right\rvert$	`ln(abs((x-y)/(x+y)))`

Table 1: Mathematical expressions and how they should be entered.

has interpreted your answer appears as you type, and you are warned of any possible errors in your input.

6.1 Important notes

- Numbas recognises all standard mathematical functions, e.g. $\sin$, $\cos$, $\tan$, $\log$, $\ln$, etc., but remember that the arguments of these functions *must* be contained within parentheses, e.g. `sin(x)`, not `sinx`. Notice that Numbas prints all mathematical functions in an upright font. Functions that Numbas does not know about will appear in italics.
- The absolute value is a function in Numbas so, for example, you would enter `abs(x)` for $|x|$, and not `|x|` using the vertical bar symbol on the keyboard.
- Use parentheses carefully, and use the real-time display to make sure that Numbas has interpreted what you expect, e.g. `1/2+x` and `1/(2+x)` are not the same ($\frac{1}{2} + x$ and $\frac{1}{2+x}$ respectively).
- Be careful to explicitly use `*` for multiplication, where multiplication is intended, e.g. $x \sin(x)$ should be entered as `x*sin(x)`, and not `xsin(x)`.