IMTA Observations on SEC Mathematics Examination Papers 2026

Introduction

The Irish Mathematics Teachers' Association (IMTA) welcomes the opportunity to provide feedback on the 2026 State Examinations in Mathematics. The observations contained within this report arise from consultation with mathematics teachers throughout the country and discussion by the National Council of the Association.

Across the examinations reviewed, teachers generally welcomed the continued emphasis on mathematical reasoning, problem-solving and opportunities for students to demonstrate understanding rather than routine procedural fluency alone. Feedback on the Junior Cycle examinations, Leaving Certificate Applied Mathematical Applications, and Leaving Certificate Ordinary Level papers was overwhelmingly positive, with teachers highlighting the accessibility, fairness and effective scaffolding evident throughout these examinations.

However, a significant volume of feedback was received regarding aspects of the Leaving Certificate Higher Level examinations, particularly Paper 1. The IMTA believes it is important that this feedback is carefully considered, not because students found certain questions difficult, but because of the level of uncertainty, frustration and distress reported by both students and teachers following the examination.

The Association recognises the broader challenges facing Higher Level Mathematics. Many students continue to attempt Higher Level primarily because of the CAO bonus points system, while others may not always be studying at the level most appropriate to their mathematical readiness. Nevertheless, these realities cannot be used to dismiss genuine concerns regarding examination design and accessibility.

The primary purpose of a mathematics examination should be to assess students' mathematical knowledge, understanding, reasoning and problem-solving ability. While contextualised and unfamiliar problems are an important feature of modern mathematics assessment, teachers repeatedly expressed concern that some questions required students to devote excessive time and cognitive effort to interpreting lengthy text, unfamiliar scenarios or unclear wording before they could begin engaging with the mathematics itself. In such instances, there is a risk that the examination begins to assess reading comprehension and interpretation skills alongside mathematical competence.

Teachers also questioned the consistency of approach adopted across some Higher Level questions. On the one hand, candidates are frequently presented with lengthy real-world contexts intended to demonstrate practical applications of mathematics. On the other hand, some questions, most notably Question 10 on Higher Level Paper 1, demonstrated that such contexts can be removed entirely when it suits the assessment objective. The IMTA believes there is a need for greater clarity and consistency regarding the role of context within mathematics examinations. Contexts should illuminate the mathematics being assessed, not obscure it.

The Association strongly supports the inclusion of novel problems and opportunities for students to demonstrate genuine mathematical thinking. Equally, however, examinations should remain transparent, accessible and firmly grounded in the published syllabus.

Challenge should arise from the mathematics itself rather than from deciphering lengthy passages of text, interpreting unfamiliar conventions or inferring concepts beyond those explicitly developed through the course.

The observations that follow are intended to contribute constructively to ongoing discussions regarding the future development of mathematics assessment in Ireland. The IMTA remains committed to supporting high-quality examinations that are rigorous, fair and accessible, and that provide all students with an equitable opportunity to demonstrate their mathematical learning.

Junior Cycle Ordinary Level (TSGL)

Teachers responded very positively to the 2026 Junior Cycle Ordinary Level Mathematics paper. It was widely regarded as fair, accessible and appropriately pitched, with strong scaffolding throughout and numerous opportunities for students to demonstrate their mathematical knowledge and skills.

The opening questions provided accessible entry points and helped students settle quickly into the examination. Teachers particularly welcomed the clear structure of questions, the effective use of diagrams, and the balance between procedural fluency and conceptual understanding. Questions on statistics, sequences, geometry, functions and trigonometry were generally viewed as well designed and reflective of the specification.

A small number of suggestions were made regarding additional supports for weaker candidates, including the use of tally rows, mapping diagrams and tables to assist with organisation of work. Some students may also have found parts of Questions 4, 6, 7, 8 and 13 more challenging, although these were considered appropriate for the level and were generally well scaffolded.

Overall, the paper was viewed as inclusive, student-friendly and reflective of the learning outcomes of the Junior Cycle Mathematics specification. The IMTA commends the examining team for producing a well-balanced examination that provided meaningful opportunities for success across the Ordinary Level cohort.

Junior Cycle Higher Level (TSAL)

Teachers generally viewed the 2026 Junior Cycle Higher Level Mathematics examination positively. The paper was regarded as fair, comprehensive and appropriately challenging for the majority of candidates.

Question 9(c), Question 12(a) and the final question generated the most discussion among teachers.

In Question 12(a), teachers agreed that the mathematical concepts assessed, including the angle-at-centre theorem and properties of isosceles triangles formed by radii, were entirely appropriate for Higher Level. However, a number of teachers expressed concern that the difficulty arose primarily from the presentation of the question rather than from the mathematics itself. Several respondents felt that capable students who understood the relevant theorems may have struggled to recognise how they should be applied within the context presented.

Question 9(c) was viewed as particularly demanding. Teachers noted that students were effectively required to establish and solve a system involving three unknowns. While the mathematics was accessible to stronger candidates, many felt that the question represented a substantial increase in difficulty compared with the remainder of the paper. Several teachers suggested that additional scaffolding could have provided opportunities for partial success while still assessing the intended mathematical understanding.

A number of teachers also commented that the paper felt somewhat more demanding than recent Junior Cycle Higher Level examinations and that some students experienced greater time pressure than anticipated.

Despite these concerns, the overall view of the paper was positive. Teachers felt that it provided a good mix of accessible and demanding questions, allowed stronger students to distinguish themselves and broadly reflected the learning outcomes of the specification.

The IMTA welcomes the overall quality of the paper and recognises the successful balance achieved between accessibility and challenge.

Leaving Certificate Applied Mathematical Applications

Teachers generally welcomed the relevance and authenticity of the contexts used throughout the 2026 Mathematical Applications examination. The paper was well presented, clearly structured and supported by good-quality diagrams. The wording of questions was generally clear and appropriate scaffolding was evident in many sections.

However, feedback indicated that the examination was somewhat more challenging than in recent years. While stronger candidates were provided with opportunities to demonstrate higher-order thinking and problem-solving skills, some teachers expressed concern that there were fewer straightforward marks available for weaker candidates.

Question 1(c) was viewed as significantly more challenging than the preceding sections and represented an unexpected departure from the style of question typically encountered by students. Question 4 was also regarded as demanding due to the volume of reading required.

Teachers generally welcomed the scaffolding provided in Question 2 and found Question 6 relevant and engaging, although some students experienced difficulty distinguishing between the two pricing systems presented.

Overall, teachers described the examination as relevant, practical and reflective of the real-world focus of the Leaving Certificate Applied programme. Consideration might be given in future examinations to ensuring that a sufficient number of highly accessible entry-level questions remain available throughout the paper to support all candidates in demonstrating their learning.

Leaving Certificate Foundation Level (ATBL)

Teachers generally viewed the 2026 Leaving Certificate Foundation Level paper as fair, accessible and appropriately scaffolded. The examination contained a broad range of familiar contexts and practical applications, allowing students to demonstrate their understanding of key mathematical concepts in a supportive manner.

Questions 1 and 2 provided accessible entry points to the examination. Some teachers noted that Question 1(b)(ii) may have allowed for multiple interpretations depending on how students understood the order of operations, while Question 2(c) required interpretation of recurring decimal values, which may have caused some difficulty for candidates.

Question 3 was considered slightly more challenging at the outset due to the requirement to explain statistical concepts such as median and range. However, teachers generally felt that this remained within the capabilities of Foundation Level students.

Questions 4 and 11 were praised for their clear structure and effective scaffolding. Teachers particularly welcomed the opportunity for students to demonstrate understanding without necessarily relying on formal algebraic techniques. Some concern was expressed that students using an approximate value of π in Question 11(c)(ii) may have encountered difficulties.

Questions 9 and 10 were viewed particularly positively due to their strong connections with real-life situations. Teachers welcomed the inclusion of topics such as percentages, taxation and compound interest, which students could readily relate to and which reflected the practical aims of the Foundation Level course.

A recurring theme in the feedback concerned the level of challenge presented by some questions. Several teachers noted similarities between aspects of the Foundation Level paper and material that has previously appeared on Junior Cycle Ordinary Level examinations. Questions 6, 7 and 8 were specifically cited in this regard. While these questions were considered fair and accessible, some teachers questioned whether they provided sufficient opportunity for students to demonstrate progression in mathematical learning since Junior Cycle.

Overall, teachers regarded the paper as student-friendly, well presented and appropriate for the Foundation Level cohort. The IMTA welcomes the continued emphasis on practical applications and accessibility while encouraging ongoing reflection on how future papers can continue to support progression and challenge within the Foundation Level pathway.

Leaving Certificate Ordinary Level Paper 1 (ATGL Paper 1)

Teachers responded very positively to the 2026 Leaving Certificate Ordinary Level Paper 1. The paper was widely regarded as fair, well balanced and reflective of the syllabus.

Several individual parts posed challenges for weaker candidates, particularly Questions 1(c), 3(c), 4(c), 6(c), 8(a)(iv) and (v), 9 and 10. However, these difficulties were generally confined to later sections of questions and did not prevent candidates from accessing significant portions of the available marks.

Question 9 was viewed as one of the more demanding questions on the paper, with many students needing to read the question several times before fully understanding what was being asked. Teachers noted that the challenge arose from interpretation rather than mathematical complexity.

Overall, teachers felt that the paper struck an excellent balance between accessibility and challenge. The paper successfully differentiated between levels of attainment while remaining fair and accessible. The IMTA commends the examining team for producing a paper that was balanced, engaging and reflective of the aims of the Leaving Certificate Ordinary Level Mathematics syllabus.

Leaving Certificate Ordinary Level Paper 2 (ATGL Paper 2)

Teachers responded very positively to the 2026 Leaving Certificate Ordinary Level Paper 2. The paper was regarded as fair, accessible and well structured, with a strong emphasis on clear diagrams, effective scaffolding and a balanced range of topics.

Questions 1, 3, 6, 7, 8 and 9 received particularly positive feedback. Teachers welcomed the accessibility of the opening questions, the quality of diagrams provided and the opportunities for students to demonstrate understanding across a broad range of topics.

Some concerns were raised regarding the wording of Question 1(c), the interpretation required in Question 10(c) and the challenge presented by Question 4(b). However, these were viewed as isolated issues within an otherwise highly successful paper.

Overall, teachers regarded the paper as a strong example of accessible and appropriately challenging assessment. The balance achieved between accessibility and differentiation was particularly welcomed.

Leaving Certificate Higher Level Paper 1 (ATAL Paper 1)

Overall Observations

Feedback from teachers indicates a clear distinction between the experience of Section A and Section B of the paper.

Questions 1–6 were generally viewed as clear, accessible and appropriately challenging. Teachers welcomed the clarity of language, the use of bold text to highlight key information, and the opportunities provided for students to demonstrate procedural fluency and understanding of core concepts. The level of challenge in these questions was regarded as appropriate for Higher Level students, with Question 6 providing the strongest differentiation within Section A.

However, substantial concerns emerged regarding Questions 7–10. These concerns were not primarily related to mathematical difficulty. Rather, teachers repeatedly highlighted issues relating to language, interpretation, syllabus alignment, cognitive load, accessibility and the increasing role of reading comprehension within the assessment.

A recurring observation was that many students left the examination feeling uncertain, frustrated and disillusioned, not because they lacked mathematical knowledge, but because they struggled to interpret what was being asked of them. While the IMTA strongly supports the inclusion of novel questions and opportunities for genuine mathematical thinking, challenge should arise from the mathematics itself rather than from deciphering lengthy contexts or unfamiliar forms of presentation.

Question 7

Parts (a) to (e) were generally regarded as fair, familiar and appropriately structured. Teachers welcomed the progression of difficulty and the fact that students could accumulate marks throughout the question.

Part (f), however, generated considerable discussion. While the algebraic manipulation involved was straightforward, many teachers felt that the question relied upon an understanding of the behaviour of rational functions that students would not reasonably be expected to possess.

The syllabus states that students should "informally explore limits and continuity of functions". Teachers accepted that this provides scope for unfamiliar questions. However, students are not explicitly taught the behaviour of rational functions and discontinuities in the manner required by this question.

Several teachers drew comparisons with Question 7(c)(ii) on Higher Level Paper 2, where students could legitimately investigate a pattern by substituting values and observing behaviour. In Question 7(f), however, similar intuitive approaches could easily lead students towards incorrect conclusions.

The issue identified by teachers was therefore not one of difficulty but of fairness and transparency. Many felt that the same mathematical objective could have been assessed through wording more closely aligned with the language and expectations of the syllabus.

Question 8

Question 8 generated some of the strongest feedback received.

Teachers noted that the opening context was lengthy and somewhat cluttered. While parts (a) to (d) were heavily scaffolded and generally accessible, students often spent considerable time interpreting the context before engaging with the mathematics.

A typographical error where "base" appeared instead of "bass" was also noted.

The greatest concern related to part (e). Teachers acknowledged that the calculations involved were not beyond the reach of capable Higher-Level students. However, many felt that the question effectively required students to identify and compare linear approximations and different models without having previously encountered such tasks within the syllabus.

The concern was not that students should only be assessed on routine procedures. Rather, teachers argued that students should be able to approach all questions using mathematical ideas and experiences developed through engagement with the published course of study.

Many respondents felt that students who had encountered modelling concepts through other subjects or external experiences may have enjoyed an unintended advantage. In contrast, students whose experience was confined to the Leaving Certificate Mathematics syllabus were being asked to independently discover and interpret concepts under examination conditions.

Teachers also questioned the clarity of part (e). In particular, some felt that the question implied a linear relationship without explicitly stating it. This introduced ambiguity regarding the assumptions students were expected to make and may have led equally capable students towards different interpretations.

Question 9

Question 9 was generally regarded as mathematically sound. However, concerns were raised regarding the presentation and density of language used throughout the question.

Teachers repeatedly highlighted the opening description of swimming "shuttles" as unnecessarily complex. Many felt that students first had to decode a lengthy prose description before they could identify the underlying sequence and pattern.

Several teachers noted that if the same mathematics had been presented more directly as a sequences problem, the level of challenge would have remained unchanged while significantly reducing the literacy demands of the question.

The contextual terminology itself was also cited as problematic. Words such as "shuttle" were unfamiliar to many students and created an additional barrier unrelated to the mathematics being assessed.

While parts (a) to (d) were generally viewed as accessible, part (e) was appropriately challenging. Part (f) was considered fair but again required substantial interpretation of language before students could engage with the mathematics.

Question 10

Question 10 generated by far the greatest volume of feedback and concern.

Teachers repeatedly stated that this question appeared to extend beyond the reasonable expectations of the published syllabus. The issue was not that the mathematics was difficult; rather, it was that students were required to engage with concepts, conventions and representations that they had not been explicitly taught.

Several concerns were repeatedly identified:

- The treatment of periodic functions beyond the standard forms explicitly developed within the syllabus.
- The expectation that students reason about horizontal shifts of periodic functions.
- The interpretation of piecewise functions.
- The evaluation of definite integrals without being provided with a conventional algebraic definition of the function.
- The distinction between area and definite integral.
- The graphical representation of discontinuous functions.
- The expectation that students understand conventions relating to open and closed endpoints on graphs.

Teachers also highlighted the contrast between the highly scaffolded opening part of the question and the significant conceptual demands of later sections.

Part (c) was frequently cited as an example of a question where students were expected to determine a definite integral without first being given a conventional algebraic representation of the function. Many students struggled to distinguish between finding an area and evaluating an integral, particularly within the context provided.

Part (d) generated further concern. Teachers questioned whether graphing discontinuous functions and correctly identifying open endpoints represented reasonable expectations for students following the published syllabus.

Part (f) was also criticised for its wording. Many students assumed that the required function must be quadratic and consequently pursued an unproductive line of reasoning. Teachers felt that a minor adjustment to the wording could have preserved the mathematical challenge while making the task considerably clearer.

Language and Cognitive Load

The most consistent theme throughout the feedback was the volume and density of language used in Section B.

Teachers repeatedly commented that the mathematics itself was often reasonable and accessible. The difficulty arose because students had to process substantial quantities of text before they could identify the mathematical task.

Many contrasted the concise nature of Section A with the lengthy narratives presented in Questions 7–10.

Several respondents argued that the paper assessed reading comprehension alongside mathematics. While contextualisation can be valuable, many felt that the balance had shifted too far towards interpretation and decoding.

Accessibility and Universal Design

Particular concerns were raised regarding students with dyslexia, ADHD, language-processing difficulties and other additional educational needs.

Teachers noted that a mathematically capable student could struggle simply because of the volume of reading required before any mathematics could begin.

Additional concerns were raised by teachers in Irish-medium schools, where students often needed to cross-reference between Irish and English versions of lengthy contextual questions to ensure accurate understanding.

Student Experience

Many teachers reported unusually high levels of anxiety, frustration and disappointment following the examination.

Several respondents commented that the paper felt substantially different in style from previous examinations and that students struggled to identify familiar pathways into questions.

While the IMTA recognises that Higher Level Mathematics must remain challenging, teachers repeatedly stressed that challenge should arise from mathematical thinking rather than uncertainty regarding what is being asked.

Recommendations

The IMTA recommends that future Higher Level Paper 1 examinations:

- Maintain the clarity and accessibility evident throughout Section A.
- Reduce unnecessary linguistic complexity in contextual questions.
- Ensure that challenge arises from mathematics rather than interpretation.

- Maintain close alignment with the published syllabus.
- Consider Universal Design for Learning principles when designing contextual questions.
- Provide students with opportunities to demonstrate mathematical understanding without requiring excessive decoding of text.
- Continue to include novel problems while ensuring that the mathematical ideas being assessed remain clearly rooted in the experiences and expectations of the syllabus.

The IMTA fully supports rigorous and demanding assessment. However, such assessment must remain transparent, equitable and accessible so that students are rewarded for their mathematical understanding rather than their ability to navigate unfamiliar forms of presentation.

Leaving Certificate Higher Level Paper 2 (ATAL Paper 2)

Overall Observations

Feedback regarding Higher Level Paper 2 was considerably more positive than that received for Paper 1. Teachers generally regarded the paper as fair, accessible and reflective of the syllabus. Many respondents commented that students left the examination feeling significantly more confident than after Paper 1 and felt that the paper provided a better opportunity for students to demonstrate the mathematical understanding they had developed throughout the course.

Teachers welcomed the clear structure of many questions, the use of scaffolding in several sections and the presence of numerous accessible entry points. Questions 1, 2, 4 and 6 were frequently identified as examples of well-designed assessment tasks that tested understanding while remaining accessible to the broad Higher Level cohort.

Question 3

Question 3 generated the greatest volume of discussion among teachers.

Part (a), involving the construction of an image under axial symmetry, was viewed as unusual within the context of a Higher Level Leaving Certificate examination. While teachers acknowledged that axial symmetry forms part of students' prior mathematical knowledge and is therefore examinable, many questioned whether it represented the most effective use of assessment space given the breadth and depth of the senior cycle course. Some respondents also noted that the absence of graph paper increased the technical demands of the construction.

Part (c) was regarded as one of the more challenging sections of the paper. Teachers felt that additional visual supports, clarification of the term "internal diagonal", or a more explicit hint may have improved accessibility without reducing the mathematical challenge.

Question 5

Question 5 generated mixed reactions. Several teachers felt that students who had devoted considerable time to circle geometry were not given sufficient opportunity to demonstrate the depth of understanding developed in this area.

Concerns were also raised regarding the wording of parts (b)(iii) and (iv), particularly ambiguity surrounding the phrase "these circles". While the mathematics was appropriate, some students found it difficult to determine precisely what was being asked.

Question 7

Teachers generally regarded this as one of the most accessible questions on the paper.

Parts (a) and (b) were viewed as routine and approachable.

Part (c)(i) drew heavily upon knowledge that many students would already possess from Junior Cycle Higher Level.

Part (c)(ii), however, was widely welcomed as an excellent example of a question that encouraged mathematical thinking. Students could approach the problem in a variety of ways, including substitution, experimentation and pattern recognition.

Several teachers contrasted this positively with Question 7(f) on Paper 1, noting that students could meaningfully explore and justify conclusions without requiring specialised knowledge beyond the syllabus.

Part (d) was considered appropriately challenging.

Some teachers suggested that additional space could have been provided for part (c)(ii), particularly where students used extended written justifications.

Question 8

Question 8 was generally regarded as fair and well structured.

Teachers welcomed the scaffolding provided in parts (a) and (b), which supported students in developing confidence before progressing to more demanding sections.

Some concern was expressed regarding part (e), where students were required to use specific points when determining a line of best fit.

Several respondents suggested that students should instead have been allowed to choose suitable points from their own line of best fit, as would typically occur in classroom practice.

The mathematics itself was not problematic; the concern related to the restrictive nature of the instruction.

Question 9(c)

Teachers noted that students were required to determine values for both j and k and subsequently calculate a volume.

Several respondents felt that these tasks could have been separated into distinct parts. While the mathematics was appropriate, there was a risk that students might overlook one of the required outputs.

Question 9(d)

Teachers generally regarded the mathematics as appropriate but felt that the question could have benefited from additional scaffolding.

Several suggestions were made:

- Ask students to determine the penultimate height first.
- Separate the application of the trapezoidal rule into a distinct stage.
- Provide an intermediate step before asking students to determine the more accurate area.

Teachers felt that such scaffolding would have improved accessibility without diminishing the challenge.

Broader Themes Emerging from Teacher Feedback

Junior Cycle Content

A recurring concern throughout the feedback was the prominence of content more commonly associated with Junior Cycle Mathematics.

Teachers accepted that prior knowledge remains examinable. However, many questioned whether questions such as the axial symmetry construction represented the most effective way of assessing Higher Level Leaving Certificate students.

Several respondents asked whether such questions genuinely assessed senior cycle mathematical development or merely rewarded familiarity with rarely examined material.

Challenge Through Mathematics Rather Than Surprise

Many teachers argued that the strongest differentiating questions are those that challenge students' understanding of familiar mathematical ideas rather than those that rely on unusual presentation or unexpected content.

There was strong support for demanding questions that require reasoning, creativity and problem-solving. However, teachers repeatedly stressed that challenge should arise from mathematics rather than from students attempting to determine what the examiner intended.

Literacy and Interpretation

As with Paper 1, teachers highlighted occasions where interpretation became a significant component of the challenge.

Examples included:

- "Internal diagonal" in Question 3.
- Ambiguous references in Question 5.
- Interpretation of Question 7(d).
- The structure of Question 9(d).

Teachers felt that mathematical challenge should remain the primary source of difficulty.

Consistency of Demand

Several respondents noted a considerable variation in difficulty across the paper.

Questions 1, 2, 4 and 6 were frequently described as highly accessible.

Questions 3 and 5, by contrast, were viewed as significantly more demanding in terms of interpretation and independent thinking.

Some teachers suggested that a more gradual progression of difficulty would improve consistency.

Recommendations

The IMTA recommends that future Higher-Level Paper 2 examinations:

- Continue the strong emphasis on clear mathematical assessment.
- Reduce ambiguity in wording where possible.
- Provide additional diagrams where visualisation is central to the problem.
- Ensure that challenge arises from mathematical reasoning rather than interpretation.
- Review the balance between Junior Cycle and Leaving Certificate content.
- Consider additional scaffolding in longer multi-stage questions.
- Maintain the successful balance of accessibility and challenge evident throughout much of the paper.

Overall, teachers viewed Higher Level Paper 2 as a fair, well-balanced and appropriately challenging examination. While several questions generated discussion regarding wording, presentation and content selection, the paper was generally regarded as providing students with a meaningful opportunity to demonstrate the mathematical understanding developed throughout the Higher-Level course.

Conclusion

The IMTA wishes to thank the State Examinations Commission, examination setters, advisers, examiners and all those involved in the preparation and administration of the 2026 Mathematics examinations.

Feedback gathered from teachers indicates that many aspects of the examinations were successful in providing students with meaningful opportunities to demonstrate their mathematical learning. In particular, the Junior Cycle Ordinary Level paper, the Leaving Certificate Ordinary Level papers, the Leaving Certificate Foundation Level paper, the Leaving Certificate Applied Mathematical Applications examination and much of the Junior Cycle Higher Level and Leaving Certificate Higher Level Paper 2 examinations were warmly received by teachers.

Across all examinations, teachers welcomed the continued emphasis on mathematical reasoning, problem-solving and opportunities for students to demonstrate understanding rather than routine procedural fluency alone. There was strong support for the inclusion of novel and challenging questions that encourage students to think mathematically and apply their knowledge in unfamiliar situations.

However, a significant and recurring theme emerged in relation to aspects of Leaving Certificate Higher Level Paper 1. The concerns expressed by teachers were not primarily related to the level of mathematical difficulty but rather to issues of accessibility, clarity, interpretation, syllabus alignment and the extent to which some questions required students to decode lengthy or unfamiliar contexts before engaging with the mathematics itself.

The IMTA believes that the primary purpose of a mathematics examination is to assess students' mathematical knowledge, understanding, reasoning and problem-solving ability. While contextualised questions have an important role to play, challenge should arise principally from the mathematics being assessed rather than from the volume of language, interpretation or contextual complexity surrounding it. Teachers also expressed a desire for greater consistency in the role played by real-world contexts across examination papers, ensuring that contexts support rather than obscure the mathematics being examined.

Several recurring themes emerged throughout the consultation, including accessibility, clarity of wording, scaffolding, visual presentation, Universal Design for Learning principles, and the relationship between examination questions and published syllabus expectations. The IMTA believes that these themes warrant ongoing consideration as assessment practices continue to evolve.

The Association hopes that the observations contained in this report will assist the SEC in its review processes and contribute positively to the continued development of Mathematics assessment at Junior Cycle, Leaving Certificate and Leaving Certificate Applied levels. The IMTA remains committed to supporting rigorous, fair and accessible examinations that provide all students with an equitable opportunity to demonstrate their mathematical learning.

Summary of Recommendations

Based on the feedback received from teachers across all levels, the IMTA recommends that future Mathematics examinations:

1. **Maintain a strong focus on assessing mathematical understanding, reasoning and problem-solving.**

   Teachers strongly support the inclusion of novel and challenging questions. However, challenge should arise primarily from the mathematics being assessed rather than from interpretation of lengthy text, unfamiliar presentation styles or excessive contextual detail.

2. **Review the volume and complexity of language used in examination questions.**

   Contexts should support students in engaging with the mathematics rather than acting as a barrier to access. Consideration should be given to reducing unnecessary linguistic complexity, particularly in Higher Level examinations.

3. **Continue to apply Universal Design for Learning (UDL) principles in assessment design.**

   Greater use of clear diagrams, visual supports, scaffolding and concise language would improve accessibility for all students, particularly those with additional educational needs, without reducing mathematical challenge.

4. **Ensure that examination questions remain firmly grounded in the published syllabus.**

   Teachers support the assessment of unfamiliar problems and the transfer of learning to new situations. However, students should be able to approach all questions using the mathematical knowledge, experiences and ways of thinking developed through engagement with the published course of study.

5. **Review the balance between Junior Cycle and Leaving Certificate content within Higher Level examinations.**

   While prior knowledge is an important component of mathematical learning, teachers expressed concern regarding the prominence of certain Junior Cycle concepts within some Leaving Certificate Higher Level questions.

6. **Provide appropriate scaffolding in multi-step questions.**

   Breaking complex tasks into smaller stages can improve accessibility, allow students to demonstrate partial understanding and reduce the likelihood of students overlooking important elements of a solution.

7. **Continue to use diagrams and visual representations where they support understanding.**

   Teachers repeatedly identified occasions where additional diagrams, graph paper, shading or visual cues could have improved accessibility without diminishing the mathematical demands of a question.

8. **Review the role of real-world contexts in examination questions.**

   Real-world applications can provide valuable opportunities for students to see the relevance of mathematics. However, contexts should illuminate the mathematics being assessed rather than obscure it. Greater consistency in the use and purpose of contextual questions would be welcomed.

9. **Ensure that examinations provide opportunities for students across the full attainment spectrum to demonstrate their learning.**

   Teachers welcomed papers that combined accessible entry points with opportunities for stronger students to distinguish themselves through deeper reasoning and problem-solving.

10. **Continue meaningful engagement with teachers and subject associations in the review of examination papers.**

    The IMTA welcomes the ongoing dialogue between classroom practitioners and the State Examinations Commission and believes that teacher feedback can make a valuable contribution to the continued development of high-quality Mathematics assessment.

The IMTA remains committed to supporting rigorous, fair and accessible Mathematics examinations that allow all students to demonstrate their learning while maintaining the high standards expected of Irish Mathematics education.

Appendix A: Observations Relevant to Marking Scheme Development

The following observations are provided for consideration during marking conferences and the finalisation of marking schemes. They are not intended as criticisms of the examination papers but rather as areas where candidates may reasonably demonstrate valid mathematical understanding through alternative approaches or interpretations.

Junior Cycle Higher Level

Question 9(c)

This question required students to determine three unknown coefficients. Candidates may have approached the problem using different starting points, particularly by first identifying the point (0,12) and determining the constant term before proceeding to solve for the remaining coefficients. Generous allocation of partial credit is recommended where substantial progress has been demonstrated.

Question 12(a)

The presentation of the geometry may have obscured the underlying angle-at-centre theorem and isosceles triangle relationships for some candidates. Credit should be awarded wherever relevant geometrical reasoning is demonstrated, even if solutions are incomplete.

Leaving Certificate Foundation Level

Question 1(b)(ii)

Teachers noted potential ambiguity regarding the interpretation of operations. Consideration should be given to accepting multiple valid interpretations where mathematically reasonable.

Question 2(c)

As both solutions involve recurring decimals, a range of acceptable numerical approximations may need to be accommodated.

Question 4(d)

Some candidates may have interpreted the instruction as setting the expression equal to 63 rather than substituting 63 into the expression. Consideration should be given to awarding substantial partial credit where the intended process is evident.

Question 11(c)(ii)

Students using 3.14 as an approximation to π may obtain slightly different answers. Tolerances should be sufficiently broad to accommodate common accepted approximations.

Leaving Certificate Higher Level Paper 1

Question 7(f)

Teachers reported considerable uncertainty regarding the interpretation of this question. Candidates may have approached the problem using informal reasoning consistent with syllabus expectations regarding limits and continuity. Consideration should be given to awarding credit for mathematically valid reasoning, even where conclusions are incomplete.

Question 8(e)

Candidates may have used a variety of valid approaches when comparing models and interpreting the behaviour of functions. A broad range of acceptable reasoning should be accommodated.

Question 9

Given the density of the introductory context, candidates may have expressed valid mathematical reasoning using different notation, language or representations. Marking schemes should focus on mathematical understanding rather than particular phrasing.

Question 10(c)

Many candidates may have interpreted the task as requiring the determination of area rather than a definite integral. Consideration should be given to awarding significant partial credit where students demonstrate substantial understanding of the graphical information provided.

Question 10(d)

Candidates may have produced alternative but mathematically reasonable graphical representations of the discontinuities involved. The marking scheme should accommodate valid interpretations where appropriate.

Question 10(f)

Teachers reported that many candidates interpreted the wording as implying a quadratic function. Candidates who pursue a mathematically coherent approach arising from this interpretation should receive appropriate method credit.

Leaving Certificate Higher Level Paper 2

Question 3(c)

The term "internal diagonal" and the visualisation required may have presented difficulties for some candidates. Generous allocation of method marks is recommended where students identify relevant geometric relationships but do not complete the solution.

Question 5(b)(iii) and (iv)

Teachers reported uncertainty regarding the reference to "these circles". Consideration should be given to alternative reasonable interpretations where candidates have demonstrated valid mathematical understanding.

Question 7(c)(ii)

Candidates may have justified their conclusions using a wide variety of approaches, including numerical experimentation, pattern recognition, algebraic reasoning and informal argument. The marking scheme should explicitly accommodate multiple valid methods.

Question 9(c)

As this part required multiple outputs, candidates may successfully determine some quantities while overlooking others. Appropriate partial credit should be awarded where substantial progress has been demonstrated.