

How to get a grade A* in Edexcel A level Maths

A grade A* means near-complete control of the course: you score on almost every part of every question, including the unstructured problems and the final parts written to stretch the strongest students. The gap between A and A* is rarely new content. It is accuracy under time pressure, rigour in proof and explanation, and confidence with problems that don't tell you the method.

What an A* asks of you

- Very few dropped marks on routine questions. For most students, slips rather than missing knowledge are what stand between A and A*.
- Rigour: complete proofs with concluding statements, change-of-sign arguments that mention continuity, identities proved from one side, and hypothesis-test conclusions with the right wording in context.
- Problem solving: planning an unstructured question yourself, choosing which topics to combine.
- Modelling: setting up a model or differential equation from words, solving it, interpreting the answer and criticising the model in specific terms.
- Speed: enough time left to check your work and to think properly about the hardest parts.

The topics that separate A from A*

- Harder calculus: differential equations built from a context and solved with given conditions; choosing between substitution, parts and partial fractions; areas with parametric curves; connected rates of change; second derivatives, concavity and points of inflection; differentiation from first principles, including $\sin x$ and $\cos x$.
- Harder trigonometry: long identity proofs, equations that need an identity and then a substitution, small angle approximations, and trig inside calculus.
- Proof: contradiction beyond the standard examples, and proofs that mix algebra with properties of numbers.
- Sequences: recurrence relations (increasing, decreasing and periodic), sigma notation and series in modelling contexts.
- Statistics: the normal approximation to the binomial with a continuity correction, conditional probability with the normal distribution, the points of inflection of the normal curve at $\mu \pm \sigma$, and tests for a normal mean with the right choice of tail.
- Mechanics: ladders in limiting equilibrium, projectiles in vector form or aimed at a target, variable acceleration in vector form, and pulley systems with slopes and friction.

Question types to master

- Long unstructured questions: plan the route in a few lines before writing, so you don't start down the wrong path.
- Comments on models that are specific to the context, and sensible refinements.
- 'Show that' questions with long chains of algebra, where every line must be correct.
- Proofs by contradiction and by exhaustion, written with precise logical wording.
- Hypothesis tests that ask for a critical region and the actual significance level.
- Mechanics problems in several stages, such as before and after a string breaks.

A 10-week revision plan

- Every day (about 20 minutes): your Daily 5, your flashcards and a short Extreme Custom paper of one or two questions.
- Weeks 1 and 2: sit one timed Mock exam of each paper. Use Progress to list every subtopic where you are dropping marks, and set Hard and Extreme Custom papers on them.
- Weeks 3 to 6: two timed Mock exams a week, plus one Extreme Custom paper on your weakest topics. Redo every dropped mark from Progress within two days.
- Weeks 7 and 8: work on presentation. Rewrite your proofs, 'show that' answers, hypothesis-test conclusions and model comments until each would score every mark.
- Weeks 9 and 10: three timed Mock exams a week (one of each paper) with checking time built in. In the last few days, switch to light review of the cheatsheets and your error log.

Using GCSE Paper Builder

- Custom paper: set Hard and Extreme papers at a longer length on mixed subtopics, so every session stretches you.
- Mock exams: sit full timed papers and aim to finish with time to check. Note both your score and where your time went.
- Progress: keep pushing the weakest subtopics up the list, and redo every question you dropped a mark on until you get it right first time.
- Notes: use the grade A* skill list as a final checklist, the cheatsheets for a last review, and this exam technique guide before each mock.
- Daily 5 and Flashcards keep every topic fresh right up to the exam.
- The Whiteboard is useful for planning unstructured questions on screen.
- 1-to-1 tutoring with Chhetri Academy can polish problem solving and presentation at the top grades; the first 30-minute trial lesson is free.

Timing strategy in the exam

- Aim to finish with 10 to 15 minutes to spare, then check the places slips hide: long algebra, signs, limits of integration and rounding.
- Don't rush the first half: a slip on an early question costs as much as a hard mark at the end.
- In the first five minutes, glance at the long final questions so you know what is coming and can pace yourself.
- On Paper 3, keep about 5 minutes of each section's hour for checking.

Traps at grade A*

- Over-confidence: skipping steps in 'show that' answers, or relying on a calculator result where all stages must be shown.
- Incomplete rigour: no concluding statement, no mention of continuity in a change-of-sign argument, or no reason for rejecting a root.
- Vague comments on models ('it may not be accurate') that score nothing.
- Losing accuracy through early rounding, or by using $g = 9.81$ instead of 9.8.
- Ignoring domains and ranges, for example of an inverse function or of $\ln x$.
- Neglecting Paper 3 because Pure feels harder: statistics and mechanics marks count just as much.
- Spending so long checking early questions that you run short of time on the long final ones.

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