

# Going off the top board: A numbas journey

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## Pre covid-19 numbas

1. Formative assessment plus walk through style introductory questions, consolidation and revision.  
Accessed via SCORM packages on VLE.  
Mostly asynchronous activities.
2. Recruitment activities. Web page synchronous activity.

<https://numbas.mathcentre.ac.uk/exam/9525/binary-birthdays-activity/embed/?token=4b6fa3e9-afdc-4ee7-bf36-5862f5829d87>

# Post covid-19 numbas

1. Stage one: Emergency implementation
  - a) Fuzhou Normal University Block taught foundation year remotely delivered to China.
  - b) Huddersfield University year one Engineering Maths lockdown support to revision and online examination.
2. Stage two: Forward planning for continued online teaching in lockdown.

20/21 semester one delivery of modules.

## a) Remote remote delivery to FNU, China

Jan/ Feb 2020 China went into lockdown.

Remote remote delivery of two 20 credit foundation modules to start  
March 2nd 2020.



## Teaching material

**Resources:** Webpage style 'Read me first' document: embedded screencast (non youtube or Google); signposted timeline with links to lecture notes; handwritten exercises; HELM; <https://www.mathtutor.ac.uk>; numbas exercises.



exam-65336-fnu-  
mf1-exam

**Delivery:** Block mode teaching (12 week course at UofH delivered over 4 weeks). Material organised by course stage and specific date. Zipped as single package, distributed by FNU TA.

Progress monitored through numbas exams:

Modules in China use a three point assessment model: 'Performance score', 'Mid-term assessment' and 'Final exam'.

## Cohort of 100 students, Electronics and Photonics.

Although Foundation year, the students' mathematical ability is generally excellent, however, their English is not.

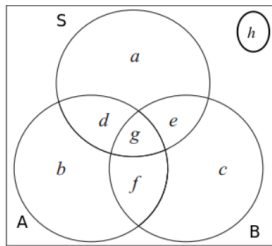
Whereas, in 2019 I could encourage group practice, discussions and presentations this year that was not going to be possible.

Teaching and assessment in English.

Applications often tricky for first language students become much more so for second language students.

Lengthy passages describing various groupings for illustration on a Venn diagram, an inherently wordy question style, are particularly problematic.

I hoped to ensure the problem was understood with a matching exercise pre calculations:

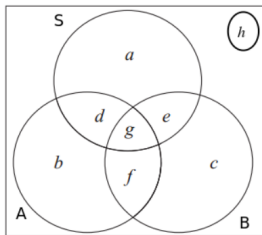


Match choices with answers.

	$a+d+e+g$	$b+d+f+g$	$c+e+f+g$	$f+g$	$d+g$	$e+g$	$g$
S	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AB	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
x	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

However, I overlooked the possibility of misunderstanding input directions and gave an instruction to enter the values in each region in terms of  $x$  with an 8 mark reward.

Use the Venn diagram to illustrate this situation, showing, in terms of  $x$ , the number of members in each region.



Students entering the numerical values were automatically awarded zero.

This was manually corrected but no doubt frustrating for students.



## Solution from numbas v5.0 '+ Add an alternative answer'

### Gap 6. Mathematical expression

Copy this gap

Delete this gap

Marking  
settings

Marking  
algorithm

Restrictions

Accuracy

Marks

1

Correct  
answer

8-x 8 - x

Show correct



Parts

Gap 3. Mathematical  
expression

Gap 4. Mathematical  
expression

Gap 5. Mathematical  
expression

Gap 6. Mathematical  
expression

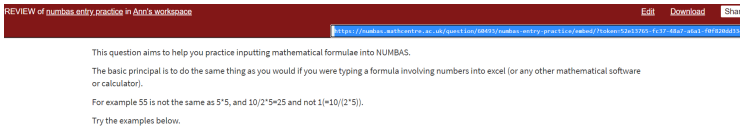
Alternative answers

+ Add an alternative answer

Gap 7. Mathematical  
expression

Off the shelf screencasts (eg. BBC bitesize; youtube, Google) not accessible from China.

link share introduced to numbas in time to share 'numbas entry practice' pre final exam.



REVIEW of numbas\_entry\_practice in Ann's workspace

https://numbas.mathcentre.ac.uk/question/60493/numbas-entry-practice/embed/numbas-entry-practice

This question aims to help you practice inputting mathematical formulae into NUMBAS.

The basic principal is to do the same thing as you would if you were typing a formula involving numbers into excel (or any other mathematical software or calculator).

For example 55 is not the same as  $5*5$ , and  $10/2*5=25$  and not  $1*(10/(2*5))$ .

Try the examples below.

[https://numbas.mathcentre.ac.uk/question/60493/numbas-entry-practice/embed/numbas entry practice](https://numbas.mathcentre.ac.uk/question/60493/numbas-entry-practice/embed/numbas-entry-practice)

# Feedback

- ▶ 100 students,
- ▶ two 20 credit modules remotely delivered,
- ▶ 6 assessments,
- ▶ 3 marking queries (accuracy, algebraic input, mark allocation).

## b) Emergency move to hold year one Engineering mathematics end of module exam online

numbas material embedded in learning resources throughout the year:

a) walk through/ missed or misunderstood the lecture style questions introducing topics




b) graded randomised questions for consolidation and revision purposes. All formative.





25th March announcement to group (approximately 200 students now distributed around the globe) their exam would be taken online.





Precise details to be agreed and communicated asap meanwhile to continue to engage with online material.

One month prior to the exam: exact date and details released along with practice numbas exam; test Turnitin submission box; video explaining the entire process plus general notes posted to VLE (Brightspace).

 [numbas-entry-practice \(1\)](#)   
 Content Object

 [How to access the online exam and submit your transcript](#)   
 Video

 [NFE2105 Practice Exam](#)   
 Content Object  
 Ends 08 May, 2020 12:30 AM

 [Exam Submission Box \(Test\)](#)   
 Assignment  
 Ends 08 May, 2020 12:30 AM

THIS IS A TEST SUBMISSION FOLDER

8 days before the exam: further announcement urging all students to practice the procedure in the following 48 hours with links to each attachment and a numbas input practice exercise.

Ultimately, five students took advantage of the full practice process.

## How did it go? The students:

1. For the vast majority: no contact, no apparent issues.
2. 6 students had a zero mark recorded but had posted their results summary evidence to the Turnitin box. I accepted the given marks.
3. 2 students didn't access the exam but sent handwritten solutions without questions via email. I didn't accept these.
4. A number of students were concerned about being computer marked, loss of method marks.

# What about me?

1. Low stakes exam, year one already had marks for two in-class tests sat under exam conditions.
2. Had I planned an end of module e-assessment I would have incorporated continuous e-assessment at end of blocks for practice (me and students).



## Was it stressful?

Oh my goodness yes!!!!

a) Iti might have helped and I would hope to have access in the future.

b) Whilst a 24 hour window appears a generous solution a shorter period I could continuously monitor would be preferable.[1.5mm] c)

Support from the numbas team was invaluable both for technical support, online tutorial sessions, blog posts and in reassuring me and colleagues.

# Forward planning for online delivery

Asynchronous lesson plans:

- a) Review of prior session(s);
- b) Introduction to new topic: text exposition interspersed with questions;
- c) Scaffolded numbas exercises;
- d) Screencast(s) worked example followed by further walkthrough questions;
- e) Bank of graded numbas questions;
- f) Exam question-formative then summative mode.