# A-LEVEL FURTHER MATHEMATICS

# $f(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \qquad U = \int_{a}^{b} \pi f^2(x)$ $\forall \varepsilon > 0 \quad \exists N \in \mathbb{N} | \forall n > N | x_n - a | < \varepsilon$ $\sigma \quad \sinh(x) = \frac{e^x - e^{-x}}{2}$ $\sin(x) = \frac{e^x - e^{-x}}{2}$ $\cos(x) = \cos(x) + \sin(x) = \cos(x)$ $\cos(x) = \cos(x) + \cos(x)$ $\cos(x) = \cos(x)$ $\cos(x$

# WHY STUDY FURTHER MATHEMATICS AT A-LEVEL?

You must be studying A-Level Mathematics in order to study Further Mathematics.

### **TOPICS STUIDED**

The Further Mathematics A-Level will extend pupils understanding of pure mathematics. Pupils have the option to choose 2 areas from Statistics, Mechanics or Decision Mathematics to continue their study of applied mathematics. The topics cover the following:

- Proof
- Further Vectors
- Complex Numbers
- Matrices
- Further Algebra and Functions
- Further Calculus
- Polar Co-ordinates
- Hyperbolic Functions
- Differential Equations

### **ASSESMENT STRUCTURE**

Students will follow the Edexcel Course and sit 4 exam papers at the end of Year 13

### PAPER 1

Further Pure Mathematics - 25%

### PAPER 2

Further Pure Mathematics - 25%

## PAPER 3

Further Applied Mathematics – 25%

### PAPER 4

Further Applied Mathematics – 25%



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# **ENTRY REQUIREMENTS**

Grade 8 in GCSE Mathematics

Students must be studying A-Level Mathematics

### **CAREER PATHWAY**

Further Mathematics enhances students' options at University and beyond, especially if planning to study Mathematics or Engineering.

The additional content explored in Further Mathematics is the ideal bridge between A-Level Mathematics and University education.

### IS THIS COURSE FOR ME?

Further Mathematics is a rewarding and stimulating course if you have a passion for mathematics. Having an additional A-Level is a powerful incentive but Further Mathematics is more challenging and broader than A-Level Mathematics so should only be considered by the most enthusiastic, resilient and able mathematicians.

### **NEED MORE INFORMATION?**

Please contact Mr S. Daniels, Subject Lead Maths sdaniels@lighthall.co.uk

# **Reading List**

- Bridging GCSE and A-Level Student Book (Collins)
- Towards Higher Mathematics: A companion by Richard Earl
- As Easy as Pi: Stuff about numbers that isn't (just) maths by Jamie Buchan

