IB DP MATHS AA · EXAM SPECIAL · SL & HL · FROM THE NOV 2024 AND MAY 2025 SUBJECT REPORTS · ~12 MIN READ

IB Maths AA Exam Traps: 57 Mistakes Examiners Flagged

57 mistakes IB examiners flagged in the November 2024 and May 2025 Maths AA subject reports, grouped by topic, each with the fix, plus a last-week checklist.

Accuracy & rounding | GDC habits | Show that & hence | Functions | Calculus | Kinematics | Probability & statistics | Trigonometry

RS by Riyaz Sir
mentorriyaz.in

No tag = **SL and HL** HL ONLY HL students only FORMULA BOOKLET given in the exam

M1 A1 how marks are awarded highlight = comes up again and again HANDY worth memorising

Test yourself at the end

IN 30 SECONDS

- **These are not guesses.** Every trap below was named by IB examiners in the Maths AA subject reports for November 2024 and May 2025 (all time zones, SL and HL).
- **Most of the lost marks are habits, not hard maths.** Premature rounding, the wrong angle mode, unfinished answers and "show that" done backwards appear in almost every report.
- **How to use this note:** read one section a day in the last two weeks. For each trap, say the fix out loud, then try the quick check at the end.

BY THE END YOU CAN

- Spot the 57 most common ways IB Maths AA students lose marks.
- Replace each one with the habit examiners want to see.
- Use a last-week checklist before Paper 1, Paper 2 and (HL) Paper 3.

Riyaz Sir

1 Accuracy and presentation

COMMON MISTAKE

Rounding too early. Rounding an intermediate value (say to 3 s.f.) and using it later throws the final answer off. Examiners call this the most common lost mark on Paper 2. **Fix:** store values in the GDC memory and round only the final answer.

COMMON MISTAKE

Final answers to 2 significant figures. IB wants exact answers or **3 s.f.** unless told otherwise. A bare 2 s.f. answer loses the A1 mark. **Fix:** write the unrounded value, then the 3 s.f. answer.

COMMON MISTAKE

Missing a different accuracy instruction. "Give your answer to two decimal places", "to four significant figures", "as a percentage" or "to the nearest integer" all appeared in May 2025, and many students ignored them. **Fix:** underline accuracy instructions during reading time.

COMMON MISTAKE

Unfinished answers. $\log_2 16$ left as $\log_2 16$ (it is 4), 0.2/0.35 left as a fraction of decimals (it is 4/7), p + p + p left unsimplified. **Fix:** simplify anything that obviously simplifies; fractions need integers top and bottom.

COMMON MISTAKE

Missing brackets. $(2n)^2$ written as $2n^2$, subtracting a bracket without changing every sign, $(-b)^2$ typed as $-b^2$. Examiners singled this out in Nov 2024 and May 2025. **Fix:** always write the bracket, then expand.

COMMON MISTAKE

Asymptotes not written as equations. "3/2", "HA = 3/2" or "y ≠ 3/2" are not accepted. **Fix:** write **y = 3/2** and **x = −1**.

COMMON MISTAKE

Sketches missing what was asked. Intercepts, the vertex, asymptotes or end points left off, or curves drawn outside the domain. **Fix:** before you sketch, list the features the question names, then label every one with coordinates.

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2 Using the GDC (Paper 2 and HL Paper 3)

COMMON MISTAKE

Degree mode in a radians question (or the reverse). Examiners saw kinematics, trig models and integrals worked in degrees in May 2025, and the final mark was lost each time. **Fix:** check the mode at the start of every trig or calculus question; AA calculus is always in radians.

COMMON MISTAKE

Doing by hand what the GDC does in seconds. Simultaneous equations, an equation in one unknown, the mean of a frequency table, a derivative at a point, a definite integral: examiners repeatedly saw long algebra and lost time. **Fix:** "in Paper 2, once you have an equation in one variable, the next mark is for the answer". Use the solver. See GDC guide.

COMMON MISTAKE

invNorm with the wrong tail. Typing invNorm(0.88) when the question needs the 6% tail on each side. **Fix:** sketch the normal curve, shade the region, and enter the area to the **left** of the value (or use the tail setting).

COMMON MISTAKE

Writing "from GDC" with no setup. If the answer is wrong, there is nothing to give method marks for. **Fix:** write the equation you solved, the distribution and its parameters, or the integral with limits, then the answer.

3 "Show that", "hence" and reasoning

COMMON MISTAKE

Working backwards from the given answer. Substituting the given value to check it, or starting from the answer, scores nothing. **Fix:** start from what you know and finish with the given result as your last line.

COMMON MISTAKE

Not laying out a proof LHS → RHS. Cancelling on both sides like scratch work is not a proof. **Fix:** write the full LHS, transform it step by step, and end with the RHS.

COMMON MISTAKE

"Show that" a 3 s.f. value without more digits. To show $\theta = 57.3°$, you must show $57.29...°$ first. **Fix:** give at least one more significant figure than the answer you're showing.

COMMON MISTAKE

Ignoring "hence". Integrating from scratch after part (i) gave you the identity you needed, or finding an inverse when part (c) already gave the asymptotes. **Fix:** "hence" means use the previous part. Look for the link.

COMMON MISTAKE

Using a later part to answer an earlier one. Not allowed unless the question says so.

COMMON MISTAKE

Rejecting a value without a reason. Crossing out an extra solution earns nothing. **Fix:** write why it fails, for example "$x = -2$ is rejected because $\ln(x - 1)$ is undefined".

COMMON MISTAKE

Testing a few values instead of proving. Showing $(2n + 5)^2 - (2n - 5)^2$ is a multiple of 10 for $n = 1, 2, 3$ earns zero. **Fix:** expand algebraically for general n, then explain why the result is a multiple of 10.

COMMON MISTAKE

Leaving earlier parts blank and giving up. Later parts often give you the result you need. **Fix:** attempt every part; use the "show that" answer in the next part even if you couldn't show it.

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4 Functions and algebra

COMMON MISTAKE

Domain of f^{-1}. Forgetting that the domain of f^{-1} is the range of f, and missing that $f(-3) = -1$ means $f^{-1}(-1) = -3$.

COMMON MISTAKE

Range after a transformation with a restricted domain. Fix: sketch the transformed graph on its domain and read the lowest and highest y-values.

COMMON MISTAKE

Describing transformations loosely. "Moved" or "stretched" without direction, factor or vector. **Fix:** "a horizontal stretch, scale factor ½" and "a translation by (3, 0)" (or the vector).

COMMON MISTAKE

Quadratic inequalities. Finding the critical values correctly, then writing the wrong inequality. **Fix:** sketch the parabola and read off where it is above or below the axis.

COMMON MISTAKE

Discriminant applications. Missing that "quadratic > 0 for all x" means $\Delta < 0$ with a positive leading coefficient, or that two roots of the same sign need a positive product of roots. Also, for a log to exist the argument must be > 0, not > 1.

COMMON MISTAKE

Log laws. $\log(a + b)$ split into $\log a + \log b$, or $\log 2^3$ written as $(\log 2)^3$ instead of $3 \log 2$.

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5 Calculus

COMMON MISTAKE

Gradient and angle. The gradient of a line is **tan θ**, where θ is its angle with the positive x-axis. "Very few" students used this in May 2025 ($f'(a) = \tan 70°$).

COMMON MISTAKE

Given P′(t), substituting into P′. To find the population at t = 4 from a rate, you must integrate (with +C and the initial value) or add a definite integral to the starting value.

COMMON MISTAKE

Missing the chain rule factor. $\int e^{2x}$ dx missing the ½, $\int 1/(2x + 1)$ dx missing the ½, d/dx of sin(πx) missing π.

COMMON MISTAKE

Forgetting $\int 1/x\,dx = \ln|x| + C$, even though it is in the formula booklet.

COMMON MISTAKE

Area between curves. Splitting into two integrals and making sign errors. **Fix:** integrate (top − bottom) once, or use |f − g| on the GDC, and sketch first.

COMMON MISTAKE

Volumes of revolution. Forgetting π, or (HL) using the x-axis formula for a rotation about the y-axis. The y-axis formula is in the booklet: $V = \pi\int x^2\,dy$.

COMMON MISTAKE

Optimisation not recognised. "Closest", "greatest", "fastest rate" all mean differentiate (or use the GDC's max/min). The fastest rate of change of h is where **h″ = 0**, not where h′ = 0.

COMMON MISTAKE

Using the quotient rule for $4x^3/3$. It's a constant times x^3. Simplify before differentiating.

COMMON MISTAKE

Justifying a minimum. State the sign of f″ (or the sign change of f′) and say what it means.

6 Kinematics

COMMON MISTAKE

Maximum speed vs maximum velocity. Speed is |v|. In May 2025 the most common wrong answer to one question was 1.13, the maximum velocity, when the maximum speed was asked for; in another, many found v(5) = −120 but did not say the maximum speed is 120. **Fix:** graph |v(t)|, or compare the largest and smallest values of v.

COMMON MISTAKE

Change of direction. It happens where v = 0 **and changes sign**. Students rarely used v = 0.

COMMON MISTAKE

Distance vs displacement. Distance = $\int|v|\,dt$ (one integral on the GDC). Splitting into pieces is fine, but rounding each piece loses accuracy.

7 Probability and statistics

COMMON MISTAKE

Assuming independence. Multiplying P(A)P(B) when the events were not given as independent. To **prove** independence, show P(A ∩ B) = P(A)P(B) with numbers.

COMMON MISTAKE

Conditional probability written out of context. "P(A | B)" with no meaning scores no method mark. **Fix:** write P(age ≥ 75 | age ≥ 55) or P(faulty | positive).

COMMON MISTAKE

"At least", "more than", "fewer than". P(X ≥ 150) is not P(X ≤ 150). Write the inequality in words, then in symbols.

COMMON MISTAKE

Discrete distributions. Setting E(X) = 1 instead of ΣP = 1; dividing Σx P(X = x) by n; giving the probability instead of the mode.

COMMON MISTAKE

Finding μ or σ from two probabilities. Use z = (x − μ)/σ twice with the correct z-values, then solve the two equations.

COMMON MISTAKE

Regression. The mean point ($\bar{x}$, $\bar{y}$) is where the two regression lines meet; predictions outside the data are unreliable (extrapolation), whatever r is.

8 Trigonometry and geometry

COMMON MISTAKE

The period of tan. The period of tan(bx) is **π/b**, not 2π/b. The "vast majority" got this wrong in May 2025.

COMMON MISTAKE

Dividing by cos θ. It loses the solutions where cos θ = 0. Factorise instead, and check every solution is in the interval.

COMMON MISTAKE

Sector area with degrees. A = ½r^2θ needs θ in **radians**.

COMMON MISTAKE

3D problems. Not drawing the right-angled triangle that contains the angle. **Fix:** redraw it flat in 2D and label it.

COMMON MISTAKE

Bearings and units. Bearings are clockwise from North; convert metres and km before mixing them with a speed.

9 Sequences and series

COMMON MISTAKE

Geometric sequences in context. A ball's 6th bounce height uses n = 6, not n = 5; total distance counts each height twice (up and down).

COMMON MISTAKE

Discrete answers. "Rows of cards" or "number of years" must be whole numbers. Don't round 21.4 rows up to 22 when only 21 complete rows fit.

10 HL only HL

COMMON MISTAKE

Induction wording. "Assume n = k" is not an assumption about a statement. **Fix:** "Assume P(k) is true for some $k \in \mathbb{Z}^+$", then show P(k + 1), and finish with a full conclusion.

COMMON MISTAKE

Proof by contradiction. Not negating the statement properly, and cross-multiplying an inequality without saying the quantities are positive.

COMMON MISTAKE

Complex numbers. Arguments taken from arctan without checking the quadrant; only one square root found; conjugates not written in Cartesian form; GDC conversions between forms not practised.

COMMON MISTAKE

Euler's method reasoning. Saying the estimate is an overestimate "because it works left to right". **Fix:** refer to the curve being concave up or down (the tangent lies below or above the curve).

COMMON MISTAKE

Vectors. Writing "L_1 =" instead of **r =** for a line; using the wrong vectors for the angle between planes.

COMMON MISTAKE

Differential equations. Losing the modulus in ln |y|, or the constant of integration, especially when moduli are involved.

COMMON MISTAKE

Counting. Using permutations when order doesn't matter, or forgetting to divide by 3! for identical groups.

11 Last-week checklist

- **Paper 1:** fractions and surds simplified; brackets written; exact values (π/3, √3/2) learned; "show that" starts from the question, not the answer.
- **Paper 2:** angle mode checked for every question; values stored, not retyped; 3 s.f. (or the stated accuracy); setup written before every GDC answer.
- **Both:** every part attempted; "hence" used; asymptotes written as equations; contexts answered with units.
- **HL Paper 3:** read the definitions it gives you; each part builds on the last; use the GDC whenever a part is numerical.

LINKING QUESTION

For the calculator skills behind many of these traps, see the GDC guide. To see how many marks these traps are worth, see the grade boundaries.

Test yourself — cover the answers first

QUICK CHECK

1. What accuracy should an answer have if the question doesn't say?
2. What is the period of tan(2x)?
3. Which formula do you need for maximum speed rather than maximum velocity?
4. How should you finish a "show that" question?
5. To find a population from P′(t), what must you do?
6. Write the horizontal asymptote 2 correctly.

Show answers

1. exact, or 3 significant figures
2. π/2
3. the maximum of |v(t)|
4. with the given result as the last line
5. integrate P′(t) and use the initial value
6. y = 2

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