

Maths for Foundations of Maths, Computing & Economics **(FoMaC & FoEaM)**

Welcome to Brunel's Maths preparation task for those taking Foundation courses in Economics & Mathematics or Mathematics & Computing!

This document has a few 'warm-up' exercises for you to try before you start the course. **The first part of the document, starting on the next page, is for those who have a pass in A-level maths or equivalent. If you do not have A-level maths or equivalent, please scroll down to page four instead.**

The questions and so-called diagnostic exercises are just to help you get a feel for the topic, refresh your memory, and understand where you are at. They feature some topics you may not have seen before or have forgotten. So, don't worry if you can't do the questions now or if you find it difficult. You will have the opportunity to learn it later and we are not expecting you to be able to do everything!

Some of you may be excited about the prospect of taking maths modules, some of you might be less keen! Whatever your situation, our staff have experience of boosting significantly the mathematical powers of students who engage with course and work hard. Even if you do not enjoyed mathematics in the past, it is important to remember that it is a critical skill set in computing, finance, economics, science, engineering, and business.

Mathematics preparation tasks for Foundations of Maths, Computing & Economics (FoMaC & FoEaM) students with A-level maths or equivalent

There are two parts to this activity. Part (a) is learning material, and part (b) is a “diagnostic” exercise, and part (c) is an exercise for you to understand the relevance of mathematics.

a) **LEARNING MATERIAL** Clear out the cobwebs by doing **some** of the questions in the following links. You should do **one or two**, but if you are then ok with the topic, leave it there; otherwise look at the feedback. **No marks will be recorded** – this is just for your own preparation for part b) which will comprise similar questions from each of the topics below.

- Currency conversion (needed if we ever holiday abroad again!)
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1031>
- Two percentages
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1028>
- Charts <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1150>
- Flow charts <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=115>
- Scientific numbers
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=613>
- Prime factorisation
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1037>
- Surds <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=615>
- Polynomial long division
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1045>
- Partial fractions
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=44>
- Factorisation of cubics
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1050>
- Inequalities
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1041>

- Quadratic simultaneous equations
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=55>
- Sigma notation
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=58>
- Understanding expressions
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=40>

b) Diagnostic exercises: Do the following diagnostic tests:

Part 1 Numeracy; <http://www.mathscentre.ac.uk:8081/mathseg-teacher/mytest.jsp?tid=692&rt=18016429-0cfa-43c8-85f1-30073bb261cc>

Part 2 Algebra: <http://www.mathscentre.ac.uk:8081/mathseg-teacher/mytest.jsp?tid=693&rt=70a63793-cfcd-4619-9954-abc7ae1975e4>

Here marks will be recorded, so long as you **FINISH THE TEST** and **close only the Results screen (not before)**. At the start, please input your **first name** and **surname**, don't worry about a student number yet (you'll get one when you register at Brunel) and input '**School**' for your email address. You may do the tests as often as you like.

There will be follow up on your results, designed to help you get on top of anything that you find tricky. You'll be given details when you register and they'll be set work to do, then a further test (for real marks) in about week 2 or 3 as part of your Study Skills tasks.

c) The significance of mathematics:

Go to the link <https://mathigon.org/applications>. The page contains information on some of the applications of mathematics. You can order the applications by industry or topic. Pick out the three applications that are most relevant to your interests or anticipated career, and by following the links or doing your own google search, find three equations (it doesn't matter if you know what the equations mean at this stage!) that are relevant to those applications.

Mathematics preparation tasks for Foundations of Maths, Computing & Economics (FoMaC & FoEaM) students **without A-level maths or equivalent**

Welcome to Brunel's Maths preparation. **This is for those who do not have a pass in A level maths or equivalent.** Note: the questions and diagnostic test feature some topics you may not have seen before, or have forgotten. So, don't worry if you can't do the questions now. You will have the opportunity to learn it later and we are not expecting you to be able to do everything.

There are three parts to this activity. Part (a) is learning material, part (b) is a "diagnostic" exercise, (c) is an exercise for you to understand the relevance of mathematics.

- a) **LEARNING MATERIAL** Clear out the cobwebs by doing **some** of the questions in the following links. You should do **one or two**, but if you are then ok with the topic, leave it there; otherwise look at the feedback. **No marks will be recorded** – this is just for your own preparation for part b) which will comprise similar questions from each of the topics below.

- Pay <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1033>
- Two percentages
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1028>
- Charts <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1150>
- BODMAS <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=606>
- Positive integer powers
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=625>
- Negative integer powers
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=624>
- Simplification and combination
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=42>
- Two linear factors
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=1051>
- Rearranging equations
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=35>
- Proportionality
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=33>
- Linear equations
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=30>

- Indices <http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=29>
- Expanding brackets: linear & quadratic
<http://www.mathcentre.ac.uk:8081/mathseg/topic.jsp?pid=27>

b) Diagnostic exercises: Do the following diagnostic test:

<http://www.mathscentre.ac.uk:8081/mathseg-teacher/mytest.jsp?tid=985&rt=8c933df5-fa35-4032-8c15-2660d05ca512>

Here marks will be recorded, so long as you **FINISH THE TEST** and **close only the Results screen (not before)**. At the start, please input your **first name** and **surname**, don't worry about a student number yet (you'll get one when you register at Brunel) and input '**School**' for your email address. You may do the tests as often as you like.

There will be follow up on your results, designed to help you get on top of anything that you find tricky. You'll be given details when you register and they'll be set work to do, then a further test (for real marks) in about week 2 or 3 as part of your Study Skills tasks.

c) The significance of mathematics:

Go to the link <https://mathigon.org/applications>. The page contains information on some of the applications of mathematics. You can order the applications by industry or topic. Pick out the three applications that are most relevant to your interests or anticipated career, and by following the links or doing your own google search, find three equations (it doesn't matter if you know what the equations mean at this stage!) that are relevant to those applications.