



- In Section Two, throughout Question 13 candidates had difficulty in writing sensible statements, particularly with respect to the sampling of the mean and confidence intervals.
- The ability to recognise standard differential equations, specifically for simple harmonic motion and exponential decay.
- The general reluctance to use implicit differentiation to determine rates, as seen in Questions 12 (a) and 18 (c). Implicit differentiation is a key skill in the Mathematics Specialist course.

#### *Advice for candidates*

- Write legibly using a ball point pen, particularly taking care to form digits that can be read by markers.
- Show all working and acknowledge where a CAS calculator routine has been used.
- When you are working in the statistics section, write mathematical statements, not language specific to a CAS calculator.
- Acknowledge that a variable is normally distributed and show clearly the parameters (mean and standard deviation) used.
- When questions are worth more than two marks, do not simply write an answer but show valid working or justification to receive full marks.

#### *Advice for teachers*

- Provide students with many opportunities to explain ideas, using appropriate mathematics language and using correct mathematical notation.
- Ensure students understand the importance of the legibility of their work, the need to show all working and to write clear mathematics statements rather than language specific to a CAS calculator.
- Focus students' conceptual understanding with vectors. It is a clear advantage if teachers can show students (using appropriate computer software), vector ideas in three dimensions; and also to insist on the correct use of vector notation, to distinguish between many vector ideas.

### ***Comments on specific sections and questions***

#### **Section One: Calculator-free (53 Marks)**

Candidates performed well in the in the following areas:

- showing a linear divisor is indeed a factor of a polynomial in Question 2 (a)
- sketching the graph of an inverse function in Question 4 (a) and determining the inverse rule in Question 4 (b)
- sketching the graph of a rational function in Question 5.

#### **Section Two: Calculator-assumed (97 Marks)**

Candidates performed well in the in the following areas:

- representing complex numbers as vectors in Question 10
- determining an area between curves in Question 12 (b)
- determining the confidence interval for a population mean based on a sample in Question 13 (a)
- writing a defining rule using an absolute value function in Question 16 (a)
- solving an equation in the complex plane in Question 19 (a).