



IB MATHS AA IA CHECKLIST

EDITABLE SELF-CHECK | AA SL & HL

Use this as a self-check. Your teacher and the official course documentation remain your primary guidance.

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Your exploration at a glance

COURSE ☐ AA SL ☐ AA HL

MY MATHEMATICAL AIM

MAIN MATHEMATICS I EXPECT TO USE

BEFORE YOU COMMIT TO THE TOPIC

- ☐ My aim is clear enough to state in one sentence.
- ☐ The scope is manageable. I am not trying to investigate too many variables, models or unrelated questions.
- ☐ The mathematics is appropriate to my course, and I can explain why each method is being used.
- ☐ I will use mathematics myself, rather than mainly describing, researching or reproducing other people's mathematics.
- ☐ A peer in my course could follow the key mathematics without needing outside sources.
- ☐ If I use a model, I can justify why it is reasonable and test whether it behaves sensibly in context.
- ☐ If I use correlation, I will not treat correlation as evidence of causation without further justification.
- ☐ Technology or coding will support the mathematics rather than become the main focus of the exploration.

PAUSE IF... the topic is mainly a research report, a standard textbook derivation, a science-lab style write-up, far beyond the course, or dependent on a huge dataset or long code output.



A Presentation

4 marks

- ☐ The introduction sets the context and gives a clear mathematical aim without an unnecessarily long backstory.
- ☐ The exploration develops in a logical sequence, with clear links between sections.
- ☐ Every substantial section contributes to the aim. I have removed irrelevant extensions and repeated calculations.
- ☐ Essential mathematics is in the main body rather than hidden in an appendix.
- ☐ The conclusion returns to the aim, interprets the result and does not introduce new mathematics after the conclusion.
- ☐ The final layout is clean and readable. I have checked page breaks, headings, graphs and tables for awkward splits.

B Mathematical communication

4 marks

- ☐ I define variables, symbols and non-mathematical terms when they first become relevant.
- ☐ I use proper mathematical notation consistently rather than calculator or programming notation in the final write-up.
- ☐ I use $=$ and $\approx$ correctly, and I state sensible accuracy where rounding matters.
- ☐ Graphs, tables and diagrams have useful labels, readable text, appropriate scales and units where needed.
- ☐ Equations and mathematical expressions are formatted clearly rather than inserted as poor screenshots.
- ☐ Each visual representation has a purpose and is introduced or interpreted in the surrounding text.
- ☐ If I use mathematics or terminology outside my course, I explain enough for a peer to follow without over-explaining basic prior knowledge.



C Personal engagement

3 marks

- ☐ I do not treat “I am interested in this topic” as evidence of personal engagement by itself.
- ☐ My own mathematical choices are visible, for example selecting, adapting or comparing methods for a reason.
- ☐ I respond to what the mathematics reveals by refining, testing or reconsidering part of the approach when appropriate.
- ☐ I can point to specific places where the investigation became distinctively mine through decisions, curiosity or independent reasoning.
- ☐ I do not assume that collecting my own data automatically proves personal engagement.
- ☐ I ask questions that move the investigation forward rather than simply following a standard online or textbook method.
- ☐ External sources support my work but do not dominate it. The exploration contains my own reasoning and mathematical insight.

WHERE DOES MY MATHEMATICAL OWNERSHIP SHOW MOST CLEARLY?

Personal engagement is strongest when it is visible in the mathematics you choose, develop, question and interpret.



D Reflection

3 marks

- ☐ Reflection appears during the exploration where decisions are made, not only in a final paragraph.
- ☐ I evaluate whether the mathematical method or model is appropriate for the context and the aim.
- ☐ I ask questions such as “How reliable is this?”, “What if I change this?” or “Is there a better approach?” and follow them with analysis.
- ☐ I critically review results rather than merely describe what a graph or calculation shows.
- ☐ I consider reliability, assumptions and limitations where they genuinely matter mathematically.
- ☐ When reflection exposes a weakness, I act on it by refining the method, testing an alternative or explaining why a change is not appropriate.
- ☐ My conclusion interprets what the mathematics means and links back to the original aim.

REFLECTION CHECKPOINTS I ACTUALLY ACTED ON

Examples: changed a parameter, rejected a model, tested sensitivity, compared an alternative method, or explained why a refinement was not appropriate.



E Use of mathematics

6 marks

- ☐ The mathematics is relevant to the aim and appropriate to my course level.
- ☐ I understand every technique I use and can explain its role in the exploration.
- ☐ I am not using advanced mathematics simply because it looks more sophisticated.
- ☐ My calculations are correct, justified and presented with enough working to demonstrate understanding.
- ☐ I avoid pages of repeated calculations when one worked example plus a clear summary would demonstrate the process.
- ☐ I interpret technology output mathematically instead of pasting graphs, regression equations or code without analysis.
- ☐ If I am modelling, I test whether the model is viable and discuss what its parameters and limitations mean.
- ☐ If I am AA HL, the exploration shows mathematics commensurate with HL expectations while remaining understandable to a peer.

REMEMBER

More advanced mathematics does not automatically mean stronger mathematics. The key question is whether the mathematics is appropriate, correct, understood and used purposefully.



MODELLING, STATISTICS & TECHNOLOGY CHECKS

- ☐ I chose the model because it makes mathematical and contextual sense, not simply because software reported the best R^2 value.
- ☐ I test the model using residuals, error, comparison, validation data or another appropriate method where relevant.
- ☐ I avoid analysing so many variables or models that the exploration becomes shallow or unfocused.
- ☐ I interpret model parameters and discuss whether the model behaves sensibly within the relevant domain.
- ☐ I distinguish correlation from causation and avoid causal claims that the mathematics does not support.
- ☐ Code, screenshots and raw datasets do not dominate the main body. They support the mathematical narrative.
- ☐ If I use Python, a GDC, Desmos or another tool, I still show enough mathematical reasoning for the reader to understand what the technology is doing.

RED FLAGS TO REVIEW BEFORE SUBMISSION

- ☐ The exploration reads mainly like a research report or historical account.
- ☐ The structure resembles a science practical with a long methodology section that does not serve the mathematics.
- ☐ I added several models, graphs or extensions mainly to make the work look more complex.
- ☐ A huge bibliography, appendix, dataset or code output is doing work that should be visible in the mathematical narrative.
- ☐ The topic is so advanced that important steps are copied, skipped or left unexplained.
- ☐ The exploration follows a very common online template with little room for personal mathematical decisions.
- ☐ My only reflection is a generic limitations or extensions section at the end.



Use this final page as a last quality-control pass before submission.

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THE 5-MINUTE FINAL AUDIT

- ☐ I can explain my mathematical aim in one sentence.
- ☐ I can point to where my own mathematical decisions shaped the investigation.
- ☐ A peer in my course could follow the mathematics without outside resources.
- ☐ Every graph, table, diagram and equation earns its place.
- ☐ I can defend why every major method or model belongs in the exploration.
- ☐ I can point to meaningful reflection during the exploration, not just at the end.
- ☐ I understand all the mathematics I have included.
- ☐ All sources that directly informed the work are cited where used, and the bibliography contains only sources I actually used.

FINAL NOTES BEFORE SUBMISSION

ANYTHING I STILL NEED TO FIX

Source note: synthesised from recurring themes in Mathematics: Analysis and Approaches subject reports from recent examination sessions. This is an unofficial TurtleMaths self-check, not an official IB document.

Need help developing the mathematics?

turtlemaths.com/book

