Mathematical Methods Exam 2 – MA113

2024 VCE Assessment Guide

VCAA Marking Policies and Procedures

Consistency of Marking

The Assessment Guide indicates the basis for awarding marks for each item. This may involve either counting correct answers/features of a response or marking holistically, whereby making a judgement about the overall quality/qualities of a response.

Assessment Guides will demonstrate how marks are to be awarded for a response, not where or how marks are to be deducted. The Assessment Guide will address specific examples and relevant application where appropriate. The following provides a checklist that all assessors should follow for consistent approaches to marking VCE external examinations.

Assessors should contact the Chief Assessor in cases where they believe that by following any of the directions below, a student will not be marked fairly.

Assessors must use the final version of the Assessment Guide as confirmed at the end of the Assessor Training Meeting.

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| Concern | Advice |
| **Responses ‘off task’ or contradictory** | A response that does not address the subject of the question cannot be awarded any marks.  If contradictory responses are given (i.e.: the response conflicts with earlier comments or working out) full marks cannot be awarded. |
| **Responses not addressed in the Assessment Guide** | Assessors should refer the matter to the Chief Assessor for determination. |
| **Spelling** | Unless otherwise instructed in the Assessment Guide (i.e.: as part of a criteria), incorrect spelling should not affect the scoring of a student’s response. |
| **Specified Number of Examples/Reasons** | Where a student provides more than the required number, the assessor should only assess the required number of responses, and these should be assessed in the order in which they appear. |
| **Working Out** | Where a question explicitly requires the student to show working out, and this is specified in the examination instructions or in the question, full marks should be awarded if:   * The response is correct and the working out is correct * Two sets of working out are shown, both attempts are correct, and the answer is correct   Where a question explicitly requires the student to show working out, partial marks should be awarded for correct completion of key steps required to produce the correct answer. |
| **Consequential Errors** | If a question requires a series of argued/sequential steps to arrive at the correct response, the Assessment Guide will allocate marks for the key steps required to produce the correct response.  In these cases, the effect of a consequential error on a subsequent response will be considered. |
| **Half Marks** | Half marks must not be awarded for a response or carried over to subsequent questions. |
| **Crossing Out** | If a student response has been crossed out, the part crossed out should not be considered. If the entire response is crossed out, this is awarded zero (‘0’). |
| **Modules** | Where a student responds to more modules than required, the assessor must assess all responses. |
| **Options** | Where a student responds to more than one option, the assessor must assess all responses according to the Assessment Guide and award the student the highest score, indicating the option selected. |
| **Not Attempted vs Zero (0)** | Where a student has **not made a genuine attempt** to respond to the question, assessors should score the response as ‘Not Attempted’. This may include:   * Blank responses * ‘I don’t know’ * Repeating the question, task, source material, or any other text directly from the examination * A response with no relevance to the question, i.e.: song lyrics   Where a student has made a genuine attempt to respond to the question, assessors should score the response as ‘0’ (zero) where:   * The student has crossed out their whole response or * The student’s response does not meet the assessment criteria to be awarded any marks |

Student Concern

Occasionally, assessors encounter a response that may raise concerns about the welfare of the student. Examples may include:

* suggestions or claims of abuse or neglect
* indications of distress, self-harm or suicidal tendencies
* threats of violence, harm, or criminal acts involving others.

In such cases, assessors should assess the student work in accordance with the Assessment Guide and send the student script/item to be reviewed according to the instruction on the next page.

**Any matter of concern that an assessor believes requires urgent attention should be referred to the VCAA immediately via call to the helpdesk.**

Sending student responses to review

During marking assessors may identify student responses to be escalated for review by the Chief Assessor or to be noted by VCAA staff. The review categories are:

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| --- | --- |
| Category | Description |
| **Assessment guide** | There is confusion of how to mark this item. |
| **Image problem** | The item cannot be viewed properly, i.e.: folded page, blurry, etc. |
| Incomplete student work | The student appears to be missing part of their response or has indicated it continues in another area that is not attached |
| Incorrect writing task | The item is in the wrong place in marking platform or the student has written in the wrong place, i.e.: response to Q5b is written in Q5a |
| Student concern | There are concerns for the student’s welfare. |

Below is a list of common issues that may arise, and how to respond to these:

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| --- | --- |
| Issue | Action |
| Evidence of student distress or concern.  Note:  Student concern does not include unfinished work or work that is off-task. | Assess the student response using the Assessment Guide.  Send the student response for review, selecting the ‘student concern’ review category. |
| The student’s handwriting is too faint to read, and you are unable to read and score the student response accurately.  **Note:** Some student responses may include different handwriting or typed responses. This is usually due to Special Examination Arrangements and therefore does not need to be reported to the VCAA. | Make every effort to read the student’s work. If unable to read the response, send the script for review, selecting the ‘illegible response’ review category. |
| The student’s response appears to be unfinished, or they have indicated their response continues on another page that is not attached. | Refer to the Assessment Guide and score this as the student’s response, and send the student response for review, selecting ‘incomplete student work’ review category. |
| The control of the mechanics of language is not sufficient to communicate a coherent response. | Refer to the Assessment Guide and score this as the student’s response. You may contact the Chief Assessor for advice on how best to score the response. |
| Responses in Languages other than English | Unless otherwise stated, responses in a language other than English should not be awarded marks and should be scored zero (0). |

Marking Guide

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| Q1 | Marks | Solutions | Mark allocation and notes |
| 1a. | 1 | , , 2, 2*a* | 1A |
| 1b.i | 2 | , , 0 | 1A 1 correct  1A all correct |
| 1b.ii. | 1 |  | 1H  (exclude values from **b.i.** and 1) |
| 1c.i. | 1 |  | 1A  (accept equivalent forms) |
| 1c.ii. | 1 | or | 1A (either) |
| 1c.iii. | 1 |  | 1A, not intersection |
| 1c.iv. | 2 | ,  ,  ,  or | 1M Tangent line (1 correct) – only need to check either ,  **or**  **or** approximate values for equations    **or** CAS input  1A (either) Correct answer full marks |
| 1d.i. | 1 | Translate  unit to the right and (= 1.0625) units up. | 1A (order does not matter)  Accept mapping or |
| 1d.ii. | 2 | * Dilate by a factor of  from the *y*-axis.   Translate  unit to the right, **or**   * Translate  unit to the right. Dilate by a factor of  from the *y*-axis.   Translate units up | 1A or Translate units up.  1A Everything correct, including order  Anywhere |

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| --- | --- | --- | --- | --- | --- |
| Q2 | Marks | | Solutions | | Mark allocation and notes |
| 2a. | | 2 | | **or** | 1A – both rules  1A – both domains  or 1 line correct | |
| 2b. | | 1 | | 20 | 1A | |
| 2c.i. | | 1 | |  | 1A | |
| 2c.ii. | | 1 | | 0.299 | 1A 0.29862… | |
| 2d. | | 1 | | 0.27 | 1A 0.26560… | |
| 2e. | | 1 | | 0.12 | 1A 0.11552…  No marks if 0 included. | |
| 2f.i. | | 1 | | or  () | 1M show that, need to see substitution | |
| 2f.ii. | | 1 | |  | 1A | |
| 2f.iii. | | 2 | | 1.33 | 1M or equivalent  1A 1.33336… | |

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| --- | --- | --- | --- |
| Q3 | Marks | Solutions | Mark allocation and notes |
| 3a.i. | 3 | , , ,  , ,  , , , | 1M for any 2 equations  1M for other 2 equations  1A , , ,  If you just see the answers 2 marks. |
| 3a.ii. | 2 | If an additional set of values is given 1 mark only | 1A  1A  If labels back to front 1 mark.  Accept 12, 350 |
| 3b.i. | 2 |  | 1A - Endpoint labelled (36, 5180)  1A - Shape and approx. positions of other TPs, within the box. |
| 3b.ii. | 1 | 360 | 1A |
| 3b.iii. | 1 |  | 1A |
| 3b.iv. | 2 | 725  , , | 1A 725.396…..  1A All 3 *t*-values, 10.2436… |

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| Q4 | Marks | Solutions | Mark allocation and notes |
| 4a. | 1 |  | 1A |
| 4b.i. | 1 | 18 | 1A |
| 4b.ii. | 2 | **or**  = 6 | 1M for either method  or work out the variance, can use their mean (from bi).  1A |
| 4b.iii | 2 |  | 1M conditional (probability statement), with either denominator or numerator correct.  1A 0.44575… |
| 4c.i. | 1 |  | 1M show that  0.02737… |
| 4c.ii. | 2 | 0.700, 0.273  If rounding error on both 1 mark | 1A (accept 0.7), 1A  0.699977…, 0.27284… |
| 4d.i. | 2 |  | 1M *n* and *p* value **or**  1A 0.59527… |
| 4d.ii. | 2 | **Method 1:**  **,**      **Method 2:** | **Method 1:**  1M for sd 0.07156…  1A 0.68388…  **Method 2:**  1M for sd 2.50470…  1A 0.68388… |
| 4e.i. | 1 |  | 1A (0.10695…, 0.29304…) |
| 4e.ii. | 1 | 11, 39 | 1A |

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| Q5 | Marks | Solutions | Mark allocation and notes |
| 5a.i. | 1 | **or** | 1A (0.90333…, 1) |
| 5a.ii. | 1 |  | 1A |
| 5b.i. | 1 |  | 1A |
| 5b.ii. | 2 | If  Then  But  has range  Hence no solutions | 1M Find  Accept just  for full marks  1M For range of sin(2*x*) or other appropriate justification  Accept a graphical approach |
| 5b.iii. | 1 |  | 1A |
| 5b.iv. | 1 |  | 1A |
| 5c.i. | 1 | or    or    or | 1A Must be one definite integral  (accept equivalent forms) |
| 5c.ii. | 1 |  | 1A 4.96911… |
| 5d. | 2 | Require    , | 1M Statement with some values **or** graph with the correct sections shown **or** one or both intervals with correct values but the brackets are incorrect.  1A Two intervals only full marks |