

Math Syllabus for Undergrad SBS & SESS Entry Tests

Numbers

Basic Arithmetic, Numerical Proportion & Recipes, Reverse Percentages, Product Rule for Counting, Surds

Algebra

Function Notation, Composite Functions, Inverse Functions, Domains and Ranges, Drawing Functions, Expanding Brackets, Expanding 3 Brackets, Factorisation, Factorising Quadratics, Algebraic Changing the Subject, Factor Theorem, Algebraic Long Division, Factorising Cubics, Solving Cubics, Completing the Square, Exponential Graphs, Sketching Quadratics, Solving Quadratics, Simultaneous Equations (both linear), Simultaneous Equations (non-linear), Simultaneous Equations (3 unknowns), Linear Inequalities, Quadratic Inequalities, Laws of Indices, Fractional Indices, Negative Indices, Equations with indices/roots, Algebraic Proof, nth Terms, Limiting Values, Linear Sequences, Quadratic Sequences

Coordinate Geometry

Slope of a line, Parallel Lines, Perpendicular Lines, Distance between two points, Midpoint of Lines, Ratio (Lines), Equation of a Line, Circle Theorems, and Equation of a Tangent to a Circle.

Matrices

Multiplying Matrices (by a scalar), Multiplying Matrices (2×2 by 2×1), Multiplying Matrices (2×2 by 2×2), Identity Matrix, Transforming the Unit Square, Matrix Transformations.

Geometry

Geometric Proof, Area of a Triangle, 2D and 3D Pythagoras, Trigonometry, Exact Trig Values, Trig Identities, Congruence & Similarity Of 2D Shapes (similarity in length), Arcs, Sectors & Segments Of Circles, Surface Area & Volume Of Spheres & Cones, Similarity In Area & Volume, Vector Geometry, Compound Measures (speed, density, pressure)

Statistics and Probability

Calculating Simple Probability, Drawing & Interpreting Pie Charts, Drawing & Interpreting Frequency Polygons, Drawing & Interpreting Frequency Trees, Calculating Relative Frequency, Drawing & Interpreting Two-Way Tables, Drawing & Interpreting Scatter Diagrams, Capture recapture, Drawing & Interpreting Venn Diagrams (including set notation), Product Rule (counting & combinations), Probability Tree Diagrams, Advanced Probability Problems (involving algebra), Conditional probability