A-level Further maths

Why is Further Mathematics suitable for me?

- Further Mathematics provides a great opportunity for enthusiastic mathematicians to broaden and deepen their subject knowledge.
- It is a fantastic qualification for those students who love Mathematics and want to devote more time to studying wider aspects of the subject.
- A-level Further Mathematics requires Maths GCSE grade 8
- You must also opt for A-Level Maths

What is Further Mathematics?

- Further Mathematics is an additional A-level qualification taken alongside the usual A-level Mathematics course.
- You can take Further Maths as one of your 3 or 4 subjects.
- You can also take Further Maths as a fourth subject for 1 year to attain an additional AS qualification.
- **Make sure you opt for it now if you may want to do it as a fourth subject - option blocks may stop you being able to change your mind at a later date.**

AS

Content Overview

12

Content is in two areas:

- Core Pure content
- Options (any **two** of the following four):
  - Y411 Mechanics a
  - Y412 Statistics a
  - Y413 Modelling with Algorithms
  - Y414 Numerical Methods

Assessment Overview	
Mandatory paper: Core Pure (Y410) 60 marks 1 hour 15 minutes Written paper	**33⅓%** of total AS level
Optional paper: 60 marks 1 hour 15 minutes Written paper	**33⅓%** of total AS level
Optional paper: 60 marks 1 hour 15 minutes Written paper	**33⅓%** of total AS level

A Content Overview 13

The qualification comprises one mandatory Core Pure paper and then a combination of optional papers:

- Core Pure content[1]
- Major options
  - Mechanics Major (Y421)[1]
  - Statistics Major (Y422)[1]
- Minor options
  - Mechanics Minor (Y431)[2]
  - Statistics Minor (Y432)[2]
  - Modelling with Algorithms (Y433)[2]
  - Numerical Methods (Y434)[2]
  - Extra Pure (Y435)
  - Further Pure with Technology (Y436)

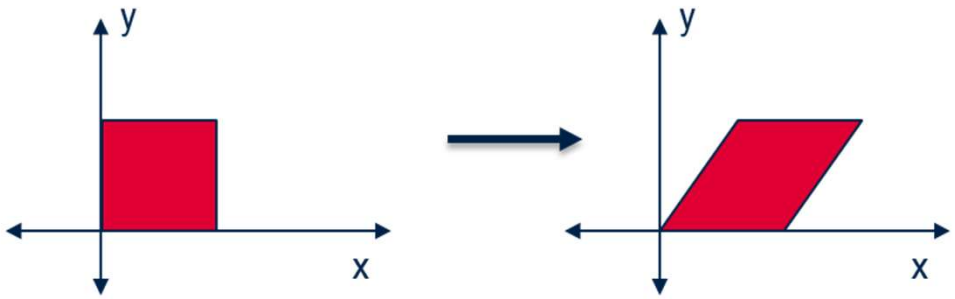
	Assessment Overview	
Must do pure	Mandatory paper: Core Pure (Y420) 144 raw marks (180 scaled) 2 hour 40 mins Written paper	**50%** of total A level
Do 1x major and 1x minor	Major Option 120 raw marks (120 scaled) 2 hour 15 mins Written paper	**33⅓%** of total A level
OR 3x minor	Minor Option 60 raw marks (60 scaled) 1 hour 15 mins Written paper (1 hour 45 mins Written paper for Y436)	**16⅔%** of total A level

Pure maths

Two examples of important further pure topics are **complex numbers** and **matrices**.

Matrices are arrays of numbers such as $\begin{pmatrix} 1 & 2 \\ 0 & 1 \end{pmatrix}$.

They can be used to solve sets of simultaneous equations and to represent transformations such as the shear shown in the diagram below.



$$\sqrt{-1} = i$$

$$a + bi$$

Real part Imaginary part

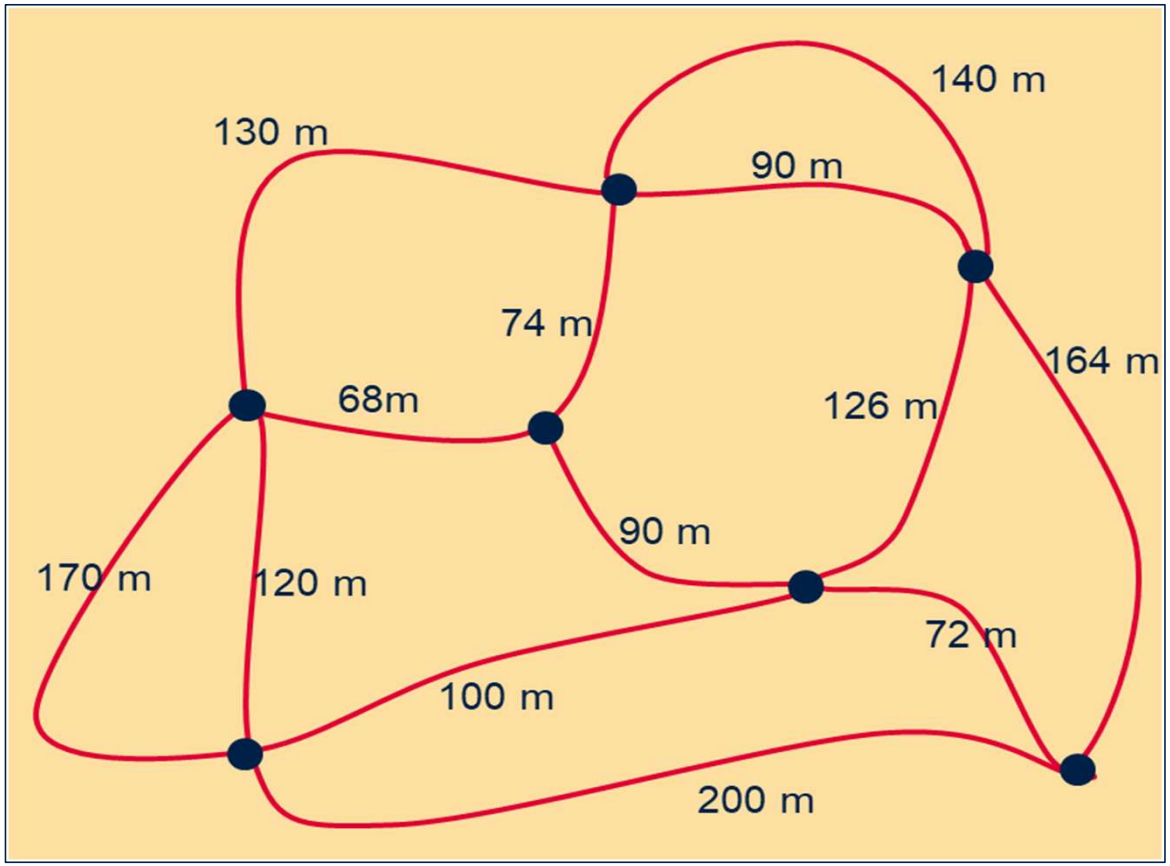


Complex numbers are based on the 'imaginary' number $\sqrt{-1}$.

They lead to the study of lots of new areas of mathematics, including fractals like those shown in the image on the left.

What is Discrete/Decision Mathematics?

Decision maths is the maths that underpins computer science. This module is about using algorithms to solve problems and finding ways to optimise those algorithms.



Did you know?!

- Further Mathematics is not as exclusive as some might believe. It helps employers identify the very best mathematicians for a wide range of careers.
- Great preparation for university courses in mathematics and related quantitative and scientific subjects.
- Any student applying to study a degree in a STEM subject should also consider taking Further Mathematics to at least AS level alongside A-level Mathematics.

Do you need Further Maths?

- **Some degrees may require Further Mathematics A-Level. Please make sure you research prior to starting your A-Levels.**

Last year's Further Maths A-Level results at Edgbarrow

- A* – A 70%
- A* - C 100%

National Percentage
56% A* - A

(From students who completed the two-year course)

82% A - C at AS Level
(It is not possible to achieve an A* at AS level)

- All students sit the AS exam at the end of Year 12
- Your exams will be in May/June of Year 12
- You can then choose to continue into Year 13 to sit the full A-Level