

## Further Maths Preparation Work:

FACULTY: Mathematics

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DEPARTMENT: Mathematics

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Course: A-level Further Mathematics

Objective: To create a poster on the chosen topic deepening mathematical thinking

Activity: Either Option A or Option B detailed below.

Time to be allotted to this task: 2 hours

NOTES:

### TASK:

As a further mathematician, you will be taking mathematics A level, so a higher standard of answers to the summer prep pack will be expected from a further mathematics student in addition to one of the two tasks below.

#### **OPTION A:**

Generate the first 6 terms of an arithmetic sequence.

e.g. 3, 5, 7, 9, 11, 13

Use these numbers in order to form the numbers in a pair of simultaneous equations:

$$\square x + \square y = \square$$

e.g.

$$3x + 5y = 7$$

$$\square x + \square y = \square$$

$$9x + 11y = 13$$

Solve this pair of simultaneous equations.

Try again with another arithmetic sequence.

What do you notice?

Can you explain your reasoning? Are there any exceptions? Present your findings in a poster

#### **OPTION B:**

Do some research and present your findings in a poster about the imaginary number  $i$ .

What is it? What are its uses?

**END RESULT:** A poster suitable to display with either option A or option B.

**HAND IN DATE:** *first further maths lesson*

### **INFORMATION ABOUT THE COURSE**

The basics...

- From September you will have 9 hours of Further Mathematics lessons per fortnight, split between two teachers.
- On average, you are expected to spend *at least* the same amount on time studying independently – like for like. Clearly, this commitment will increase as you prepare for examinations. This means that when you don't have homework, you should be reviewing your work.

- You will study the same three areas of mathematics as in mathematics A-level, but at a higher level: pure, mechanics and statistics. You will study aspects of all three in both years. At the end of the two-year course, you will take four 1½ hour papers - two pure, one statistics and one mechanics, all with equal weighting.
- There is an option to take Further Mathematics as an AS-level over a single year as a fourth subject as this can significantly benefit your maths A-level result and your ability to tackle mathematics at a higher level.
- There are a set of textbooks that accompany the full course. These are:

Title	ISBN
Edexcel AS and A level Further Mathematics Further Mechanics 1 Textbook	9781292183312
Edexcel AS and A level Further Mathematics Core Pure Mathematics Book 1 /AS Textbook	9781292183336
Edexcel A level Further Mathematics Core Pure Mathematics Book 2 Textbook	9781292183343
Edexcel AS and A level Further Mathematics Further Statistics 1 Textbook	9781292183374

All but the Core Pure Book 2 are required in year 12.

We strongly recommend that you purchase the books to work with in class. They are available from Amazon, and other good retailers. Don't forget the current year 13s may have second-hand books for you to purchase.

#### Calculators...

- The linear A-level requires you having a calculator with new functions:
  - an iterative function
  - the ability to compute summary statistics and access probabilities from standard statistical distributions
  - the ability to perform calculations with matrices up to at least order 3 x 3.
- The Casio fx-991EX model (approx. £20) covers all this functionality and will be the one we suggest you buy.
- You do not require a graphical calculator, but they can be extremely useful throughout Mathematics and Further Mathematics A-levels. If you wish to purchase one, the equivalent to the fx-991EX is the Casio Graphing Scientific Calculator fx-CG50.