

Were these VCE exam questions faulty? (a) Yes (b) No (c) Maybe (d) All of the above



Adam Carey

November 10, 2022 – 7.30pm

Teachers and students have identified potential errors in this year's VCE specialist maths exam, raising fears that some students might have been unfairly disadvantaged.

Their complaints relate to a number of questions in the exam, including a multiple choice question that experts and students said potentially had three correct answers, but in which they were required to find just one.



Year 12 student Miles Gibson raised concern about the specialist mathematics VCE exam he sat earlier this week. JASON SOUTH

Specialist maths is the most advanced strand of maths in the VCE. About 3850 students took this year's exam.

A specialist mathematics teacher at one of Melbourne's highest performing government schools lodged a formal complaint about the exam to the Victorian Curriculum and Assessment Authority on Tuesday, stating that students would have been disadvantaged by some questions.

His complaint targeted three questions. One, on the confidence interval of the cost of producing 100 items of something, is "defective and therefore cannot be answered", he said in his complaint.

Another, about the mass of 64 empty aluminium cans, "cannot be answered without making an assumption", the teacher contended.

"There may be other errors, but these are the most obvious and egregious errors," the complaint states.

"They are errors that will certainly cause disadvantage for some students, potentially stronger students that have thought and reflected deeply on the subject content."

Students who sat this exam have also poked holes in some of the answers.

"Am I going insane here or does q4 have no correct answers?" year 12 student Miles Gibson posted in [Bad Mathematics](#), a popular blog on mathematics.

Gibson, who attends Ballarat Clarendon College, said he spent more than five minutes trying to find the "necessarily true" answer for one ambiguous multiple choice question about the conjugate root theorem, only to calculate that none of the answers were necessarily correct.

He said it was possible he'd been disadvantaged by spending so much time on one question, though not significantly.

"I know I got a couple of questions wrong, and maybe if I had that five minutes I wouldn't have, but it probably wasn't a massive deal, it was just annoying," Gibson said.

'Am I going insane here or does q4 have no correct answers?'

Miles Gibson, student

Gibson said he raised the problematic question with his teacher afterwards, and with other students.

The 3½ hour exam for specialist mathematics is split into two sessions over two days. The potential errors were all identified in part two of the exam, which students sat on Monday.

Adrian Gavin, a specialist mathematics teacher with about 20 years of experience in the subject, analysed the exam for *The Age*, and found serious problems with some questions.

Gavin agreed with Gibson's analysis that question four of the exam contains "no correct answer; because none of those statements are always true".

MATT GOLDING

“They [the examiners] want the answer to be B. but it’s not, because what they’ve overlooked is a possibility that all three values [in answers A B and C] are real,” he said.

Other questions were poorly conceived or just bad questions that could unfairly stump students, he said.

Gavin also said many of the multiple-choice questions in this year’s exam were excessively time-consuming to answer, taking three to four minutes to solve, which would potentially hurt some students’ performance.

Mathematical Association of Victoria chief executive Peter Saffin said that teachers and students were right to raise any potential errors in the exam, but that the VCAA had processes to adjust students’ results if their complaints were found correct.

“In the end they have to be as fair to everybody as they can during the marking,” Saffin said.

“All students are disadvantaged by an error, so maybe that helps level the playing field.”

A Victorian Curriculum and Assessment Authority spokesperson said: “There were no issues or concerns raised by students or teachers during the sitting of the specialist mathematics examination 2 and the exam proceeded without incident.”

“Our exams are set by a panel of highly experienced teachers and academics and reviewed by specialists in each field of study.”

This year’s specialist mathematics exams are currently being marked. Each paper is marked by two assessors, along with statistical analysis to support the detection of any anomalies that emerge.

“To ensure exam results are fair and equitable and that no student is disadvantaged, the VCAA has long-standing processes for dealing with any concerns raised about examination material,” the spokesperson said.

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Adam Carey is Education Editor. He joined The Age in 2007 and has previously covered state politics, transport, general news, the arts and food. Connect via [Twitter](#) or [email](#).
