



EXAM TECHNIQUE

GCSE · IGCSE · ALL BOARDS

The Complete Guide to Maximising Your Maths Marks

The difference between a good maths student and a great exam result is **technique**. This guide covers everything you need to know — from how to prepare in the weeks before, to how to pick up every last mark on exam day.

Written by **Sir Faraz Hassan**, founder of igcsegcsemaths.com, with insights drawn from years of tutoring, marking, and helping students achieve their best grades.

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This guide is designed for all GCSE and IGCSE Maths students, regardless of exam board (Edexcel, AQA, OCR, CIE, or others). The principles of exam technique are universal — the advice here will help you on any paper.

■ How to Use This Guide

- **Before revision begins:** Read Sections 1 and 7 to build good habits early.
- **During revision:** Use Section 5 (Topic Tips) alongside your practice papers.
- **One week before the exam:** Read Sections 2, 3, and 4 carefully. Study the command words table.
- **The night before:** Review the Key Formulae reference and the Exam Day Checklist.
- **After every practice paper:** Use the reflection template in Section 7 to track your progress.
- **Keep this guide in your folder** — refer back to it regularly, not just once.

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Before the Exam

Preparation, revision strategy, and the right mindset.

The Final Week

- Focus on **active revision** — do past papers and practice questions, don't just re-read notes.
- Use the **1-2-3 method**: for every hour of revision, spend 10 minutes reviewing notes, 20 minutes on worked examples, and 30 minutes on exam questions.
- Identify your **top 5 weakest topics** and give them focused time. Don't waste time on topics you already know well.
- Complete at least **2 full past papers** under timed conditions before the real exam.

■ Key Point

Past papers are the single most effective revision tool. Doing one past paper under timed conditions is worth more than 3 hours of passive revision.

The Night Before

- Do **not** cram. A light 30-minute review of key formulae is plenty.
- Pack your equipment the night before: **pen (black), pencil, ruler, protractor, compass, eraser, calculator** (with fresh batteries).
- Set two alarms. Get at least **7–8 hours of sleep** — your brain consolidates memory while sleeping.
- Eat a proper breakfast on exam morning. Avoid excessive caffeine.

The Right Mindset

- You don't need to answer every question perfectly to get a top grade.
- Nerves are normal. A small amount of adrenaline actually **improves** performance.
- Focus on **what you can do**, not on what you're afraid of. Most students leave marks on the table — your job is to pick them up.

■ Pro Tip

Write a **cheat sheet** of your top 20 weakest facts/formulae and read it 3 times the morning of the exam. You won't remember everything, but you'll remember more than if you didn't.

Revision Planning

- Create a **revision timetable** that covers every topic at least once. Prioritise weak areas but don't ignore strong ones entirely.
- Use **spaced repetition**: revise a topic, then revisit it 2 days later, then 5 days later. This cements it into long-term memory.
- Study in focused blocks of **25–30 minutes** with 5-minute breaks (the Pomodoro technique). Your brain absorbs more in short, focused bursts.
- After each practice paper, make a list of **every topic where you dropped marks**. This list becomes your next revision priority.

■ Common Mistake

Highlighting notes and re-reading textbooks feels productive but is **passive revision**. It rarely improves exam scores. Active practice — solving questions, doing past papers, teaching concepts to someone else — is what actually works.

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During the Exam

Time management, paper strategy, and how to pick up every mark.

Time Management

The golden rule: **1 mark $\approx$ 1 minute**. On a 90-mark, 90-minute paper, you should spend roughly 1 minute per mark. On a 100-mark, 90-minute paper, it's slightly less than 1 minute per mark.

Paper Length	Total Marks	Time per Mark	Check Time
90 min	80 marks	~1 min	10 min
90 min	100 marks	~50 sec	5 min
120 min	100 marks	~1 min	15 min

The Three-Pass Strategy

Pass 1 (first 60% of time): Work through the paper from start to finish. Answer every question you can do confidently. If a question takes more than 2 minutes beyond its mark allocation, **circle it and move on**.

Pass 2 (next 25% of time): Return to circled questions. With the pressure reduced and your brain warmed up, you'll often find they seem easier the second time.

Pass 3 (final 15% of time): Check your answers. Re-read every question to make sure you answered what was asked. Check arithmetic and units. Make sure no questions were accidentally skipped.

■ Key Point

Never leave a question blank. Even a partial attempt — writing down a formula, drawing a diagram, or starting the first step — can earn method marks.

Presentation Tips

- Write **one step per line**. Examiners can't award marks for working they can't follow.
- Draw clear, large diagrams. Label everything.
- Circle or underline your **final answer** so it's obvious.
- If you need to change an answer, cross out neatly — don't scribble.
- Use **the space provided** as a guide — if there's a lot of space, the examiner expects working.

■ Common Mistake

If a question says 'show your working', you **will lose marks** for a correct answer with no working. The examiner wants to see your method, not just your answer.

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Command Words Explained

Understanding exactly what the examiner is asking you to do.

Command words tell you **how** to answer. Using the wrong approach — even with correct maths — can cost marks.

Command Word	What It Means	What You Must Do
Calculate	Work out using maths	Show clear working, give a numerical answer
Solve	Find the value(s) of a variable	Show algebraic steps, state the answer(s) clearly
Simplify	Reduce to simplest form	Collect terms / cancel / reduce — no "= answer" needed
Expand	Multiply out brackets	Show the multiplication, then simplify if asked
Factorise	Write as a product of factors	Find HCF or use inspection — final answer in brackets
Show that	Prove a given result is true	Every step must be justified — you cannot use the given answer in your working
Prove	Give a rigorous logical argument	Use algebra to show something is always true — must be general, not examples
Estimate	Round first, then calculate	Round each number to 1 s.f., then compute. Do NOT give an exact answer
Give a reason	Explain why	Use mathematical language — e.g. 'alternate angles are equal'
Write down	State without working	No working needed — just the answer (usually 1 mark)
Hence	Use your previous answer	You MUST use the result from the previous part — don't start again
Otherwise	Use a different method	Any valid method is accepted — 'hence or otherwise' means either approach is fine

■ Examiner Secret

'**Show that**' questions are worth more marks than you think. The examiner wants to see every single algebraic step, even the 'obvious' ones. If the answer is given as $x = 5$, you must arrive at that answer through your own working — you cannot assume or skip steps.

■ Common Mistake

'**Estimate**' does NOT mean 'guess'. It means round to 1 significant figure first, then calculate. Students who give an exact answer to an 'Estimate' question get **zero marks**.

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Mark Scheme Secrets

How examiners actually award marks — and how you can exploit this.

The Three Types of Marks

Every mark on a GCSE/IGCSE paper is one of three types:

Mark Type	Symbol	What It Means	How to Earn It
Method mark	M	Awarded for using a correct method	Show the right approach — even if you make an arithmetic error
Accuracy mark	A	Awarded for the correct answer	Usually depends on earning the M mark first
Independent mark	B	Awarded independently	A fact, a correct statement, or a standalone answer

■ Key Point

On a 3-mark question (M1 A1 A1), if you use the right method but make a calculation error, you can still earn **1 out of 3** marks. On a 4-mark question you could earn **2 or 3**. This is why showing working is so important — it protects your method marks.

The Examiner's Marking Process

- Examiners look for **specific things** at each step. They follow a mark scheme with exact criteria.
- If you write down a correct intermediate step, you get the M mark — even if the final answer is wrong.
- Follow-through marks (ft):** If you make an error in part (a) but use your wrong answer correctly in part (b), you can still earn full marks in part (b).
- Examiners mark what you **have** written, not what you **haven't**. A blank earns zero. A partial attempt can earn marks.

Marks You're Probably Leaving on the Table

- Units:** Always include units where the question gives them (cm, cm², m³, kg, etc.). Many students drop 1 mark per paper on units alone.
- Rounding:** If the question says 'to 3 significant figures', give exactly 3 s.f. Not 2, not 4. Not a truncated decimal.
- Reading the question:** If it says 'find the perimeter', don't give the area. Read twice, answer once.
- Two-part questions:** If the question says 'find x and y', giving only x loses you the marks for y.
- Quality of Written Communication (QWC):** Some questions award marks for clear mathematical reasoning. Use proper terminology.

■ Examiner Secret

If you cross out work, the examiner **cannot** mark it — even if it's correct. Only cross out work if you're replacing it with a better answer. If in doubt, leave it visible.

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Topic-Specific Tips

Targeted advice for the most common GCSE/IGCSE Maths topics.

■ Algebra

- Always **show each algebraic step** on a new line.
- When solving equations, write '=' signs underneath each other — not across the page.
- For simultaneous equations, clearly label equations (1) and (2) and state which you're using.
- For 'show that' algebra questions, start from the left-hand side and work towards the given answer.
- When completing the square, always expand your answer to verify it matches.
- For quadratic equations, check: can you factorise? If not, use the formula. If the question says 'to 2 d.p.', you **must** use the formula.

■ Common Mistake

When factorising $ax^2 + bx + c$ where $a \neq 1$, students often forget to find two numbers that multiply to ac (not just c). Always check by expanding your brackets.

■ Geometry & Measures

- **Always draw a diagram** if one isn't given. Label all known sides and angles.
- State the geometric reason for each step — 'angles in a triangle sum to 180°', 'alternate angles are equal', etc.
- For circle theorems, learn the exact wording: 'angle at the centre is twice the angle at the circumference', not 'the centre one is bigger'.
- For area and volume, write the formula first, then substitute values, then calculate.
- Always check whether the question asks for an **exact answer** (leave in terms of π) or a decimal.

■ Pro Tip

In Pythagoras and trigonometry questions, draw the triangle separately from the main diagram, label the sides clearly (hyp, opp, adj or a , b , c), and then apply the formula. This reduces errors dramatically.

■ Number

- For percentage increase/decrease: **new = original $\times$ multiplier**. E.g. 15% increase = $\times 1.15$.
- For reverse percentages, divide by the multiplier. E.g. 'after 20% increase the price is £60' $\rightarrow$ original = $60 \div 1.2 = £50$.
- For standard form: the number part must be between 1 and 10. E.g. 4.5×10^3 , not 45×10^2 .
- For estimation, round to **1 significant figure**, then calculate. Show the rounded values.

■ Ratio & Proportion

- Write ratios in the same order as the question. If it says 'boys to girls', write boys first.
- For sharing in a ratio, find the **total number of parts** first, then find the value of one part.
- For direct/inverse proportion: set up the equation $y = kx$ (direct) or $y = k/x$ (inverse), find k first.

■ Statistics & Probability

- For probability, always give your answer as a **fraction, decimal, or percentage** — not as '1 in 5' or '1:5'.
- Probabilities must be between 0 and 1 (or 0% and 100%). If your answer is negative or greater than 1, you've made an error.
- For tree diagrams, multiply along branches and add between branches.
- For histograms, remember: the **area** represents frequency, not the height. Frequency density = frequency $\div$ class width.

- For cumulative frequency, plot at the **upper class boundary**, not the midpoint.

■ Key Point

In statistics questions, always read the axis labels and scales carefully. A surprising number of marks are lost because students misread the scale on a graph.

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Calculator vs Non-Calculator

Different papers require different strategies.

Non-Calculator Paper

The non-calculator paper tests your **mental arithmetic and algebraic manipulation**. Questions are designed so that answers come out 'nicely' — if you're getting messy decimals, check your working.

- **Show all arithmetic working.** Don't try to do complex calculations in your head.
- Use **column methods** for long multiplication and division — they're reliable and easy for examiners to follow.
- For fractions, find common denominators. For decimals, line up decimal points.
- For percentage calculations, break them down: $17.5\% = 10\% + 5\% + 2.5\%$.
- Practise your times tables — they underpin almost every non-calculator question.

■ Common Mistake

On a non-calculator paper, if your answer is a long, messy decimal like 3.847826..., you've almost certainly made an error. Non-calculator answers are designed to be 'clean'.

Calculator Paper

The calculator paper tests your ability to **use technology efficiently** and tackle more complex problems.

- Learn how to use your calculator's **fraction button** (a b/c or $S \leftrightarrow D$). It's faster than converting manually.
- Know how to enter negative numbers correctly: use the $(-)$ key, not the minus key.
- For trigonometry, **check your calculator is in DEGREE mode**, not radians.
- Use brackets when entering complex expressions: e.g. for $(3 + 5) \div (2 \times 4)$, type the brackets explicitly.
- Use the ANS key to avoid retyping — it stores your last answer.
- For standard form on a calculator: use the EXP or $\times 10^x$ button, not 'times 10 to the power'.

■ Pro Tip

Before any calculator exam, spend 5 minutes checking: (1) batteries work, (2) it's in degree mode, (3) you can find the fraction button and the square root key. A 30-second check prevents a 90-minute disaster.

Essential Calculator Skills

Skill	Keys to Press	Watch Out For
Fractions	a b/c or $S \leftrightarrow D$	Mixed numbers vs improper fractions
Powers	x^2 or x^y	Negative bases need brackets: $(-3)^2$
Roots	$\sqrt{}$ or $\sqrt[x]{}$	Cube root vs square root
Trig	$\sin / \cos / \tan$	Must be in DEGREE mode
Negative numbers	$(-)$ key	Different from the subtraction $-$ key
Standard form	EXP or $\times 10^x$	Don't type $\times 10^x$ separately

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After the Exam

Making the most of your experience for next time.

Immediately After

- **Don't panic.** Everyone finds some questions hard. The grade boundaries are set after marking — what feels hard to you probably felt hard to everyone.
- **Don't compare answers** with friends immediately. This causes unnecessary stress and you can't change anything now.
- If you have another maths paper coming up, shift your focus immediately to preparing for that paper.

If You Have Another Paper

- Reflect briefly: were there topics that caught you off guard? Revise those for the next paper.
- Were there any time management issues? Adjust your approach for the next sitting.
- Did you lose marks on silly mistakes or on genuine gaps in knowledge? The fix is different for each.

Building Long-Term Exam Skills

- After results day, **look at your actual paper** if possible. Identify exactly where you lost marks.
- Categorise your errors: **knowledge gaps** (didn't know the topic), **method errors** (knew the topic but used wrong approach), or **careless mistakes** (knew it but slipped up).
- Keep an **error log** — a notebook where you record mistakes and how to avoid them next time.

■ Key Point

The students who improve fastest are the ones who analyse their mistakes honestly. A mistake isn't a failure — it's a free lesson in what to do differently next time.

Exam Reflection Template

Use this after any exam or past paper:

What went well? _____

What topics was I unsure about? _____

Did I manage my time well? ■ Yes ■ Partly ■ No

Which questions should I revisit? _____

My top 3 areas to improve: _____

One thing I'll do differently: _____

TOP 10

Most Common Exam Mistakes

1. Not reading the question properly

The question says 'perimeter' but you calculate area. It says 'simplify' but you solve. Read the question twice before you start writing.

2. Forgetting units

cm, cm², m³, kg, hours — always include units in your final answer when the question uses them. This is a free mark that students routinely throw away.

3. Rounding too early

Keep full decimal values throughout your working. Only round at the very end. Rounding intermediate values causes 'premature rounding error' and loses accuracy marks.

4. Sign errors with negatives

$(-3)^2 = 9$, but $-3^2 = -9$. When expanding $-2(x - 5)$, the answer is $-2x + 10$, not $-2x - 10$.

5. Not showing working on 'show that' questions

If the answer is given, you must prove it. Write every step. The examiner cannot award marks for steps you skip.

6. Calculator in wrong mode

Your calculator must be in DEGREES mode for trig questions. Check before the exam starts. If you get 'strange' answers for sin/cos/tan, this is almost certainly why.

7. Confusing the formulae for area and perimeter

Area of a circle = πr^2 . Circumference = $2\pi r$. Students frequently mix these up, especially under time pressure.

8. Leaving questions blank

A blank answer scores zero. Writing *anything* relevant — a formula, a diagram, a first step — can earn method marks. Never leave a question blank.

9. Not checking if the answer makes sense

If a question asks for someone's age and you get 350, something went wrong. If a probability is 1.4, that's impossible. Always do a quick sense-check.

10. Poor time management

Spending 15 minutes on a 3-mark question while leaving 10-mark questions unanswered. If you're stuck, move on. Come back later with fresh eyes.

REFERENCE

Key Formulae Quick Reference

Formulae you should know by heart — these are NOT always given in the exam.

Topic	Formula	Notes
Quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	Given on some papers, not all
Pythagoras	$a^2 + b^2 = c^2$	c is the hypotenuse
Trig ratios	$\sin = \text{opp/hyp}$, $\cos = \text{adj/hyp}$, $\tan = \text{opp/adj}$	SOH CAH TOA
Area of triangle	$\frac{1}{2} \times \text{base} \times \text{height}$	Height must be perpendicular
Area of trapezium	$\frac{1}{2}(a + b)h$	a and b are the parallel sides
Area of circle	πr^2	Use radius, not diameter
Circumference	$2\pi r$ or πd	$d = 2r$
Volume of prism	Cross-section area $\times$ length	Works for all prisms
Volume of cylinder	$\pi r^2 h$	A cylinder is a circular prism
Speed	Speed = distance / time	$d = s \times t$, $t = d / s$
Density	Density = mass / volume	$m = d \times v$, $v = m / d$
Compound interest	Amount = $P(1 + r/100)^n$	P = principal, r = rate, n = years
Percentage change	$(\text{change} / \text{original}) \times 100$	Use original, not new value
nth term (linear)	$an + b$	a = common difference
Gradient	$(y_2 - y_1) / (x_2 - x_1)$	Rise over run
Straight line	$y = mx + c$	m = gradient, c = y-intercept
Probability	$P(\text{event}) = \text{favourable} / \text{total}$	Always between 0 and 1
Sine rule	$a/\sin A = b/\sin B$	Usually given on the paper
Cosine rule	$a^2 = b^2 + c^2 - 2bc \cdot \cos A$	Usually given on the paper

■ Pro Tip

Make flashcards of these formulae and test yourself daily in the two weeks before the exam. By exam day, recalling them should be instant and automatic.

CHECKLIST

Exam Day Checklist

■ The Night Before

- Equipment packed: black pen, pencil, ruler, protractor, compass, eraser, calculator
- Calculator has fresh batteries and is in DEGREE mode
- Spare pen and pencil packed
- Know the exam time and location
- Alarm(s) set — at least two
- Light revision only — reviewed key formulae, no cramming
- Clothes ready, bag packed
- Early bedtime — 7–8 hours sleep minimum

■ Exam Morning

- Eaten a proper breakfast (slow-release energy — porridge, toast, banana)
- Water bottle filled
- Quick 10-minute review of your formula cheat sheet
- Left home with plenty of time to spare
- Arrived at the exam hall calm and ready

■ In the Exam Room

- Read the front cover instructions
- Checked how many questions / total marks / time available
- Quick scan through the whole paper (30 seconds) before starting
- Using the three-pass strategy (see Section 2)
- Showing all working clearly
- Circling or underlining final answers
- Including units where required
- Not leaving any question blank
- Saved 5–10 minutes at the end for checking

■ Final Check (Last 5–10 Minutes)

- Re-read every question to check I answered what was asked
- Checked arithmetic on calculator questions
- Made sure all answers are in the correct form (s.f., d.p., exact, etc.)
- Filled in every answer box — no blanks
- Written my name on the paper

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"The exam is not a measure of your intelligence — it's a measure of your preparation and technique."