THE RIVERS SECONDARY COLLEGE
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Assessment Task Notification

RICHMOND RIVER HIGH CAMPUS

Task Number	2	**Task Name**	Reference Material Test
Course	Mathematics Advanced	**Faculty**	Mathematics
Teacher	Mr Whitehall	**Head Teacher**	Mrs Humphrys
Issue date	12/06/2025	**Due date**	30/06/2025
Focus (Topic)	Calculus	**Task Weighting**	30%

Outcomes

MA11-1	uses algebraic and graphical techniques to solve, and where appropriate, compare alternative solutions to problems
MA11-2	uses the concepts of functions and relations to model, analyse and solve practical problems
MA11-5	interprets the meaning of the derivative, determines the derivative of functions and applies these to solve simple practical problems

Task description

In this assessment, students will complete a series of annotated examples that will serve as reference materials for an upcoming topic test. The goal is to create comprehensive and clear annotations that demonstrate understanding of key mathematical concepts and problem-solving strategies.

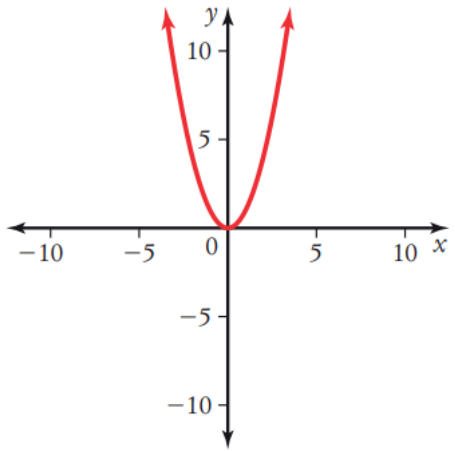
Instructions:

1. Annotated Examples: Students are required to complete mathematical problems from the current topic and work through them step-by-step. Each example must include:
    - Detailed solutions that outline the steps taken to arrive at the answer. **(2 Marks per Q)**
    - Annotations that explain the reasoning behind each step, the mathematical principles applied, and any alternative approaches considered. **(2 Marks per Q)**
2. Submission: Students will bring their annotated examples to class on the day of the topic test. These materials will be used as reference during the test, so it is essential that they are thorough and well-organised.

Marking guidelines

1. Reference Materials (50%): Marks will be allocated based on the completeness, clarity, and accuracy of the annotated examples. Consideration will be given to how well the annotations enhance understanding of the mathematical concepts.
2. Topic Test (50%): Students will be assessed on their performance in the topic test, where they will apply the concepts and strategies reviewed through their annotated examples.

Student Name: Teacher: Whitehall Class: Year 11 Advanced Mathematics

Topic	Annotated example
Gradient of a Curve	Sketch the gradient function for the following graph on the same graph: $f(x) = x^2$ 

Gradient of a secant	For the function $f(x) = x^2 + 3x - 1$, find the average rate of change from $x = 1 \; to \; x = 5$
Differentiation from first principles	Use differentiation from first principles to find the gradient function of $f(x) = x^2 + 3x + 2$

Differentiation from first principles	Use differentiation from first principles to find the gradient function of $f(x) = 2x^3 + 5x - 1$
Short methods of differentiation	Find $f'(x)$ for $f(x) = 2x^2$

Short methods of differentiation	Find $f'(x)$ for $f(x) = 3x^2 + 2x + 6$
Short methods of differentiation	Find $f'(x)$ for: $f(x) = \frac{1}{x}$

Short methods of differentiation	Find $f'(x)$ for: $f(x) = \left(x + \sqrt{x}\right)^2$
Gradient to a normal	Find the equations of the tangent and normal to the parabola $y = 2x^2 - 3x + 1$ at the point where the gradient of the tangent is 3.