GCSE Maths Revision Guide

Foundation & Higher · Edexcel / AQA / OCR aligned

GCSE Maths rewards students who can move fluently between number, algebra, geometry and statistics, and who show clear working rather than jumping to an answer. The specification is built from five interlocking strands — number, algebra, ratio and proportion, geometry and measures, and probability and statistics — and every paper mixes them together, so a strong revision plan treats them as one connected subject rather than five separate topics to cram in isolation.

Number and algebra form the backbone of almost every other topic. You need to be completely fluent with fractions, percentages, standard form, indices and surds before algebra will make sense, because algebraic manipulation is really just number work with letters standing in for values. Spend early revision sessions drilling the basics — negative numbers, order of operations, rearranging formulae — until they're automatic, so that in the exam your working memory is free for the actual problem rather than the arithmetic.

Algebra itself is the single highest-value topic on both tiers. Expect to solve linear and quadratic equations, simplify and factorise expressions, work with simultaneous equations, and interpret graphs including gradients and areas under curves. Higher tier students should also be comfortable with algebraic fractions, iteration, and functions (including inverse and composite functions). The examiners consistently reward students who write out each algebraic step rather than working in their head, because method marks are available even when the final answer is wrong.

Geometry and measures covers angle facts, circle theorems, Pythagoras' theorem and trigonometry (SOHCAHTOA and the sine/cosine rules at Higher), area and volume of compound shapes, transformations, and vectors. This strand is the most visual part of the course, so practising with a pencil and paper — actually drawing the diagram, labelling it, and marking on what you know — catches errors that mental maths alone will miss.

Ratio, proportion and rates of change bridges number and algebra: compound interest, direct and inverse proportion, speed-distance-time, and density problems all sit here, and they appear disguised as "real-life" worded questions more than any other topic. The final strand, probability and statistics, is often under-revised because it feels intuitive, but tree diagrams, Venn diagrams, cumulative frequency, and box plots each have specific conventions that examiners check for precisely.

Topics that come up most

- Solving & rearranging equations
- Quadratics: factorising, formula, graphs
- Trigonometry & Pythagoras
- Compound area, volume & surface area
- Ratio, proportion & percentage change
- Probability trees & Venn diagrams
- Sequences (linear, quadratic, nth term)

Exam technique

Read the command word first — "show that", "prove" and "hence" each require a different style of answer. Show every step for method marks, and always check whether the question expects an exact answer (leave it as a fraction or surd) or a rounded one.

Common mistakes

Rounding too early, forgetting units, mixing up perimeter and area, and losing the negative sign when expanding brackets. Rushing multi-step ratio questions without labelling what each number represents.