YEAR 12 EXTENSION 1
ASSESSMENT TASK
TERM 4, WEEK 8, 2009

Date: Friday 11th December **Marks: 100%**
Time Allowed: 1 period **Weighting: 10%**

Outcomes Addressed

- Uses calculus to determine the features of and graph a wide variety of functions.
- Uses calculus to apply an interactive method for determine the roots of an equation.
- Applies appropriate techniques from the study of series and sequences to solve problems.
- Uses techniques of integration.
- Introduces the concept of the radian.

Applications of Differentiation

- Graph a function by first finding stationary points, points of inflexion & absolute and maximum and minimum values.
- Solve a maximum and minimum problem.

Series and their Application

- Solve a problem involving the sum to infinity.
- Solve a problem involving an arithmetic progression.
- Solve a problem involving money and a geometric progression.

Methods of Approximating P(x) = 0

- Find the roots for $P(x) = 0$ using Newton's method.

Integration

- Solve indefinite integrals and find the value of definite integrals.
- Use integration to find the size of the area under a curve.

Trigonometric Functions

- Convert an angle from degree to radians and from radians to degrees.
- Calculate the exact value of trigonometric expressions.
- Calculate the length of an arc, the area of a sector and the area of a minor segment of a circle.

Instructions

- Attempt all questions
- Show all necessary working
- Write in blue pen, black pen or dark pencil
- Approved calculators may be used

NOTE:

- Students who do not achieve the outcome (less than 39%) in this assessment task will receive an 'Official Warning' – non completion of the HSC course
- Students will be required to re-sit the task within 7 days.
- Students will be given 2 further opportunities to achieve the required outcome.
- Failure to achieve the outcome may result in the student receiving an 'N' determination.