

YEAR 12 MATHEMATICS

ASSESSMENT TASK

TERM 1, WEEK 5, 2010

Date: Wednesday, 23rd February

Time Allowed: 1 period

Marks: 100%

Weighting: 10%

Outcomes Addressed

- Understands and applies the relationship between the general quadratic function and its graph.
- Understands and applies the concept of the parabola as a locus and identifies its properties.
- Uses calculus to determine the features of, and graph a wide variety of functions.

Locus and the Parabola

- Complete the square to find the vertex, focal length and focus.
- Sketch a circle with centre not at the origin.
- Find a tangent to a circle and a parabola.
- Sketch a parabola and use the sketch to find the vertex, focus, directrix and axis of symmetry.
- Find the equation of a locus algebraically.

Geometrical Applications of the Derivative

- Sketch curves using knowledge of the first and second derivative.
- Find first and second derivatives of given functions.
- Show where a curve is monotonic increasing or decreasing.
- Show where a curve is concave up or concave down.
- Find stationary points and points of inflexion on a curve.
- Sketch a curve.

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.