

1. Core Number and Algebra Review

- Real numbers and numerical precision
- Exponents and scientific notation
- Surds and radicals
- Algebraic manipulation
- Rational expressions and restrictions at an introductory level
- Rearranging formulae
- Equivalence and structure
- Estimation, rounding, and reasonableness checks
- Algebraic foundations for functions, geometry, trigonometry, and modelling

2. Advanced Equations and Functions

- Linear and quadratic equations
- Systems of equations
- Quadratic functions and their features
- Exponential functions
- Function notation and transformations
- Comparing and selecting models
- Piecewise and contextual graphs at an introductory level
- Interpreting solutions in context
- Algebraic, graphical, and contextual representations

3. Geometry, Coordinate Methods, and Trigonometry

- Coordinate geometry
- Equations of lines
- Congruence and similarity
- Circle geometry
- Geometric justification and proof-style reasoning
- Right-triangle trigonometry
- Sine rule and cosine rule where appropriate
- Measurement and modelling in context
- Spatial reasoning, diagrams, and practical applications

4. Statistics, Probability, and Data Interpretation

- Data displays and distributions
- Measures of centre and spread
- Correlation and regression at an introductory practical level
- Probability of compound events
- Conditional probability at an introductory level
- Interpreting statistical evidence
- Evaluating claims and limitations
- Bias, uncertainty, data quality, and context

5. Modelling, Logic, and Quantitative Decision-Making

- Multi-step modelling
- Constraints and assumptions
- Financial applications
- Rates, efficiency, and introductory optimisation
- Logical justification
- Counterexamples and validity
- Communicating mathematical arguments
- Evaluating model strengths and limitations