Gymea Technology High School
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Year 10 Advanced Mathematics

Task 2: Half Yearly Examination

Due Date: Tuesday 28th May – Period 3 & 4

Task Distributed: 13th May 2024

Unit: Linear functions, Quadratic Functions, Function Notation, Trigonometry

Task Type: Formal Examination

Task Weighting: 40%

Outcomes: MA11-1, MA11-2, MA11-8, MA11-9

Task Description

Duration: 80 minutes

This exam will consist of two sections.

- **Section 1:** 10 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:

Linear Functions ● Expanding Algebraic Expression ● Sketch straight line graphs using intercepts ● Derive equations of straight lines from given information ● Calculate gradients using the gradient formula ● Use properties of parallel and perpendicular lines ● Solve linear simultaneous equations both graphically and algebraically	**Quadratic Functions** ● Factorising Algebraic Expressions ● Determine properties of quadratic functions ● Find roots and intercepts ● Shift graphs using constants ● Understand the effect of the 'a' value in $y = ax^2 + bx + c$ ● Sketch a range of curves ● Applying the quadratic formula ● Determine the equation of a quadratic function given its graph
Function Notation ● Use function notation ● Define the domain and range of a function using interval notation ● Identify a range of functions, relations and graphs ● Use the Vertical Line Test ● Identify properties of odd and even functions	**Trigonometry** ● Operate with surds ● Solve a range of problems using right angled trigonometry

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.

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/Find -** Provide a numerical answer
- **Identify -** Recognise and name
- **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.

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.

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 future formal examinations
- 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.

Assessment Procedures

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