

Mathematics

Year 7

Algebra: Rules of algebra, Substitution, Simplifying, Solving linear equations, Devising equations from a given context, Factorising, Arithmetic sequences

Number: Powers, Roots, Negative numbers, Rounding and estimation, Factors, Multiples, Divisibility tests, Ratio and proportion. Use of a calculator

Geometry: Shape and solid properties, Angles, Nets, Metric units, Constructing triangles Perimeter and Surface area, Volume

Probability: Probability scale, Equally likely outcomes, Lists and Sample spaces

Statistics: Averages and spread. Compare and contrast data

Year 8

Number: and proportion: Standard form, converting time and using timetables. Finding percentages and increase/decrease using decimal multipliers. Ratio within a ratio, Proportion of a quantity. Best value problems.

Algebra: Solving harder linear equations, Expanding double brackets, Factorising quadratic expressions, Substitution of negatives. Changing the subject. Plotting linear graphs, use of $y=mx+c$. Plotting curved graphs. Real life graphs including distance-time graphs. Further sequences: rules of arithmetic sequences and spotting quadratic sequences

Geometry: Pythagoras theorem, Area and circumference of a circle, Angles in polygons. Volume of prisms. Compound measures.

Statistics: Averages. Scatter graphs and correlation

Year 9

Number: Reciprocals and rule's of indices. Error in measurement. Surds.

Proportion: reversing percentage change. Harder reasoning with ratio

Algebra: Expanding triple brackets. Factorising quadratics inc DOTS. Parallel and perpendicular lines. Simultaneous equations. Linear inequalities. Exponential curves.

Geometry: Trigonometry, Bearings, Transformations. Similar triangles. Volume/Surface area of cones, pyramids and spheres.

Probability: Frequency Trees and probability trees

Statistics: combined means, quartiles and box plots

GCSE Edexcel - 1MA1

Year 10

Number and Proportion: Rounding and truncation. Rationalising the denominator. Ratio and equations. Repeated percentage change. Direct/indirect proportion.

Algebra: Factorising non-monic polynomials, completing the square. Quadratic inequalities. Proof. Harder changing the subject. Changing the base of indices. Equation of a circle and finding the tangent to a circle

Geometry: Trig graphs and equation. Sine and Cosine rule. Circle theorems. Arc and Sectors. Probability: Generalised probability.

Statistics: Cumulative frequency

Year 11

Number and proportion: Estimation in context. Unit and compound measure conversion.

Algebra: Functions, Sequences. Gradients and areas. Solving equations graphically. Iteration. Exponential form

Geometry: Vectors, Geometric proof. Construction and loci.

Statistics: Histograms, sampling and bias

A-Level Edexcel - 9MA0

Year 12

Pure: Hidden quadratics, the discriminant. Exponentials and logs, Natural logarithms. Binomial expansion. Vectors. Differentiation and Integration of polynomials. Graphs and Transformations. Trig identities and equations. Circle geometry. Factor theorem and proof. Radians Sequences and Series

Statistics: Probability. Binomial distribution. Hypothesis testing. Measures of data and correlation

Mechanics: motion with constant and variable acceleration. Forces and Friction.

Year 13

Pure: Reciprocal trig functions. Trig: Addition formulae, double angles and Harmonic form. Differentiation on non-polynomial functions. Parametric equations. Integration. Solving differential equations. Proof. Partial Fractions. Functions. Vectors. Numerical Methods. Binomial expansion.

Statistics: Regression, correlation and hypothesis testing. Probability and Set notations. The Normal distribution

Mechanics: Moments, Projectiles. Variable acceleration