



# A LEVEL FURTHER MATHEMATICS

## WHAT DO I NEED TO STUDY THIS COURSE?

The entry requirement for this course is a grade 7 in GCSE maths.

## IS THIS COURSE FOR ME?

Further Maths enhances your mathematical knowledge and helps boost your A level qualification. It involves interesting ideas and concepts that you may never have come across before. Further mathematics is challenging at A-level and is beneficial in preparing you to study a maths course at University.

Further Maths is split into core pure mathematics and two optional subjects. Currently we have chosen Decision 1 and Decision 2 for our optional topics. Doing Decision maths gives our students the opportunity to study an entirely different area of maths. Decision uses algorithms and other methods to find efficient solutions to real life problems, such as finding the shortest route around a network. The techniques are important in business, logistics and computer science.

## WHERE WILL THIS COURSE TAKE ME?

Further Maths is particularly useful if you go on to study mathematics, programming or computer science in Higher Education. It really helps to boost your mathematics knowledge towards degree level and can make the transition to university easier. Not many people study Further Mathematics so it will definitely make you stand out from the crowd.



## WHAT WILL I LEARN?

### Year 1

- Complex Numbers
- Argand diagrams
- Series
- Roots of polynomials
- Volumes of revolution
- Matrices
- Linear transformations
- Proof of induction
- Vectors
- Algorithms
- Graphs and networks
- Algorithms on graphs
- Route inspection
- Critical path analysis
- Linear programming
- Allocation problems
- Flows in networks
- Game theory

### Year 2

- Further complex numbers
- Further series
- Further calculus
- Further volumes of revolution
- Polar coordinates
- Hyperbolic functions
- Methods in differential equations
- Modelling with differential equations
- The travelling salesman problem
- The simplex algorithm
- Transportation problems
- Further Flows in networks
- Dynamic programming
- Game theory
- Recurrence relations
- Decision analysis

## HOW WILL I BE ASSESSED?

All assessment for this course is through written examination.

A total of four papers which are each 1.5 hours long. This involves two core pure, one Decision 1 and one Decision 2 paper.

## FURTHER INFORMATION

See Miss Parker  
Mr Courtney  
Miss Henry