

CSSA Maths Learning Journey



CHILDWALL
SPORTS &
SCIENCE ACADEMY
LYDIATE
LEARNING TRUST



GCSE Exam
Paper 1 (Non-calc): 1.5 hrs
Paper 2 (Calc): 1.5 hrs
Paper 3 (Calc): 1.5 hrs

Revision and applications of knowledge

Geometry and Measure
Vectors
Geometric proof using vectors
Geometric proof of similarity and congruence

Algebra
Properties of quadratic, cubic and reciprocal graphs
Transformations of graphs
Circle geometry
Algebraic proof
Function notation
Iterative processes
Geometric sequences
Solving equations graphically

Number
Manipulating complex indices
Calculations with surds
Rationalising the denominator

YEAR
11

Geometry and Measure
Right angled trigonometry
Sine and cosine rule
Bearings
Area of sectors
Arc lengths
Area of segments
Volume and surface area of pyramids, cones and spheres
Circle theorems

Statistics
Averages and measures of spread from tables of data
Cumulative frequency
Box plots
Scatter graphs
Histograms
Stratified sampling

Probability
Probability tree diagrams
Mutually exclusive events

YEAR
10

Algebra
Solving quadratics by factorising
Quadratic formula
Completing the square
Quadratic inequalities
Solving algebraic fractions
Trigonometric graphs

Proportional Reasoning
Problem solving with fractions, decimals, percentages and ratio
Compound measures – density
Real life graphs
Capture-recapture

Number
Error intervals
Upper and lower bounds
Related calculations
Recurring decimals
Product rule for counting

Probability
Listing outcomes
Two way tables and frequency trees
Expected outcomes
Venn diagrams

Number
Powers and roots
Calculations with standard form
Simplifying surds
Prime factors/HCF/LCM

YEAR
9

Proportional Reasoning
Repeated percentage change
Reverse percentage calculations

Algebra
Expand and factorise quadratics
Form and solve quadratic equations
Quadratic sequences
Rearranging formulae
Parallel and perpendicular graphs
Solving linear equations graphically – (including linear simultaneous)
Plotting quadratic and cubic graphs

Geometry and Measure
Constructions
Loci
Pythagoras' theorem
Transformations
Similarity

Statistics
Calculate and interpret averages and measures of spread
Draw and interpret:
• Bar charts
• Pie charts
• Line graphs

Geometry and Measure
Angles on parallel lines
Geometric reasoning and angle problems
Isometric drawing
Plans and elevations
Scale drawings and enlargement
Volume of prisms
Area and circumference of circles
Volume and surface area of cylinders

Algebra
Linear graphs
Forming and solving linear equations
Forming and solving linear inequalities
Representing linear inequalities on a number line
Representing simple inequalities graphically

Proportional Reasoning
Percentage of amounts
Percentage increase and decrease
Simple interest calculations
Currency conversions
Converting metric-imperial units
Compound measures - speed
Distance time graphs
Interpreting conversion graphs
Solving problems involving scale

Algebra
Forming expressions
Substitution
Collecting like terms
Linear Sequences
Index laws
Expanding brackets
Factorising with common factors

Geometry and Measure
Properties of 2D shapes
Angle facts
Angles in polygons
Congruency
Area of 2D shapes
Surface area of prisms
Converting units of length, area and volume

YEAR
8

Proportional Reasoning
Equivalent fractions and ratios
Dividing in a ratio
Calculating fractions of amounts
Equivalence of fractions, decimals and percentages

Number
Standard form
Ordering, rounding and estimating
Calculations in context
Decimal arithmetic
Directed number calculations
Factors, multiples and primes
Conjectures and counter examples

YEAR
7



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