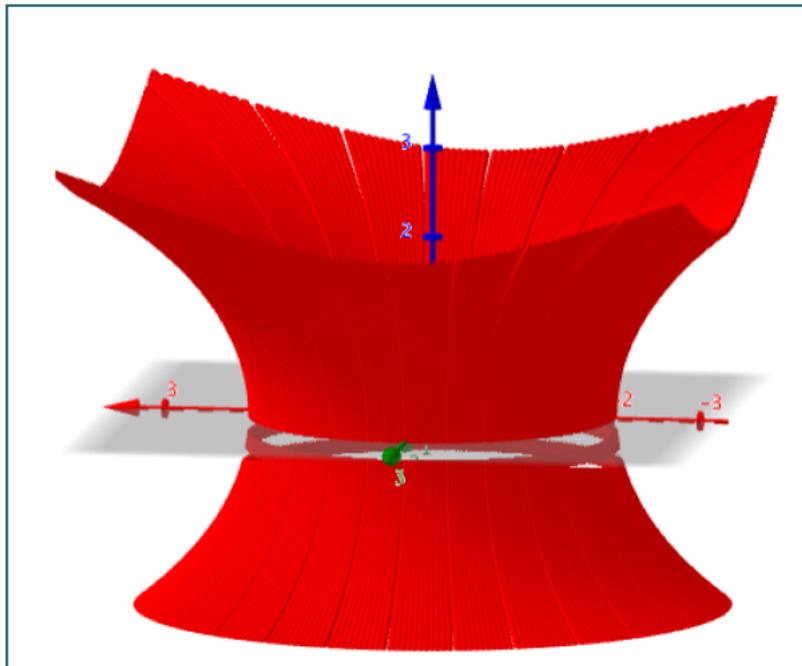# Exploration Guide

Maths IB Standard Level and Higher Level Applications and Interpretations Analysis and Approaches

(For first examination in 2021).

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Essential information

The exploration in IB maths has now been standardised – with the same marking criteria used for SL Analysis and SL Applications, and a slightly different marking criteria used for both HL Analysis and HL Applications.

- Your exploration can be on any area of personal interest – as long as it incorporates mathematics commensurate with the level of the course you are taking.

- Your exploration should be 12-20 pages long

- Your exploration is worth 20% of your final grade and is awarded a mark out of 20.

- During this process you should hand in a **draft version** of your exploration to your teacher. This should be what you believe to be a finished version of your exploration. Your teacher is then allowed to fully annotate this, check your mathematics and presentation before giving you written and verbal feedback as to how to improve.

- Your teacher should provide you with a copy of (or the relevant sections from):
  "Mathematics: analysis and approaches teacher support material"
  "Mathematics: analysis and approaches guide"
  Both of these two documents have detailed advice from the IB about how to choose a topic, the full marking criteria used by teachers and moderators and a lot of useful advice for completing a successful investigation.

- On the previously used similar criteria (last examination 2020) you needed the following scores for each level:

  SL: Level 7: 18-20. Level 6: 15-17. Level 5: 12-14. Level 4: 9-11.

  HL: Level 7: 17-20. Level 6: 15-16. Level 5: 12-14. Level 4: 9-11

The exploration marking criteria

You will be marked against the following criteria strands:

A: Presentation [out of 4].

B: Mathematical communication [out of 4]

C: Personal engagement [out of 3].

D: Reflection [out of 3]

E: Use of mathematics [out of 6]

A: Presentation

To achieve A4 your exploration needs to be coherent, well organised and concise.

Coherent explorations are easy to follow with steps clearly explained and sections which link together. It should be communicated so that a fellow student in your class can understand.

Organised explorations have introductions, clear aim and rationale and a conclusion. Work is cited in-text, with a bibliography. Graphs and tables are organised and presented in the relevant place.

Concise explorations have no repetitive calculations (once you have demonstrated your method once you don't need to so numerous times again). Content included should be relevant to the exploration. You should finish your exploration by achieving your aim. It should not be more than 20 pages.

Criteria A student checklist – have you done the following?

- An introduction explaining the exploration
- An aim outlining the purpose of the exploration
- A rationale explaining why the exploration was chosen
- Sensible conclusions based on the outcomes of your findings
- Discussion points and explanations that make sense to an audience of your peers
- Arguments that quickly get to the point
- Graphs &/or tables &/or diagrams &/or spreadsheets which are clearly labelled and easily understood
- Graphs with a key if needed, axes labeled appropriately
- Broken your exploration up into sections with suitable headings
- Included page numbers and bibliography

B: Mathematical Communication

To achieve B4 your mathematical communication must be relevant, appropriate and consistent throughout.

Appropriate means that the mathematical presentation will be as required. This means:

a) Good use of an equation editor if you use any equations. No computer notation.

b) Having all tables clearly labelled.

c) Having all graphs with a title and with axes labelled.

d) Having defined all variables and explained all mathematical terms.

e) Rounding to an appropriate degree, and demonstrating an understanding of the level of accuracy you are using.

Relevant means that you choose the mathematical presentation that is required to communicate the topic aim. Including graphs or tables which are not necessary in addressing your aim is not relevant.

Consistent means that your mathematical presentation does not change throughout the exploration (e.g. changing from y to Y) and is consistently appropriate.

Criteria B student checklist – have you done the following?

- Used correct mathematical language throughout the exploration
- Used correct mathematical notation and symbols throughout the exploration – **no** computer or GDC notation is acceptable ie *, ^, /
- Used the approximately equal to sign when rounding numbers
- Defined terms and variables **before** they are used in your working and referred to in your explanations
- Used multiple forms of mathematical representation such as formulae, diagrams, tables, charts, graphs and models as appropriate