

Year 12 Mathematical Methods Units 3 and 4 Information

I. Required Materials:

- i) Summary book for taking notes (loose leaf preferred – to be bound for end of year exams)
- ii) TI-nspire CAS calculator
- iii) Textbook: Mathematical Methods Units 3 & 4 (Cambridge)
- iv) TI-nspire CAS Calculator Companion book
- v) Mathematical Methods Checkpoints

Additional Resource: Mathematical Methods (CAS) A+ Notes (by Julie Carrington)

II. Areas of Study:

| | |
|-------------------------|-----------------|
| i) Functions and Graphs | ii) Algebra |
| iii) Calculus | iv) Probability |

Unit 3 Topics

| | | |
|--------------------------|--------------------------------|-----------------------------|
| Functions | Transformations of Functions | Exponential & Log equations |
| Exponential & Log graphs | Inverse Functions | Circular Functions |
| Differentiation | Application of Differentiation | Integration |

Unit 3: School Assessed Coursework

- Application task based on topics from terms 1 and 2
- Worth 50% of total SAC marks for the year
- Contributes 17% to overall study score

Unit 4 Topics:

| | | |
|---------------------------|-------------------------|--------------------------|
| Discrete Random Variables | Binomial Distribution | Continuous Distributions |
| Normal Distribution | Sampling and Estimation | |

Unit 4: School Assessed Coursework

- Modelling/problem solving tasks.
- All Unit 4 SACs combined are worth 50% of total SAC marks for the year
- Contributes 17% to overall study score

III. Outcomes

For each unit the student is required to demonstrate achievement of three outcomes. As a set these outcomes encompass all of the selected areas of study for each unit. For each of Unit 3 and Unit 4 the outcomes apply to the content from the areas of study selected for that unit.

Outcome 1

On completion of each unit the student should be able to define and explain key concepts as specified in the content from the areas of study, and apply a range of related mathematical routines and procedures.

Outcome 2

On completion of each unit the student should be able to apply mathematical processes in non-routine contexts, and analyse and discuss these applications of mathematics.

Outcome 3

On completion of each unit the student should be able to select and appropriately use a computer algebra system and other technology to develop mathematical ideas, produce results and carry out analysis in situations requiring problem-solving, modelling or investigative techniques or approaches.

IV. Examinations

Examination 1

Description

Students are required to respond to a collection of short-answer and some extended-answer questions covering all areas of study in relation to Outcome 1.

Conditions

- Duration: one hour plus 15 minutes reading time.
- No calculators, CAS or notes of any kind are permitted. A sheet of formulas will be provided with the examination.

Contribution to final assessment

The examination contributes 22 per cent to the study score.

Examination 2

Description

Students are required to respond to a collection of multiple-choice questions and extended-answer questions covering all areas of study in relation to all outcomes, with an emphasis on Outcome 2.

Conditions

- Duration: two hours plus 15 minutes reading time.
- An approved CAS and **one bound reference**, text (which may be annotated) or lecture pad, may be brought into the examination. A sheet of formulas will be provided with the examination.

Contribution to final assessment

The examination contributes 44 per cent to the study score.

V. Minimum Expected Work

You are expected to do the following work throughout the year:

i) Holiday homework must be completed by first day back.

For complete list of questions, refer to “Text Book Questions” handout

ii) Homework: At least 5 hours per week. All answers must be detailed with full working out.

iii) In class: Listen and contribute. Bring all necessary equipment, especially a (charged) CAS Calculator.

iv) Planning: Be aware of due dates and SAC dates. Attend tutoring and extra classes as needed.

v) Attendance: Attend all classes. Catch up on missed work immediately after absences. Missed SACs organised through Senior Schools Coordinators – approved only with valid medical certificate.

To receive an S for each outcome, at least 30% is required for all SACs AND completion of all set homework questions to a high standard.