Holsworthy

Maths Faculty

MATHEMATICS ADVANCED AND MATHEMATICS EXTENSION 1

Mathematics Advanced Course

The Mathematics Advanced course is focused on enabling students to appreciate that mathematics is a unique and powerful way of viewing the world to investigate order, relation, pattern, uncertainty and generality. The course provides students with the opportunity to develop ways of thinking in which problems are explored through observation, reflection and reasoning.

The Mathematics Advanced course provides a basis for further studies in disciplines in which mathematics and the skills that constitute thinking mathematically have an important role. It is designed for those students whose future pathways may involve mathematics and its applications in a range of disciplines at the tertiary level.

The study of Mathematics Advanced in Stage 6 enables students to enhance their knowledge and understanding of what it means to work mathematically, develop their understanding of the relationship between 'real-world' problems and mathematical models and extend their skills of concise and systematic communication.

Mathematics Extension 1 Course

Mathematics Extension 1 is focused on enabling students to develop a thorough understanding of and competence in further aspects of mathematics. The course provides opportunities to develop rigorous mathematical arguments and proofs, and to use mathematical models more extensively. Students of Mathematics Extension 1 will be able to develop an appreciation of the interconnected nature of mathematics, its beauty and its functionality.

Mathematics Extension 1 provides a basis for progression to further study in mathematics or related disciplines in which mathematics has a vital role at a tertiary level. An understanding and exploration of Mathematics Extension 1 is also advantageous for further studies in such areas as science, engineering, finance and economics.

Note:
Students studying one or both Extension courses must study both Mathematics Advanced Year 11 and Mathematics Extension Year 11 courses before undertaking the study of Mathematics Extension 1 Year 12, or both Mathematics Extension 1 Year 12 and Mathematics Extension 2 Year 12.

The Mathematics (2 Unit) Syllabus has been divided into a Preliminary course and an HSC course as follows:

Mathematics Advanced Year 11	
Topics	**Subtopics**
Functions	**MA-F1** Working with Functions
Trigonometric Functions	**MA-T1** Trigonometry and Measure of Angles **MA-T2** Trigonometric Functions and Identities
Calculus	**MA-C1** Introduction to Differentiation
Exponential and Logarithmic Functions	**MA-E1** Logarithms and Exponentials
Statistical Analysis	**MA-S1** Probability and Discrete Probability Distributions

Mathematics Advanced Year 12	
Topics	**Subtopics**
Functions	**MA-F2** Graphing Techniques
Trigonometric Functions	**MA-T3** Trigonometric Functions and Graphs
Calculus	**MA-C2** Differential Calculus **MA-C3** The Second Derivative **MA-C4** Integral Calculus
Financial Mathematics	**MA-M1** Modelling Financial Situations
Statistical Analysis	**MA-S2** Descriptive Statistics and Bivariate Data Analysis **MA-S3** Random Variables

The Mathematics Extension 1 Syllabus has been divided into a Preliminary course and an HSC course as follows:

Mathematics Extension Year 11	
Topics	**Subtopics**
Functions	**ME-F1** Further Work with Functions **ME-F2** Polynomials
Trigonometric Functions	**ME-T1** Inverse Trigonometric Functions **ME-T2** Further Trigonometric Identities
Calculus	**ME-C1** Rates of Change
Combinatorics	**ME-A1** Working with Combinatorics

Mathematics Extension 1 Year 12	
Topics	**Subtopics**
Proof	**ME-P1** Proof by Mathematical Induction
Vectors	**ME-V1** Introduction to Vectors
Trigonometric Functions	**ME-T3** Trigonometric Equations
Calculus	**ME-C2** Further Calculus Skills **ME-C3** Applications of Calculus
Statistical Analysis	**ME-S1** The Binomial Distribution

MATHS FACULTY

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