IB Maths AA HL: syllabus checklist

70 points in plain English, grouped by the five syllabus topics.

Tick a box only when you can do that point without notes. Every point has free notes and practice questions at **ibmathrevision.com/syllabus/ib-maths-aa-hl**, where your ticks are also saved.

Topic 1 Number and algebra

- ☐ Arithmetic sequences and series SL
- ☐ Geometric sequences and series (finite + infinite) SL
- ☐ Sigma notation SL
- ☐ Exponentials and logarithms — laws of logs SL
- ☐ Change of base formula SL
- ☐ Binomial theorem (positive integer n) SL
- ☐ Financial math (compound interest, annuities) SL
- ☐ Proof (deductive, direct) SL
- ☐ Proof: direct, contrapositive, contradiction, induction HL only
- ☐ Counting principles and binomial theorem (rational n) HL only
- ☐ Systems of linear equations (3×3) HL only
- ☐ Partial fractions HL only
- ☐ Complex numbers: Cartesian, polar, Euler HL only
- ☐ De Moivre's theorem HL only
- ☐ Roots of unity HL only

Topic 2 Functions

- ☐ Function notation, domain, range, inverse SL
- ☐ Composite functions SL
- ☐ Transformations of graphs SL
- ☐ Quadratic functions: forms, discriminant SL
- ☐ Rational and reciprocal functions SL
- ☐ Exponential and logarithmic functions SL
- ☐ Equations of straight lines SL
- ☐ Solving equations analytically and graphically SL
- ☐ Odd, even functions; modulus and inequalities HL only
- ☐ Polynomials: factor + remainder theorems HL only
- ☐ Rational functions and asymptotes HL only
- ☐ Transformations and modulus graphs HL only
- ☐ Solving $|f(x)| = g(x)$ type equations HL only

Topic 3 Geometry and trigonometry

- ☐ Right-angled trigonometry SL
- ☐ Non-right triangles (sine + cosine rule) SL
- ☐ Radians and arc length / sector area SL
- ☐ Unit circle and exact values SL
- ☐ Trig identities (Pythagorean, double-angle) SL
- ☐ Solving trigonometric equations SL
- ☐ Graphs of sin, cos, tan (transformations) SL
- ☐ Reciprocal trig ratios (sec, csc, cot) HL only
- ☐ Inverse trig functions HL only
- ☐ Compound and double-angle identities HL only
- ☐ 3D vectors: dot + cross product HL only
- ☐ Vector equations of lines and planes HL only
- ☐ Intersections of lines/planes HL only
- ☐ Angle between two lines / two planes HL only

Topic 4 Statistics and probability

- ☐ Presentation of data SL
- ☐ Measures of central tendency + spread SL
- ☐ Bivariate data and correlation SL

- [ ] Sample space, complementary events SL
- [ ] Independent + mutually exclusive events SL
- [ ] Conditional probability (incl. tree diagrams) SL
- [ ] Discrete random variables and $E(X)$ SL
- [ ] Binomial and normal distributions SL
- [ ] Conditional probability + Bayes' theorem HL only
- [ ] Discrete + continuous random variables HL only
- [ ] Advanced binomial and normal distributions HL only
- [ ] Linear transformations: $E(aX+b)$ and $\mathrm{Var}(aX+b)$ HL only

Topic 5 Calculus

- [ ] Limits and rates of change SL
- [ ] Differentiation: chain, product, quotient rules SL
- [ ] Second derivative, concavity, inflection SL
- [ ] Optimisation and related rates SL
- [ ] Integration by inspection and substitution SL
- [ ] Definite integrals and area between curves SL
- [ ] Kinematics: displacement, velocity, acceleration SL
- [ ] First principles: derivative definition HL only
- [ ] Implicit differentiation HL only
- [ ] Related rates + optimisation HL only
- [ ] Integration by parts and substitution HL only
- [ ] Integration using partial fractions HL only
- [ ] Volumes of revolution HL only
- [ ] Differential equations (separable, integrating factor) HL only
- [ ] Maclaurin series and error terms HL only
- [ ] L'Hôpital's rule HL only

This checklist is written in our own words by IB Math Revision. It is not the official subject guide: always check the International Baccalaureate (IB)'s own document.