

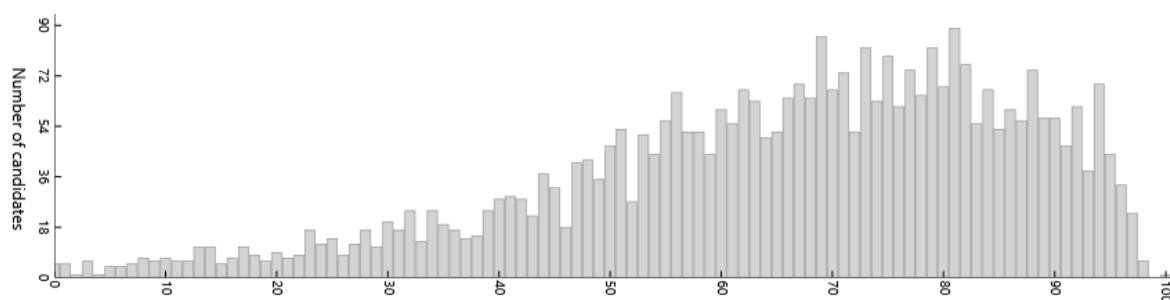


Summary report of the 2022 ATAR course examination report: Mathematics Methods

Year	Number who sat	Number of absentees
2022	3590	65
2021	3997	55
2020	4094	60
2019	4050	60

The number of candidates sitting and the number attempting each section of the examination can differ as a result of non-attempts across sections of the examination.

Examination score distribution–Written



Summary

The examination consisted of two sections, Section One: Calculator-free and Section Two: Calculator-assumed. Most candidates were able to access all of the questions. The mean for Section One was higher than the mean for Section Two, although the difference between the means was less than it was for the 2021 examination. The mean score of 65.43% was 2.39% lower than in 2021.

Attempted by 3588 candidates Mean 65.43% Max 100.00% Min 0.00%

Section means were:

Section One: Calculator-free	Mean 66.34%		
Attempted by 3588 candidates	Mean 23.22(/35)	Max 35.00	Min 0.00
Section Two: Calculator-assumed	Mean 64.94%		
Attempted by 3583 candidates	Mean 42.21(/65)	Max 65.00	Min 0.00

General comments

Candidates generally performed well in the examination. There appeared to be a few specific areas of content weakness, however candidates did well across most questions requiring a calculation to be performed. In general, questions requiring a written response, and/or a conclusion to be drawn, were poorly answered.

Advice for candidates

- Include appropriate units in responses to questions involving a context/application.
- Ensure that your calculator is set to radian mode when dealing with trigonometric functions.

- Ensure you reflect on outputs in order to recognise obvious errors. For example, if you use your calculator to differentiate $f(x) = \sin(x)$ and it returns $f'(x) = \frac{\pi}{180\cos(x)}$ or $f'(x) = 0.017\cos(x)$, then it should be obvious that something has gone wrong. If you recognise that the answer does not make sense, if necessary check the settings of the calculator (degrees instead of radians) and correct this.
- Ensure when identifying sources of sampling bias you do not combine multiple sources into one. For example, time and location are two separate sources of sampling bias.
- Ensure you do not skip key steps in questions asking for you to 'show' a result.
- In the Calculator-assumed section, ensure you state equations that you are solving and provide key outputs from your calculator (e.g. derivatives) to make your solution procedure clear to markers.

Advice for teachers

- Ensure that students are familiar with the application of the fundamental theorem of calculus in combination with the chain rule (syllabus items 3.2.16 and 3.1.8).
- Focus on the interpretation of context/application-based questions, both in terms of students' ability to understand the question and identify/utilise key pieces of information, and in terms of their ability to draw conclusions from their calculations.
- Focus on clarity and conciseness in explanations.
- Encourage students to reflect on output from their calculator to identify obvious errors.

Comments on specific sections and questions

Section One: Calculator-free (54 Marks)

Candidates generally performed well in this section, with the majority of questions answered by most of the candidates. Some notable areas of weakness related to the fundamental theorem of calculus, the application of the inverse relationship between exponentials and logs, showing a given result, and interpretation of/drawing a conclusion from calculations.

Section Two: Calculator-assumed (100 Marks)

Candidates generally performed well in this section. The main areas of weakness were in the interpretation of questions and calculations in the contexts provided. Questions requiring candidates to provide a written response (reason, interpret, explain) were consistently answered poorly. Many candidates demonstrated that they did not reflect on the output of their calculator and therefore missed opportunities to identify obvious errors (e.g. calculator in degrees mode). Most candidates did well in questions relating to standard calculations.