Year 12 Mathematics Advanced

Assessment Task 2 - 2024

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| **TOPIC**: Sequences and Series, Curve sketching and applications, Integration | **MARKS:** 45 marks |
| **SUBMISSION REQUIREMENTS:** Term 1 – Week 7 - Written test to be completed in class on Friday 15th March 2024 (Period 4) | **WEIGHTING:**  30%  |
| **OUTCOMES TO BE ASSESSED:****MA12-3** **Applies** calculus techniques to model and solve problems.**MA12-4** **Applies** the concepts and techniques of arithmetic and geometric sequences and series in the solution of problems.**MA12-7 Applies** the concepts and techniques of indefinite and definite integrals in the solution of problems.**MA12-10 Constructs** arguments to prove and justify results and provides **reasoning** to support conclusions which are appropriate to the context. |
| **Directional Verbs**: **Apply** – Use, utilise, employ in a particular situation **Reasoning** - Action of thinking about something in a logical, sensible way **Construct** – To build or make a case for |
| **TASK DESCRIPTION**: This task is an in-class written test consisting of: • 3 short answer questions on Sequences and Series totalling 15 marks of the total marks • 2 short answer questions on Curve sketching and applications totalling 13 marks of the total marks • 5 multiple choice and 5 short answer questions on Integration totalling 17 marks of the total marks **Time allowed** for the task will be **1 hour.** **A HSC (NESA) formula sheet will be provided.** **No notes or books can be used during the exam.** **Equipment required: Calculator - Ruler - Pen - Pencil - Eraser****ASSESSMENT CRITERIA:** You will be marked on your ability to answer the questions correctly. You are required to show relevant mathematical working, reasoning and/or calculations. You are encouraged to revise the following concepts learnt in class.

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| **Sequences and Series** * General sequences and series
* Arithmetic sequences and series
* Geometric sequences and series
* Limiting sum of a geometric series
 | **Curve sketching and applications*** Increasing and decreasing curves
* Stationary points
* Concavity and points of inflection
* Interpreting rates of change
* Application of second derivatives
* Curve sketching
* Optimisation problems
 | **Integration*** Areas under a curve
* Trapezoidal rule
* Definite integrals
* Indefinite integrals
* Chain rule
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