

# MATHS

## A Level Further Mathematics



**Examination Board:** Edexcel  
**Subject Leader(s):** Miss S Eustis

$$\begin{aligned}
 & \sin\left(3t_2 + \frac{\pi}{6}\right) = A \sin\left(3t_2 + \frac{\pi}{6}\right); \\
 & = \frac{1}{2}ky_2^2; E_c = E - E_p = \frac{1}{2}k(A^2 - y_2^2) \\
 & = \frac{1}{2}k(A^2 - y_2^2) \Rightarrow y_2 = A\sqrt{\frac{2}{3}} = \frac{4}{3} \cdot 10^{-1} \sqrt{3} \\
 & E_p = E_{p_{\max}} \Rightarrow \sin^2\left(3t_p + \frac{\pi}{3}\right) = 1 \Rightarrow \sin \\
 & = \sin\left(\frac{\pi}{3} + n\pi\right); n = 0, 1, 2, \dots
 \end{aligned}$$

$$\frac{1 - \left(-\frac{1}{n+2}\right)^{n+1}}{1 + \frac{1}{n+2}} + \frac{1}{n+1} \cdot \frac{1 - \left(-\frac{1}{n+1}\right)^{n+1}}{1 + \frac{1}{n+1}}$$

$$t_1 \approx \sqrt{\frac{2h_0}{g}} \cdot \frac{S}{s} = \sqrt{\frac{2 \cdot 0,8}{9,8}} \cdot \frac{8 \cdot 10^{-2}}{10^{-4}} = 3$$

$$\frac{1 - \left(-\frac{1}{n+1}\right)^{n+1}}{n+2} - \frac{1 - \left(-\frac{1}{n+2}\right)^{n+1}}{n+3}$$

$$= \frac{S}{\sqrt{S^2 - s^2}} \sqrt{2gh_0}, \\
 = sv_2(h_0)t_1 = \frac{sS}{\sqrt{S^2 - s^2}} \sqrt{2gh_0} \sqrt{\frac{2h_0}{g}} \cdot \frac{1}{\sqrt{2}} \\
 Sh_0 = 2V_0 = 2 \cdot 8 \cdot 10^{-2} \cdot 0,8 = 12,8 \cdot 10$$

### Course Structure

Unit	Topics/Unit Title	Assessment	A Level(%)
1	Further Pure Mathematics 1	1.5 hour examination	25%
2	Further Pure Mathematics 2	1.5 hour examination	25%
3	Further Mathematics Option 1	1.5 hour examination	25%
4	Further Mathematics Option 2	1.5 hour examination	25%

### What does the course involve?

A-Level Further Mathematics is another highly desirable qualification that broadens and deepens the mathematics covered in A level Mathematics. Further Mathematics is taken alongside an AS or A level in Mathematics and can be taken as a fourth option here at HC6F.

A much wider range of pure and applied content is covered, such as matrices, complex numbers, modelling with calculus, hyperbolic functions, series, further mechanics and decision maths which includes the use of algorithmic functions.

Some key reasons why students take further maths.

- Students taking Further Mathematics overwhelmingly find it to be an enjoyable, rewarding, stimulating and empowering experience.
- For someone who enjoys mathematics, it provides a challenge and a chance to explore new and/or more sophisticated mathematical concepts.
- Students who take Further Mathematics find that the additional time spent studying mathematics boosts their marks in single A level Mathematics.
- It makes the transition from sixth form to university courses which are mathematically rich that much easier as more of the first year course content will be familiar.
- It enables students to distinguish themselves as able mathematicians in their applications for university and future employment.

### Further Study/Employment Prospects

Studying A level Further Mathematics is excellent preparation for a degree in subjects such as Mathematics, Physics or Engineering. Many university maths departments actively encourage students to take Further Mathematics at A level as it introduces a wider range of mathematical content. Students who have studied Further Mathematics often find the transition to university far more straightforward.

Around a third of Mathematics BSc degree courses mention Further Mathematics in their entry requirements, including it in their A level offers or encouraging students to take it if possible. For the Russell Group universities, this proportion is much higher.

The financial and career prospects that studying a course such as Further Maths offers is endless; it offers a very high employability rating. Careers in mathematical and statistical analysis, finance, medicine, physics, engineering, and business are all open to people with a background in Mathematics, as are careers in technology.

Some universities will be willing to lower their entry requirements if the candidate holds an AS or A-Level in Further Mathematics.

### Entry Requirements

Grade 7 and above in GCSE Mathematics