![Government of Western Australia – School Curriculum and Standards Authority]

Summary report of the 2020 ATAR course examination:
Mathematics Methods

Year	Number who sat	Number of absentees
2020	4094	60
2019	4050	60
2018	4417	42
2017	4328	42

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
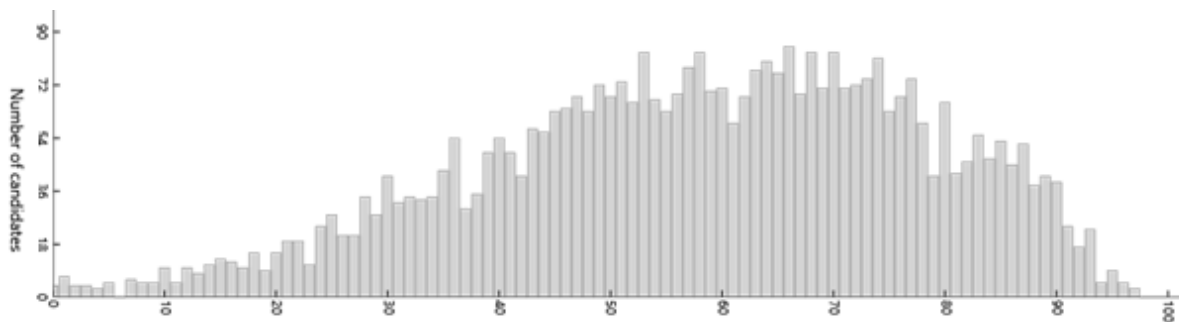
Summary
The examination consisted of two sections, Section One: Calculator-free and Section Two: Calculator-assumed. Most candidates attempted all questions. The mean for Section One was slightly lower than the mean for Section Two. The paper produced a good spread of scores for candidates with an appropriate mix of routine and more complex questions.

Attempted by 4094 candidates   Mean 57.98%   Max 97.30%   Min 0.00%

Section means were:
Section One: Calculator-free   Mean 57.51%
Attempted by 4090 candidates   Mean 20.13(/35)   Max 35.00 Min 0.00
Section Two: Calculator-assumed   Mean 58.24%
Attempted by 4090 candidates   Mean 37.86(/65)   Max 62.99 Min 0.00

General comments
Candidates who took care with presenting their mathematical methodology sequentially, neatly, legibly, and with correct mathematical notation demonstrated a high level of understanding and did well. Candidates generally performed well in questions focused on standard skills, confidence intervals, continuous probability distributions, and the exponential function. However, candidates generally struggled when asked to explain or elaborate on concepts. Questions requiring candidates to justify assumptions made and explain conclusions were attempted poorly.

Advice for candidates
- As well as the calculations required for a particular section of work, focus on the reasons for doing the calculations.
- With questions involving probability distributions, make sure you can identify the conditions that need to exist for each distribution to be appropriate.
- Express numerical probabilities to at least four decimal places and not to two decimal places, as this leads to inaccurate answers in subsequent calculations.

Advice for teachers
- Ensure your students have read the syllabus dot points, particularly those related to explanations.
- Remind students to read each question carefully.
- Students should look for details like labelling of graphs, whether coordinates or rounding is required etc.
- When students are asked to show or demonstrate a concept, ensure that they realise they must cover all the steps required to get to a result. It is better to be 'over the top' with details than to skip steps.
- Emphasise clarity when communicating solutions.

Comments on specific sections and questions
Section One: Calculator-free (51 Marks)
Candidates performed well in questions where basic skills were required (Questions 2 and 4), without much interpretation. Many candidates failed to recognise that the probability distribution in Question 1 was binomial, which led to overly complicated calculations in part (c) and therefore errors. In Question 5 part (c), candidates did not recognise that the chain rule was required. In Question 7 part (d), many candidates did not label key points on the graph and could not receive full marks.

Section Two: Calculator-assumed (97 Marks)
Candidates performed well in questions involving continuous probability distributions (Questions 8 and 16), confidence intervals (Question 14) and the exponential function (Question 15). Questions where candidates were asked to explain a concept, state assumptions, or provide reasons for a conclusion were not attempted well, including Questions 9 part (c), 10 part (b), 12 part (h), 15 part (e) and 16 part (c). In Question 17 part (c)(ii), many candidates did not realise that EF and GH were different lengths.