



GCSE maths revision checklist: Foundation and Higher

This checklist follows the six areas of the GCSE maths subject content set by the Department for Education, which every exam board's specification is built on. Work through it topic by topic and tick a column for each line: **Not yet**, **Getting there** or **Secure**.

How the tier markers work

- **F/H:** on both tiers. Foundation and Higher students both need it, although Higher papers may test it in harder ways.
- **H:** Higher tier only. Foundation students can leave these out.

Your child's school decides the tier, and their exam board's specification has the final detail. If a line doesn't match what your child has been taught, check with their maths teacher.

Number

Topic	Tier	Not yet	Getting there	Secure
Ordering integers, decimals and fractions; the symbols =, $\neq$, $<$, $>$, $\leq$, $\geq$	F/H	☐	☐	☐
The four operations with integers, decimals, fractions and mixed numbers, positive and negative	F/H	☐	☐	☐
Order of operations, including brackets, powers, roots and reciprocals	F/H	☐	☐	☐
Primes, factors, multiples, HCF and LCM, and prime factorisation	F/H	☐	☐	☐
Systematic listing strategies	F/H	☐	☐	☐
The product rule for counting	H	☐	☐	☐
Powers and roots; recognising powers of 2, 3, 4 and 5	F/H	☐	☐	☐
Estimating powers and roots of any positive number	H	☐	☐	☐
Calculating with fractional indices	H	☐	☐	☐
Exact calculations with fractions and multiples of π	F/H	☐	☐	☐

Topic	Tier	Not yet	Getting there	Secure
Surds: simplifying and rationalising denominators	H	☐	☐	☐
Standard form	F/H	☐	☐	☐
Converting between terminating decimals and fractions	F/H	☐	☐	☐
Converting recurring decimals to fractions	H	☐	☐	☐
Fractions in ratio problems	F/H	☐	☐	☐
Fractions and percentages as operators	F/H	☐	☐	☐
Units and compound measures	F/H	☐	☐	☐
Estimating and checking answers	F/H	☐	☐	☐
Rounding, significant figures and error intervals	F/H	☐	☐	☐
Upper and lower bounds in calculations	H	☐	☐	☐

Algebra

Topic	Tier	Not yet	Getting there	Secure
Algebraic notation and substitution into formulae	F/H	☐	☐	☐
Expressions, equations, formulae, identities and inequalities: knowing the difference	F/H	☐	☐	☐
Collecting like terms, expanding brackets and factorising	F/H	☐	☐	☐
Expanding products of three or more binomials	H	☐	☐	☐
Factorising quadratics of the form $x^2 + bx + c$, including the difference of two squares	F/H	☐	☐	☐
Factorising quadratics of the form $ax^2 + bx + c$	H	☐	☐	☐
Simplifying algebraic fractions	H	☐	☐	☐
The laws of indices	F/H	☐	☐	☐
Rearranging formulae to change the subject	F/H	☐	☐	☐
Showing that expressions are equivalent; simple algebraic arguments	F/H	☐	☐	☐
Algebraic proof	H	☐	☐	☐
Functions as inputs and outputs	F/H	☐	☐	☐
Inverse and composite functions	H	☐	☐	☐

Topic	Tier	Not yet	Getting there	Secure
Coordinates in all four quadrants	F/H	☐	☐	☐
Straight-line graphs, $y = mx + c$, gradients and intercepts	F/H	☐	☐	☐
Parallel lines; the equation of a line through two points	F/H	☐	☐	☐
Perpendicular lines	H	☐	☐	☐
Roots, intercepts and turning points of quadratics from a graph	F/H	☐	☐	☐
Turning points by completing the square	H	☐	☐	☐
Recognising linear, quadratic, simple cubic and reciprocal graphs	F/H	☐	☐	☐
Exponential and trigonometric graphs	H	☐	☐	☐
Translations and reflections of graphs	H	☐	☐	☐
Real-life graphs, including distance-time graphs	F/H	☐	☐	☐
Gradients of curves and areas under graphs; velocity-time graphs	H	☐	☐	☐
Circles centred on the origin and tangents to them	H	☐	☐	☐
Solving linear equations, including unknowns on both sides	F/H	☐	☐	☐
Solving quadratics by factorising	F/H	☐	☐	☐
Solving quadratics by completing the square and with the quadratic formula, including those that need rearranging first	H	☐	☐	☐
Linear simultaneous equations	F/H	☐	☐	☐
Simultaneous equations with one linear and one quadratic	H	☐	☐	☐
Solving equations by iteration	H	☐	☐	☐
Forming and solving equations from a problem	F/H	☐	☐	☐
Linear inequalities on a number line	F/H	☐	☐	☐
Quadratic inequalities, linear inequalities in two variables, set notation and inequalities on graphs	H	☐	☐	☐
Sequences: term-to-term and position-to-term rules; special sequences	F/H	☐	☐	☐
Geometric sequences with a surd ratio, and other sequences	H	☐	☐	☐
The n th term of a linear sequence	F/H	☐	☐	☐
The n th term of a quadratic sequence	H	☐	☐	☐

Ratio, proportion and rates of change

Topic	Tier	Not yet	Getting there	Secure
Converting standard and compound units	F/H	☐	☐	☐
Scale factors, scale drawings and maps	F/H	☐	☐	☐
Expressing one quantity as a fraction of another	F/H	☐	☐	☐
Ratio notation, simplifying and sharing in a ratio	F/H	☐	☐	☐
Writing a multiplicative relationship between two quantities as a ratio or a fraction	F/H	☐	☐	☐
Proportion as equality of ratios	F/H	☐	☐	☐
Linking ratios to fractions and to linear functions	F/H	☐	☐	☐
Percentages, percentage change, reverse percentages and simple interest	F/H	☐	☐	☐
Direct and inverse proportion	F/H	☐	☐	☐
Speed, density, pressure and other compound units	F/H	☐	☐	☐
Comparing lengths, areas and volumes with ratios; links to similarity	F/H	☐	☐	☐
Interpreting equations for direct and inverse proportion	F/H	☐	☐	☐
Constructing equations for direct and inverse proportion	H	☐	☐	☐
The gradient of a straight line as a rate of change	F/H	☐	☐	☐
Instantaneous and average rates of change on curves	H	☐	☐	☐
Growth and decay, including compound interest	F/H	☐	☐	☐
General iterative processes (e.g. repeated growth or decay)	H	☐	☐	☐

Geometry and measures

Topic	Tier	Not yet	Getting there	Secure
Geometric vocabulary and labelling conventions	F/H	☐	☐	☐
Ruler and compass constructions and loci	F/H	☐	☐	☐
Angle facts, parallel lines and angles in polygons	F/H	☐	☐	☐
Properties of quadrilaterals and triangles	F/H	☐	☐	☐
Congruent triangles (SSS, SAS, ASA, RHS)	F/H	☐	☐	☐

Topic	Tier	Not yet	Getting there	Secure
Deriving results about angles and sides, including Pythagoras' theorem, and simple proofs	F/H	☐	☐	☐
Rotations, reflections, translations and enlargements	F/H	☐	☐	☐
Enlargement with negative scale factors	H	☐	☐	☐
Combining transformations; what stays the same	H	☐	☐	☐
Parts of a circle	F/H	☐	☐	☐
Circle theorems and proving them	H	☐	☐	☐
Solving geometry problems on coordinate axes	F/H	☐	☐	☐
Properties of 3D shapes; plans and elevations	F/H	☐	☐	☐
Measuring lines and angles; maps, scale drawings and bearings	F/H	☐	☐	☐
Area of triangles, parallelograms and trapezia; volume of prisms and cylinders	F/H	☐	☐	☐
Circumference and area of circles; perimeters and composite shapes	F/H	☐	☐	☐
Surface area and volume of spheres, pyramids, cones and composite solids	F/H	☐	☐	☐
Arc lengths and sector areas	F/H	☐	☐	☐
Lengths in similar shapes	F/H	☐	☐	☐
Areas and volumes in similar shapes	H	☐	☐	☐
Pythagoras' theorem and trigonometry in right-angled triangles	F/H	☐	☐	☐
Pythagoras and trigonometry in 3D	H	☐	☐	☐
Exact values of sin, cos and tan for key angles	F/H	☐	☐	☐
The sine rule and cosine rule	H	☐	☐	☐
Area of a triangle using $\frac{1}{2}ab \sin C$	H	☐	☐	☐
Vectors: translations, adding, subtracting and multiplying by a scalar	F/H	☐	☐	☐
Vector proofs	H	☐	☐	☐

Probability

Topic	Tier	Not yet	Getting there	Secure
Recording outcomes in tables and frequency trees	F/H	☐	☐	☐
Expected outcomes and relative frequency	F/H	☐	☐	☐
Probabilities that sum to one	F/H	☐	☐	☐
Larger samples and theoretical probability	F/H	☐	☐	☐
Sample spaces, Venn diagrams and tree diagrams	F/H	☐	☐	☐
Independent and dependent combined events	F/H	☐	☐	☐
Conditional probability	H	☐	☐	☐

Statistics

Topic	Tier	Not yet	Getting there	Secure
Samples and populations, and the limits of sampling	F/H	☐	☐	☐
Bar charts, pie charts, pictograms, line charts and time-series graphs	F/H	☐	☐	☐
Histograms with unequal class widths and cumulative frequency graphs	H	☐	☐	☐
Mean, median, mode and range, including from grouped data	F/H	☐	☐	☐
Quartiles, interquartile range and box plots	H	☐	☐	☐
Using statistics to describe a population	F/H	☐	☐	☐
Scatter graphs, correlation and lines of best fit	F/H	☐	☐	☐

Formulae to learn

Some formulae are never given in the exam, so your child needs to know them by heart. They include the formulae for the circumference and area of a circle, Pythagoras' theorem and the trigonometric ratios for both tiers, plus the quadratic formula, the sine rule, the cosine rule and $\frac{1}{2}ab \sin C$ for Higher. Ask your child's teacher which formulae their board prints on the paper.

Turning ticks into marks

1. **Start with "Not yet"**. Pick two or three of those topics a week rather than trying to fix everything at once.

2. **Use exam questions.** A topic only counts as secure when your child can answer exam-style questions on it without notes.
3. **Mix topics up.** Real papers jump between areas, so finish each week with a mixed set.
4. **Show the working.** Method marks often rescue an answer with a slip in it.

Want more help?

Dr Khan Tuition at 36 High Street, Burnham teaches GCSE maths at Foundation and Higher tier. Call 01753 378222 to book a free 30-minute consultation.

Sources: [Department for Education: GCSE mathematics subject content and assessment objectives \(DFE-00233-2013\)](#); [Ofqual: GCSE \(9 to 1\) subject-level conditions and requirements for mathematics](#). Last checked: Oct 2026.

Dr Khan Tuition, 36 High Street, Burnham, SL1 7JP · 01753 378222 · info@drkhantuition.co.uk · Book a free 30-minute consultation.