

Yr 10

Autumn Term

N1 Integers, powers and roots

- N1.1 Powers of 10
- N1.2 Standard form for large numbers
- N1.3 Standard form for small numbers
- N1.4 Prime numbers and factorisation
- N1.5 Using prime factors: HCF and LCM

S1 Length, area and volume

- S1.1 Arc length and sector area
- S1.2 Volume of a pyramid and a cone
- S1.3 Surface area of a pyramid
- S1.4 Curved surface area of a cone
- S1.5 Volume and surface area of a sphere

A1 Expressions

- A1.1 Simplifying using index laws
- A1.2 Expanding single and double brackets
- A1.3 Factorisation
- A1.4 More factorisation
- A1.5 The difference of two squares

N2 Whole number calculations

- N2.1 Rounding
- N2.2 Upper and lower rounds
- N2.3 Multiplying and dividing
- N2.4 Mental calculations
- N2.5 Written calculations

A2 Equations

- A2.1 Solving equations
- A2.2 Solving equations involving fractions
- A2.3 Dealing with algebraic fractions
- A2.4 Adding and subtracting algebraic fraction
- A2.5 More equations involving fractions

D1 Sampling methods

- D1.1 Random and systematic sampling
- D1.2 Stratified sampling
- D1.3 Averages and spread
- D1.4 Mean of combined data sets
- D1.5 Averages and spread for grouped data

Spring Term

N3 Fractions, decimals and percentages

- N3.1 Fraction calculations
- N3.2 Fractions and decimals
- N3.3 Fractions, decimals and percentages
- N3.4 Percentage problems
- N3.5 Reverse percentage problems

S2 Circle theorems

- S2.1 Angle theorems in circles
- S2.2 More angle theorems in circles
- S2.3 Tangents to circles
- S2.4 Alternate segment theorem
- S2.5 Geometrical proof



GCSIE COURSE

Mathematics

Higher Plus

D2 Displaying and interpreting data

- D2.1 Box plots
- D2.2 Cumulative frequency diagrams
- D2.3 Using a cumulative frequency diagram
- D2.4 Box plots for large data sets
- D2.5 Comparing data sets

A4 Linear graphs

- A4.1 Line graphs
- A4.2 Finding the equation of a straight line
- A4.3 Perpendicular lines
- A4.4 Regions
- A4.5 Inequalities in two variables

A3 Sequences and quadratic equations

- A3.1 Generating sequences
- A3.2 The n th term of a linear sequence
- A3.3 The n th term of a quadratic sequence
- A3.4 Solving quadratic equations
- A3.5 The quadratic formula

Summer Term

Examinations

Course Work

D3 Probability

- D3.1 Probability and mutually exclusive events
- D3.2 Theoretical and experimental probability
- D3.3 Relative frequency and best estimate
- D3.4 Independent events
- D3.5 Probability of two events

N4 Proportion

- N4.1 Proportion problems
- N4.2 Direct proportion
- N4.3 Inverse proportion
- N4.4 Repeated proportional change
- N4.5 Ratio problems

S3 Congruence and similarity

- S3.1 Congruence
- S3.2 Congruence and proof
- S3.3 Enlargement
- S3.4 Similar shapes
- S3.5 Similar shapes - area and volume

N5 Index laws

- N5.1 Index laws
- N5.2 More index laws
- N5.3 Irrational numbers
- N5.4 Calculations with surds
- N5.5 Number and algebra

A5 Formulae and proof

- A5.1 Identities, formulae and equations
- A5.2 Rearranging formulae
- A5.3 More rearranging formulae
- A5.4 Proof
- A5.5 More proof

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Autumn Term

Reminder of D2

D5 Histograms

- D5.1 Histograms
- D5.2 Interpreting histograms
- D5.3 More histograms
- D5.4 Using histograms to compare data sets
- D5.5 Statistical reports

Course Work

S4 Pythagoras and trigonometry

- S4.1 Pythagoras' theorem and coordinates
- S4.2 Tangent ratio
- S4.3 Sine and cosine ratios
- S4.4 Finding angles in right-angled triangles
- S4.5 Pythagoras' theorem and trigonometry

N6 Estimating and calculating

- N6.1 Estimation
- N6.2 Exact calculations
- N6.3 Limits of accuracy
- N6.4 Written calculation methods
- N6.5 Efficient use of a calculator

A6 Simultaneous and quadratic equations

- A6.1 Using quadratic equations
- A6.2 Solving simultaneous linear equations
- A6.3 Simultaneous linear and quadratic equations
- A6.4 The equation of a circle
- A6.5 Solving inequalities

D4 Representing data

- D4.1 Stem-and-leaf diagrams
- D4.2 Frequency polygons
- D4.3 Time series
- D4.4 Predictions using time series
- D4.5 Scatter graphs

Examinations

Spring Term

S5 Sine and cosine rules

- S5.1 More pythagoras' theorem and trigonometry
- S5.2 The sine rule
- S5.3 The cosine rule
- S5.4 Solving problems using the sine and cosine rules
- S5.5 Pythagoras' theorem and trigonometry in 3-D

N7 Fraction and percentage calculations

- N7.1 Finding fractions of quantities
- N7.2 Finding a percentage of a quantity
- N7.3 Percentage increase and decrease
- N7.4 Simple and compound interest
- N7.5 More percentage techniques



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S6 3-D problems

- S6.1 Measures and dimensions
- S6.2 The area of a triangle
- S6.3 Solving problems using trigonometry
- S6.4 Frustrums
- S6.5 Solving 3-D problems

A7 Quadratic equations

- A7.1 More quadratic equations
- A7.2 Completing the square
- A7.3 Solving quadratics by completing the square
- A7.4 Sketching quadratic graphs
- A7.5 Solving problems involving quadratics

N8 Ratio and proportion

- N8.1 Introducing ratio
- N8.2 More ratio
- N8.3 Ratio and proportion
- N8.4 Ratio, proportion and percentages
- N8.5 Reverse percentages

Summer Term

S7 Vectors

- S7.1 Vector notation
- S7.2 Combining vectors
- S7.3 Parallel vectors
- S7.4 Using vectors in geometry
- S7.5 Proof using vectors

D6 Independent events

- D6.1 Drawing tree diagrams
- D6.2 Using tree diagrams to find probabilities
- D6.3 Sampling without replacement
- D6.4 Tree diagrams - conditional probability
- D6.5 More conditional probability

A8 Graphical solutions

- A8.1 Graphs of quadratic and cubic functions
- A8.2 Graphs of exponential and reciprocal functions
- A8.3 Solving equations using graphs
- A8.4 Further graphical solutions
- A8.5 More equations of circles

S8 Trigonometric graphs

- S8.1 Sine graph
- S8.2 Cosine graph
- S8.3 Tangent graph
- S8.4 Solving trigonometric equations
- S8.5 Transformations of trigonometric graphs