IB Mathematics SL

Internal Assessment

This is a Sample Title

- This is a Sample Subtitle -

By Student Name

Candidate #

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Contents

1 Introduction

The internally assessed component in these courses is a mathematical exploration. This is a short report written by the student based on a topic chosen by him or her, and it should focus on the mathematics of that particular area. The emphasis is on mathematical communication (including formulae, diagrams, graphs and so on), with accompanying commentary, good mathematical writing and thoughtful reflection. A student should develop his or her own focus, with the teacher providing feedback via, for example, discussion and interview. This will allow all students to develop an area of interest for them, without a time constraint as in an examination, and will allow all to experience a feeling of success. [1]

In addition to testing the objectives of the courses, the exploration is intended to provide students with opportunities to increase their understanding of mathematical concepts and processes, and to develop a wider appreciation of mathematics. These are noted in the aims of the courses, in particular aims 6–9 (applications, technology, moral, social and ethical implications, and the international dimension). It is intended that, by doing the exploration, students benefit from the mathematical activities undertaken and find them both stimulating and rewarding. It will enable students to acquire the attributes of the **IB** learner profile.[1]

2 Scoring Criteria

2.1 Communication

This criterion assesses the organization and coherence of the exploration. A well-organized exploration includes an introduction, has a rationale (which includes explaining why this topic was chosen), describes the aim of the exploration and has a conclusion. A coherent exploration is logically developed and easy to follow. Graphs, tables and diagrams should accompany the work in the appropriate place and not be attached as appendices to the document.

2.2 Mathematical Presentation

This criterion assesses to what extent the student is able to use appropriate mathematical language (notation, symbols, terminology), define key terms where required, and use multiple forms of mathematical representation such as formulae, diagrams, tables (see table 1), charts, graphs and

[1] An example footnote

models, where appropriate.

x	0	1	2
$f(x)$	3	6	9

Table 1: Caption goes here

Students are expected to use mathematical language when communicating mathematical ideas, reasoning and findings, where appropriate. Students are encouraged to choose and use appropriate **ICT** tools such as graphic display calculators, **screenshots**, graphing (see figure 1), spreadsheets, databases, drawing and word-processing software, as appropriate, to enhance mathematical communication.

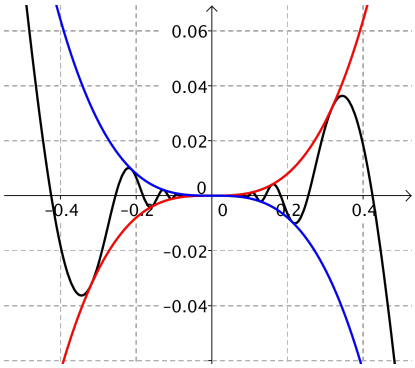

Figure 1: The Squeeze Theorem

2.3 Personal Engagement

This criterion assesses the extent to which the student engages with the exploration and makes it their own. Personal engagement may be recognized in different attributes and skills. These include thinking independently and/or creatively, addressing personal interest and presenting mathematical ideas in their own way.

To receive full marks, students must show evidence of outstanding personal engagement. The work should be original. It may be from historical ideas and real world situations (for example, socio–economic, political awareness). Students should create some examples or present some ideas explained in depth.

2.4 Reflection

This criterion assesses how the student reviews, analyses and evaluates the exploration. Although reflection may be seen in the conclusion to the exploration, it may also be found throughout the

exploration.

Students should ideally have continuous reflection throughout the task, which should include the following: identify and address issues as the piece develops, discuss limitations of the work where applicable, provide ideas for extensions, and reflect on the significance of the findings.

2.5 Use of Mathematics

This criterion assesses to what extent and how well students use mathematics in the exploration. Students are expected to produce work that is commensurate with the level of the course. The mathematics explored should either be part of the syllabus, or at a similar level or beyond. It should not be completely based on mathematics listed in the prior learning. If the level of mathematics is not commensurate with the level of the course, a maximum of two marks can be awarded for this criterion.

The mathematics can be regarded as correct even if there are occasional minor errors as long as they do not detract from the flow of the mathematics or lead to an unreasonable outcome. Sophistication in mathematics may include understanding and use of challenging mathematical concepts, looking at a problem from different perspectives and seeing underlying structures to link different areas of mathematics. Rigour involves clarity of logic and language when making mathematical arguments and calculations. Precise mathematics is error-free and uses an appropriate level of accuracy at all times.

3 Conclusion

The exploration is intended to be an opportunity for students to use mathematics to develop an area of interest to them rather than merely to solve a problem set by someone else. Criterion C (personal engagement) will be looking at how well the student is able to demonstrate that he or she has "made the exploration their own" and expressed ideas in an individual way.

It is difficult to be prescriptive about mathematical writing. However, the Mathematics **SL** guide and the Mathematics **HL** guide state that 6–12 pages should be appropriate. A common failing of mathematical writing is excessive repetition, and this should be avoided, as such explorations will be penalized for lack of conciseness. However, it is recognized that some explorations will require the use of several diagrams, which may extend them beyond the page limit.

4 Using LaTeX

Be sure to cite any sources you use throughout the text. There are more advanced methods of creating bibliographies, but the method used here is simplest for a short list of references.
Also note that you may have to compile the document twice before you see updated citations and the updated table of contents.

References

[1] Alcosser, Howard. "Diamond Bar High School." *Internal Assessment: Mathematical Exploration*. Web. 27 May 2015.

[2] Alcosser, Howard. "Diamond Bar High School." *Mathematical Exploration Rubric*. Web. 27 May 2015. `http://dbhs.wvusd.k12.ca.us/ourpages/auto/2010/10/1/38060822/IA_2014_rubric.pdf`.

[3] Lastname, Firstname. *Title of Book*, City of Publication: Publisher, Year of Publication. Medium of Publication.

[4] Author(s). "Title of Article." Title of Periodical Day Month Year: pages. Medium of publication.

[5] Author(s). "Title of Article." Title of Journal Volume.Issue (Year): pages. Medium of publication.

[6] Editor, author, or compiler name (if available). *Name of Site.* Name of institution or organization affiliated with the site (sponsor or publisher), date of resource creation (if available). Medium of publication. Date of access. `http://www.samplewebsite.com`.

[7] Artist's name, *The Work of Art*, Date of creation, Institution and city where the work is housed. *Name of Website*, Medium of publication, Date of access.