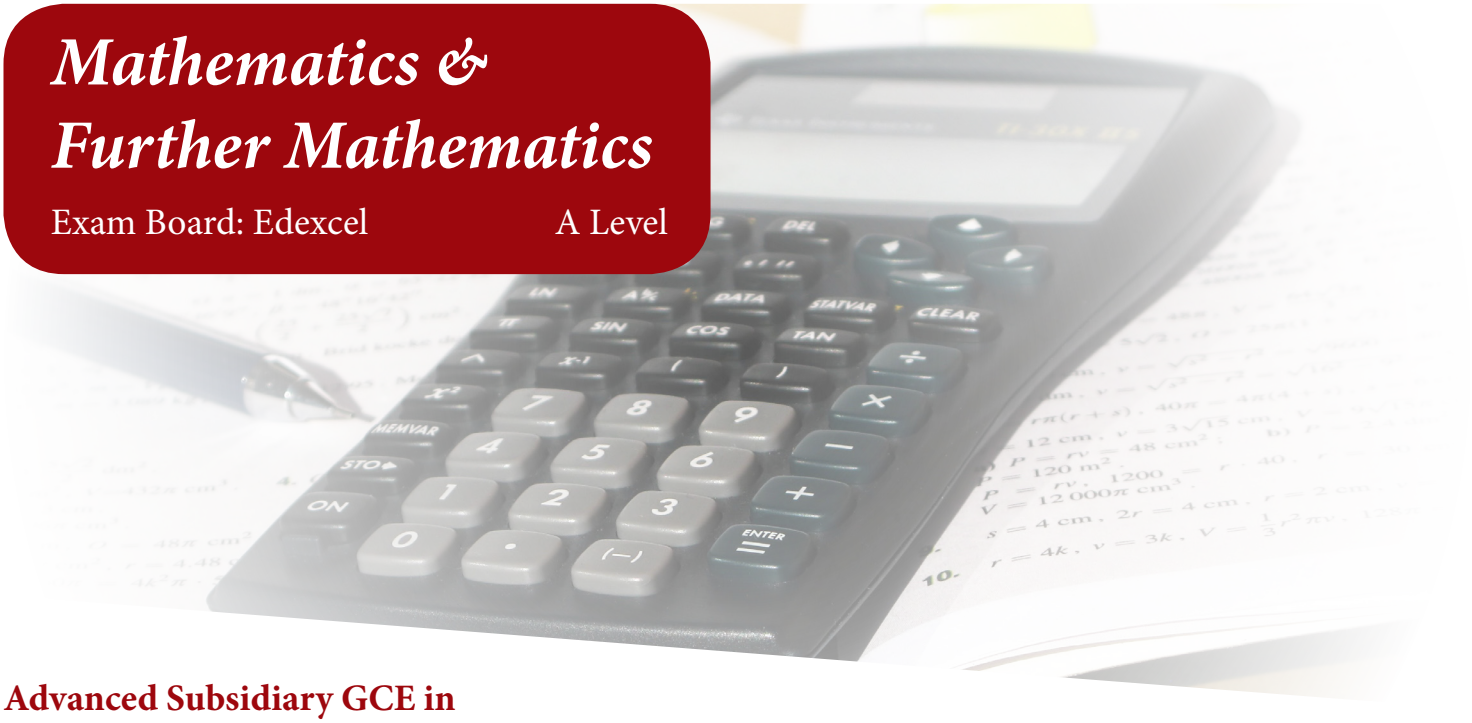
Mathematics & Further Mathematics

Exam Board: Edexcel A Level



Advanced Subsidiary GCE in Mathematics (AS Level Mathematics)

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(AS Level Mathematics)

Preferred entry requirements:
Grade 6 or above at GCSE Mathematics

Content and assessment overview

The AS Mathematics consists of two externally-examined papers. Students must complete all assessment in May/June in any single year.

Paper 1: Pure Mathematics

Written examination: 2 hours

62.5% of the qualification. 100 marks.

Content overview

Topic 1 – Proof
Topic 2 – Algebra and functions
Topic 3 – Coordinate geometry in the (x,y) plane
Topic 4 – Sequences and series
Topic 5 – Trigonometry
Topic 6 – Exponentials and logarithms
Topic 7 – Differentiation
Topic 8 – Integration
Topic 9 – Vectors

Assessment overview

Students must answer all questions.
Calculators can be used in the assessment.

Paper 2: Statistics and Mechanics

Written examination: 1 hour and 15 minutes

37.5% of the qualification. 60 marks.

Content overview

Section A: Statistics
Topic 1 – Statistical sampling
Topic 2 – Data presentation and interpretation
Topic 3 – Probability
Topic 4 – Statistical distributions
Topic 5 – Statistical hypothesis testing

Section B: Mechanics
Topic 6 – Quantities and units in mechanics
Topic 7 – Kinematics
Topic 8 – Forces and Newton's laws

Assessment overview

The assessment comprises two sections: Section A – Statistics and Section B – Mechanics.
Students must answer all questions.
Calculators can be used in the assessment.

Advanced GCE in Mathematics (A Level Mathematics)

Prefered entry requirements: Grade 6 or above at GCSE Mathematics

Content and assessment overview

The Advanced GCE in Mathematics consists of three

externally examined papers. Students must complete all assessment in May/June in any single year.

Paper 1: Pure Mathematics 1
Paper 2: Pure Mathematics 2

Each paper is a 2 hour written examination.

33.33% of the qualification. 100 marks.

Content overview
Topic 1 – Proof
Topic 2 – Algebra and functions
Topic 3 – Coordinate geometry in the (x,y) plane
Topic 4 – Sequences and series
Topic 5 – Trigonometry
Topic 6 – Exponentials and logarithms
Topic 7 – Differentiation
Topic 8 – Integration
Topic 9 – Vectors

Assessment overview
Paper 1 and Paper 2 may contain questions on any topic from the pure mathematics content.
Students must answer all questions.
Calculators can be used in the assessment.

Paper 3: Statistics and Mechanics

Written examination: 2 hours

33.33% of the qualification. 100 marks.

Content overview
Section A: Statistics
Topic 1 – Statistical sampling
Topic 2 – Data presentation and interpretation
Topic 3 – Probability
Topic 4 – Statistical distributions
Topic 5 – Statistical hypothesis testing

Section B: Mechanics
Topic 6 – Quantities and units in mechanics
Topic 7 – Kinematics
Topic 8 – Forces and Newton's laws
Topic 9 – Moments

Assessment overview
The assessment comprises two sections: Section A – Statistics and Section B –Mechanics.
Students must answer all questions.
Calculators can be used in the assessment.

Advanced Subsidiary GCE in Further Mathematics (AS Level Further Mathematics)

Entry requirements: Students must be studying or have studied A level mathematics

Content and assessment overview

The Advanced Subsidiary GCE in Further Mathematics consists of two externally-examined papers.
Students must complete all assessment in May/June in any single year.

Paper 1: Core Pure Mathematics 1

Written examination: 1 hour and 40 minutes

50% of the qualification. 80 marks.

Content overview
Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further Vectors

Assessment overview
Students must answer all questions.
Calculators can be used in the assessment.

Paper 2: Further Mathematics Options

Written examination: 1 hour and 40 minutes

50% of the qualification. 80 marks.

Content overview
Students take one of the following ten options:
2A: Further Pure Mathematics 1 and Further Pure Mathematics 2
2B: Further Pure Mathematics 1 and Further Statistics 1
2C: Further Pure Mathematics 1 and Further Mechanics 1
2D: Further Pure Mathematics 1 and Decision Mathematics 1
2E: Further Statistics 1 and Further Mechanics 1
2F: Further Statistics 1 and Decision Mathematics 1
2G: Further Statistics 1 and Further Statistics 2
2H: Further Mechanics 1 and Decision Mathematics 1
2J: Further Mechanics 1 and Further Mechanics 2
2K: Decision Mathematics 1 and Decision Mathematics 2

Assessment overview
Students must answer all questions.
Calculators can be used in the assessment.

Advanced GCE in Further Mathematics (A Level Further Mathematics)

Entry requirements: Students must be studying or have studied A level mathematics

Content and assessment overview

The Advanced GCE in Further Mathematics consists of four externally examined papers. Students must complete all assessment in May/June in any single year.

Paper 1: Core Pure Mathematics 1
Paper 2: Core Pure Mathematics 2

Each paper is 1 hour and 30 minutes written examination
25% of the qualification, 75 marks.

Content overview

Proof, Complex numbers, Matrices, Further algebra and functions, Further calculus, Further vectors, Polar coordinates, Hyperbolic functions, Differential equations.

Assessment overview

Paper 1 and Paper 2 may contain questions on any topics from the Pure Mathematics content. Students must answer all questions. Calculators can be used in the assessment.

Paper 3: Further Mathematics Option 1

Written examination: 1 hour and 30 minutes
25% of the qualification, 75 marks.

Content overview

** Students take one of the following four options:
A: Further Pure Mathematics 1
B: Further Statistics 1
C: Further Mechanics 1
D: Decision Mathematics 1

Assessment overview

Students must answer all questions.
Calculators can be used in the assessment.

Paper 4: Further Mathematics Option 2

Written examination: 1 hour and 30 minutes
25% of the qualification, 75 marks.

Content overview

** Students take one of the following seven options:
A: Further Pure Mathematics 2
B: Further Statistics 1
C: Further Mechanics 1
D: Decision Mathematics 1
E: Further Statistics 2
F: Further Mechanics 2
G: Decision Mathematics 2

** There will be restrictions on which papers can be taken together.

Assessment overview

Students must answer all questions.
Calculators can be used in the assessment.

The aims and objectives of the Mathematics department are to enable students to:

Understand coherence and progression in mathematics and how different areas of mathematics are connected.

Apply mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general.

Use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts, and communicate the mathematical rationale for these decisions clearly.

Reason logically and recognise incorrect reasoning.

Generalise mathematically.

Construct mathematical proofs.

Use their mathematical skills and techniques to solve challenging problems which require them to decide on the solution strategy.

Recognise when mathematics can be used to analyse and solve a problem in context.

Represent situations mathematically and understand the relationship between problems in context and mathematical models that may be applied to solve them.

Draw diagrams and sketch graphs to help explore mathematical situations and interpret solutions.

Make deductions and inferences and draw conclusions by using mathematical reasoning.

Interpret solutions and communicate their interpretation effectively in the context of the problem.

Read and comprehend mathematical arguments, including justifications of methods and formulae, and communicate their understanding.

Read and comprehend articles concerning applications of mathematics and communicate their understanding.

Use technology such as calculators and computers effectively, and recognise when such use may be inappropriate.

Take increasing responsibility for their own learning and the evaluation of their mathematical development.