

Understanding IBDP Mathematics

A parent and family guide to AA, AI, SL, HL and independent mathematical exploration.

Dubai · Sharjah · Abu Dhabi · Muscat · London

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Qualification-specific guidance for families. Confirm the current syllabus, assessment rules and deadlines with the school and awarding body.

This guide offers educational information, not a predicted grade, admissions guarantee or assessment certification.

Confirm the course and assessment year

IBDP Mathematics includes Analysis and Approaches (AA) and Applications and Interpretation (AI), each at Standard Level or Higher Level. AA emphasises mathematical argument and algebraic structure; AI emphasises modelling, statistics and technology. Both require reasoning.

The courses first assessed in 2021 have their final assessment in November 2028. Revised courses are first taught from August 2027 and first assessed in May 2029. Ask the school which guide applies.

The full subject, not only the IA

The five topic areas are number and algebra, functions, geometry and trigonometry, statistics and probability, and calculus. Depth and content depend on course, level and syllabus version.

AA has a non-calculator Paper 1; technology is used on its other papers. AI uses technology across its papers. HL includes an additional extended problem-solving Paper 3. Confirm current timings and calculator rules with the school and IB.

The mathematical exploration is part of this full subject: internal assessment contributes 20%, with external examinations contributing 80%.

Choosing a pathway

Consider interests, prior preparation, workload and the exact degree-entry requirements of likely universities. AA/AI or SL/HL should not be ranked by simplistic grade comparisons. Some programmes name a specific course and level.

IA criteria through the 2028 assessment cycle

The current exploration has five criteria: A Presentation (4), B Mathematical communication (4), C Personal engagement (3), D Reflection (3), and E Use of mathematics (6): 20 marks total. Criterion E descriptors differ at SL and HL.

Genuine engagement is visible in mathematical decisions and investigation, not a decorative personal-interest sentence. Reflection should evaluate the approach and outcomes throughout the work. Mathematics must be relevant, understood and appropriate to the course; it need not go beyond the syllabus.

First assessment 2029: a different rubric

The revised inquiry-based criteria are A Problem specification (4), B Abstraction (6), C Computation (4), and D Interpretation (6): 20 marks total, with the same criteria at SL and HL. Do not apply the old five-criterion checklist to this cohort.

Independent-work boundaries

The exploration must remain the student's own work. Tutors can teach mathematical ideas through separate examples, discuss understanding and ask questions within school rules. They must not supply the exploration's mathematics, write or rewrite assessed text, or promise a grade.

Follow the school's guidance on drafts, authentication, references and AI use. A useful check is whether the student can explain each mathematical choice unaided. A citation alone does not make otherwise prohibited assistance acceptable.

A realistic two-year plan

- Early: confirm course, level, assessment year and university prerequisites.
- Throughout: practise algebraic reasoning, interpretation and the relevant calculator skills.
- Before the school IA deadline: leave time to investigate, refine a question and reflect, while keeping ownership with the student.
- Final preparation: practise course-specific papers, command terms and unfamiliar linked problems; HL students should give Paper 3 separate attention.

Help without taking over

Ask what a result means and why a method was chosen. Encourage regular practice and a deadline calendar. Avoid turning the IA into parent- or tutor-written work. Repeated inability to explain the exploration, or large gaps between routine and unfamiliar problems, are reasons to investigate rather than label ability.

A teaching example of reflection

A model fits observed data but predicts an impossible negative quantity outside the observed range. Useful reflection identifies the domain where the model is meaningful, explains why extrapolation fails, and considers a justified refinement. It is not simply a final paragraph saying the investigation went well.

Sources and the next step

Use the original awarding body's current guidance; course versions and policies can change.

[Current and revised mathematics courses](#)

[AA first-assessment-2029 updates](#)

[AI first-assessment-2029 updates](#)

[Academic integrity](#)

The 45-minute diagnostic

30 minutes of live observation plus 15 minutes of independent work. A written report follows within 24 hours. The AED 150 launch price is fully credited if a programme starts within 7 days.

Bring the course details and relevant practice evidence. For assessed work, follow school and qualification rules on outside help.

Read the Diagnostic page for the process, then use the homepage enquiry form to ask about availability. An enquiry does not reserve an appointment.

[Ask about a diagnostic: open the homepage enquiry form](#)

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