

# MATHEMATICS

FINAL GCSE EXAM

Foundation	Higher	Foundation	Higher
Non-linear graphs	Algebraic notation and revision	Powers and standard form	Functions
Proof and conjectures	Proof and conjectures	Simultaneous equations	Vector Geometry
		Congruency and similarity	Graphs
		Probability – combined events	Algebraic fractions

- Numbers and sequence – primes, LCM, HCF, nth term
- Indices and roots – index laws, standard form
- Manipulating expressions – simplify, solve, algebraic fractions, proof

Nothing new, all review – targeted lessons from individual and class QLA

Rates – speed, distance and time, density, units, graphs  
Probability – one event, multiple events, tree diagrams  
Algebraic representations – graphs, simultaneous equations, graphs of inequalities

Shape

Algebra

Ratio & Proportion

Number

YEAR 11

- Congruence, similarity and enlargement – enlargement by a scale factor, identify and use similar shapes, area and volume of similar shapes, congruent triangle
- Trigonometry – right-angled triangles, Pythagoras' theorem, non right-angled triangles and 3D problems

- Representing solutions of equations and inequalities – solving, links to graphs, factorising
- Simultaneous equation – graphically and algebraically, two linear, linear and quadratic

- Ratios and fractions – Compare, graphs, currency, algebra, area, volume, mixed ratios
- Percentages and interest – convert simple and compound interest, reverse percentages, growth and decay
- Probability – experimental, Venn diagrams, tree diagrams, conditional probability

Data & Probability

- Data – types, representation, comparison, extrapolation
- Non – calculator methods – fractions, decimals, surds, estimation, bounds, finance

YEAR 10 K<sub>S4</sub>

Number

Ratio & Proportion

Algebra

Shape

- Maths and money – bills and statements, interest, taxes and problem solving
- Deduction – angles revisited, reasoning, angles and algebra, geometric conjectures
- Rotations and translations – symmetry, reflections revisited, rotations and translations

- Angles and bearing – cardinal directions, scale drawings, bearings, Pythagoras and trigonometry
- Circles – area, circumference, arc length, sector area, circle theorems, volume and SA of 3D shapes
- Vectors – notation, operations, parallel vectors, geometry

Three-dimensional shapes – nets, plans and elevations, surface area and volume  
Constructions and congruency – constructions revisited, loci perpendiculars, bisectors

- Straight line graphs – plotting and reading, gradients and intercepts, equations of lines, proportion
- Forming and solving equations – unknown on one or both sides, inequalities, problem solving, rearranging
- Testing conjectures – proof of numbers, algebra

Data & Probability

Shape

Algebra

Ratio & Proportion

Number

Pythagoras' Theorem – right-angled triangles, finding sides, graphs, 3D  
Enlargement and similarity – calculations, enlarging a shape, similarity  
Ratio and proportion – direct proportion revisited, inverse proportion, ratio revisited, best buys

- Number – estimation, problem solving, fractions and surds
- Percentages – percentages revisited, reverse percentages, problem solving, repeated percentage change

- Line Symmetry and reflection – horizontal, vertical and diagonal reflections
- The data handling cycle – collecting data, lines and charts revisited and more, comparing data
- Measures of location – averages, from a table, comparing data

YEAR 9

Shape

Data & Probability

Algebra

- Fractions and percentages – revisit FDP, multipliers, express as a percentage, reverse percentages
- Standard index form – large and decimal numbers, mental methods, calc and non-calc methods, negative and fractional powers

- Number sense – rounding, estimating, calculating, decimal places, context, units of area and volume
- Angles – angles revisited, quadrilaterals, interior and exterior, proof, bisectors
- Area – triangles, quadrilaterals, circle, compound shapes

- Working in the Cartesian plane –  $y=kx$ ,  $y=x+a$ , negative gradient,  $y=mx+c$ , non-linear graphs, midpoints of a line segment
- Representing data – scatter graphs, types of data, two-way tables
- Tables and probability – sample spaces and probability.

- Testing conjectures – proof of numbers, algebra

Ratio & Proportion

Number

- Brackets, equations and inequalities – forming expressions inc. brackets.
- Brackets and equations, inequalities, unknowns on both sides, context
- Sequences – revisit prior knowledge, nth term
- Indices – multiplying and dividing, powers of powers

- Ratio and scale – representing, simplifying, solving and dividing, graphs
- Multiplicative change – direct proportion, conversions, similar shapes, scales, maps
- Multiplying and dividing fractions – with integers and fractions, complex fractions

- Directed Number – four operations, substitution, equations, order of operations, powers and roots
- Fractional thinking – converting, addition and subtraction, algebra

Algebra

Shape

Data & Probability

YEAR 8

- Construction and measuring – use of mathematical equipment, geometric notation, constructing shapes, pie charts
- Geometric Reasoning – angles in triangles, quadrilaterals and polygons, parallel lines, proof

- Developing number sense – integers, fractions, decimals, estimating
- Sets and probability – sets, unions, intersection, probability
- Primes and proof – factors, multiples, HCF and LCM, prime numbers and proof

Ratio & Proportion

Number

YEAR 7

K<sub>S3</sub>

- Addition and subtraction – problem solving and standard form
- Multiplication and division – powers of 10, mean
- Fractions and percentages of amounts – inc. over 100%

- Equality and equivalence – equations, collecting like terms, equivalence sign
- Place value and ordering – ordering, range and median, rounding, significant figures
- Fractions, decimals and percentages – converting, fractions and division, pie charts

- Transition problem solving lessons
- Sequences – shapes, linear and non-linear
- Algebraic notation – equations and expressions