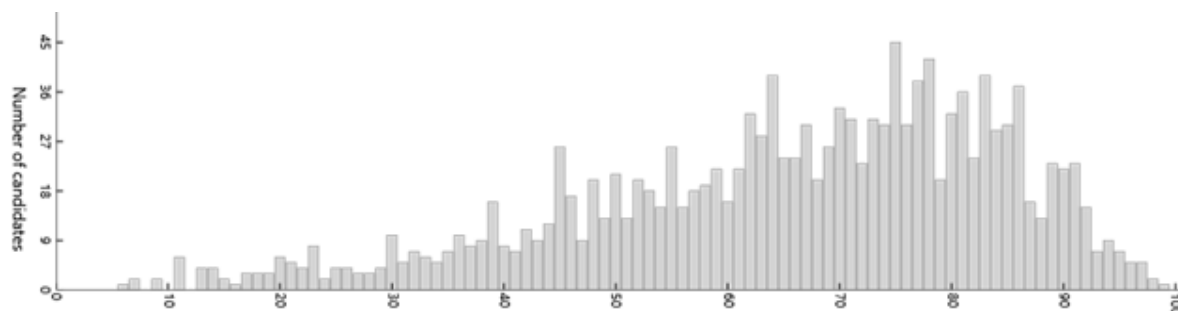




## Summary report of the 2019 ATAR course examination: Mathematics Specialist

Year	Number who sat	Number of absentees
2019	1435	32
2018	1546	21
2017	1463	12
2016	1427	17

### Examination score distribution–Written



### Summary

The examination consisted of Section One: Calculator-free and Section Two: Calculator-assumed.

Attempted by 1435 candidates                      Mean 65.34%              Max 99.25%              Min 6.08%

Section means were:

Section One: Calculator-free	Mean 68.54%		
Attempted by 1435 candidates	Mean 23.99(/35)	Max 35.00	Min 0.74
Section Two: Calculator-assumed	Mean 63.61%		
Attempted by 1435 candidates	Mean 41.35(/65)	Max 64.62	Min 0.76

### General comments

The paper appeared to be accessible for this Mathematics Specialist cohort. The paper contained a range of questions allowing the typical Specialist candidate to show facility with key standard concepts. There were still elements in each question to discriminate amongst candidates. The questions requiring concept development/proof (such as Questions 9 and 19) allowed the most capable candidates to excel.

The length of the paper was appropriate, as evident by the high percentage of candidates attempting the final questions. Marks were relatively well spread and similar to the distribution in 2018. There appeared to be a significant number of candidates who were not able to answer straightforward questions, or indeed offer any response to questions.

A good number of more capable candidates were able to show elegant and original solutions. This was evident particularly for Question 7 and obviously in Question 9 and 19 where the correct use of mathematics was well rewarded.

### *Advice for candidates*

- Know key exact trigonometric values.
- Improve the command of essential algebraic processes.
- Write a clear conclusion to each question.
- Improve the legibility of digits.

### *Advice for teachers*

- Give students opportunities for proving mathematics results. The key distinction is separating out given information from what has to be proved.
- Improve students conceptual understanding of vectors, specifically those in 3D.
- Encourage students to discover the range of a function by graphing the function, in many cases from knowing the sketch of the reciprocal of the required function.
- Clarify the sketching of a solution curve in instances where the slope field value is undefined at a point.
- Insist on students using correct mathematics notation and vocabulary. References to 'it' is not helpful in answering questions that explain aspects of mathematics. Comments such as the 'standard deviation decreases' are vague when it was required to state that the 'standard deviation of the sample mean' decreases as the sample size increases.

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

#### **Section One: Calculator-free (47 Marks)**

Candidates performed well with many straightforward questions in this section.

#### **Section Two: Calculator-assumed (85 Marks)**

The Calculator-assumed section enabled candidates to recall many well known concepts for routine type questions. The poor performance in Question 19 highlighted the need for candidates to have had greater exposure to the demands of a proof.