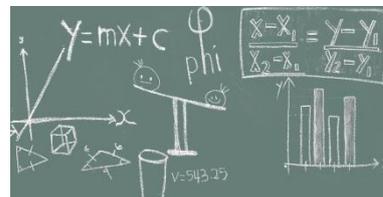


# Mathematics Advanced Higher

## Award Received

Successful completion of your Advanced Higher Mathematics Units and exam will allow you to attain an Advanced Higher Mathematics qualification.

Advanced Higher is currently Graded A – D.



## Entry Level: What do I need to do it?

For pupils wishing to complete this course you will need to have gained a grade A-C at Higher as well as a recommendation from your Mathematics teacher.

## Course Content: What will I learn?

Learners will acquire and apply operational skills necessary for exploring more complex mathematical ideas. In addition, learners will develop mathematical reasoning skills and will gain experience in logical thinking and methods of proof.

(For more information go to: <http://www.sqa.org.uk/sqa/48507.html>)

### **Mathematics: Methods in Algebra and Calculus (Advanced Higher)**

The general aim of the Unit is to develop advanced knowledge and skills in algebra and calculus that can be used in practical and abstract situations to manage information in mathematical form. The Outcomes cover partial fractions, standard procedures for both differential calculus and integral calculus, as well as methods for solving both first order and second order differential equations. The importance of logical thinking and proof is emphasised throughout.

### **Mathematics: Applications of Algebra and Calculus (Advanced Higher)**

The general aim of the Unit is to develop advanced knowledge and skills that involve the application of algebra and calculus to real-life and mathematical situations, including applications of geometry. Learners will acquire skills in interpreting and analysing problem situations where these skills can be used. The Outcomes cover the binomial theorem, the algebra of complex numbers, properties of functions, rates of change and volumes of revolution. Aspects of sequences and series are introduced, including summations, proved by induction.

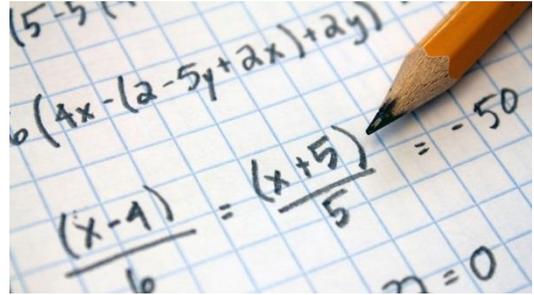
### **Mathematics: Geometry, Proof and Systems of Equations (Advanced Higher)**

The general aim of the Unit is to develop advanced knowledge and skills that involve geometry, number and algebra, and to examine the close relationship between them. Learners will develop skills in logical thinking. The Outcomes cover matrices, vectors,

solving systems of equations, the geometry of complex numbers, as well as processes of rigorous proof.

## Teaching Methods: What will I do?

- Class Discussion
- Problem Solving tasks
- Group work
- Presentations
- Practise exercises
- Computer based tasks



## Assessment: How will I be assessed?

There are three Unit assessments to be completed throughout the course along with the final 3 hour exam. Each unit assessment is completed in class allocated time and covers either a single or double period. All assessments allow a calculator.

## Homework.

Homework is given to help you practice and improve your mathematical skills, as well as to prepare you for the assessment tasks and final exam. It is important that you complete each homework exercise to the best of your ability so that your teacher can see where your strengths and weaknesses lie. Your teacher can then help you make further progress. You will be given the following types of homework tasks:

- A homework assignment for each assessment standard which will cover all levels of difficulty.
- Work from the textbook to complete in order to meet the deadline of the course.
- Revision homework to help you prepare for the assessment tasks.

## Progression.

Gaining a Pass at Advanced Higher Mathematics will allow you to progress confidently into courses at University level that rely on Mathematics, such as Engineering, Physics, Computing, Pure & Applied Mathematics among other courses.