Gymea Technology High School
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Year 12 Advanced Mathematics

Half Yearly Exam

Due Date: Wednesday 2nd April 2025

Task Distributed: 19th March 2025

Topic: Graphing Techniques, Trig Functions, Differential Calculus, Applications of Calculus + Preliminary Areas of Learning

Task Type: Half Yearly Examination

Task Weighting: 25%

Outcomes: MA11-1, MA11-2, MA11-3, MA11-4, MA11-5, MA11-6, MA11-7, MA11-9, MA12-1, MA12-2, MA12-3, MA12-5, MA12-6, MA12-7, MA12-10.

Task Description

Duration: 2h + 10minutes reading

This exam will consist of two sections.

- **Section 1:** 8 multiple choice questions worth one mark each covering a range of the units listed above.
- **Section 2:** A mixture of short and long response questions worth one mark or more.

Your knowledge, skills and understanding in the following areas can be assessed in this examination:

HSC Areas of Learning

- MA-F2 Graphing Techniques
- MA-T3 Trigonometric Functions and Graphs
- MA-C2 Differential Calculus
- MA-C3 Applications of Differentiation

Preliminary Areas of Learning

- MA-F1 Working with Functions
- MA-T1 Trigonometry and Measure of Angles
- MA-T2 Trigonometric Functions and Identities
- MA-C1 Introduction to Differentiation
- MA-E1 Logarithms and Exponentials
- MA-S1 Probability

As this is an examination you will need to prepare for this task by:

- Making summary notes of each topic listed above (mind map, flow chart, dot points).
- Accessing practice past papers on Moodle.
- Regularly completing practice examination questions.
- Seeking teacher assistance on unclear work.
- Ensuring all set work is up to date.

Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of Year 12 and are available on the school website under the Learning Tab for each year group.

NESA Glossary of Key Words

Understand the verb associated with the task. The verb will provide an understanding of the detail needed to successfully answer the question.

- **Calculate -** Provide a numerical answer
- **Demonstrate -** Show by example
- **Derive -** Use working to obtain a formula or equation
- **Estimate -** Use a method to find an approximate answer
- **Evaluate -** Determine the value of
- **Explain -** Describe why or how something has occurred
- **Identify -** Recognise and name
- **Justify** – Support an argument or conclusion linking to calculations
- **Prove / Show -** Provide all algebraic steps and working in a logical sequence
- **Simplify** - Write an expression in its simplest form
- **Sketch -** Neatly draw a function on a number plane, clearly showing key features
- **Solve -** Use algebraic techniques to find a solution

Check the NESA Glossary of Key Words for further guidance https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords

Details of Submission

For successful completion of this assessment, you must have the following equipment:

Board approved calculator
Pencil, eraser and ruler for graphs and diagrams
Blue or black pen

Students are NOT permitted to bring notes or any electronic device into the exam.

If you are absent from the examination you must contact the school on the day and follow school assessment and illness/misadventure policies and procedures. A valid attempt at all questions is required.

Teacher Feedback and Student Self-Reflection

- The task will typically be returned to students within 14 days of the due date.
- At this time feedback including information on how to improve will be provided through analysis of the examination questions as a class discussion. Explanation will be provided as requested.
- Students can clarify or seek further feedback by speaking with their teacher or the assessment marker.

Upon return of the task, students will also be expected to complete a self-reflection. This will require students to review incorrect responses by seeking clarification from the teacher. Additionally, students will be required to complete a survey in reflection of the examination.

How does this link to my learning?

- The structure of the questioning style in this task will mirror that of the HSC examination.
- This task will be used by you and your teachers to assess your knowledge and understanding of course outcomes and allow you to refine your skills as you prepare for the HSC examination.
- This task will draw together the above outcomes and assess your ability to apply a range of mathematical skills and techniques that you have covered in class.