LC Maths H Course 1

Differentiation Calculus

- *Applying the Rules of Differentiation:* This includes using the product, quotient, and chain rule. Applying these rules to differentiate Trigonometric, Exponential, Logarithmic and Inverse Trigonometric Functions.
- Limits, Asymptotes & Continuity of Functions.
- Differentiation using first principles.
- *Applications of Differentiation:* Turning Points, The Second Derivative Test, Maximum & Minimum Points, Increasing & Decreasing Functions.
- *Differentiation Word Problems:* Maximum & Minimum Word Problems, Rates of Change & Related Rates of Change.
- Exam Questions from Section A & Section B of the Exam Papers on Differentiation.

LC Maths H Course 2

Probability and Statistics

- *Statistics*: The Correlation Coefficient & Line of Best Fit. The Normal Distribution, Z Scores & Solving problems using the Normal Distribution Tables.

- *Probability:* The Addition Rule, The Multiplication Rule, Independent Events, Mutually Exclusive Events, Conditional Probability, Expected Value, Bernoulli Trials & The Binomial Distribution, Difficult Word Problems on Probability.

- *Inferential Statistics:* The Central Limit Theorem, Confidence
- Intervals & Hypothesis Testing using sample means Proportions & P Values.

- Exam Questions from Section A & Section B of the Exam Papers on Probability & Statistics.

LC Maths H Course 3

Co Ordinate Geometry of the Line & Circle

- *Co Ordinate Geometry of the Line:* The Area of a Triangle, Internal & External Division of a Line Segment, The Perpendicular Distance Formula, The Angle Between 2 Lines, Finding the Circumcentre, Orthocentre & Centroid of a Triangle using Co Ordinate Geometry.

- *Co Ordinate Geometry of the Circle:* Finding the Centre & Radius of Circles, The Intersection of a Line & Circle, Tangents & Circles, More Difficult Problems in finding the Equation of a Circle when you are given certain restrictions.

- Exam Questions from Section A & Section B of the Exam Papers on Co Ordinate Geometry of the Line & Circle.

LC Maths H Course 4

Trigonometry

- The Sine Rule, Cosine Rule, Area of a Triangle & 3 Dimensional Problems.
- Solving Trigonometric Equations using CAST.
- The Graphs of Trigonometric Functions.
- Using the Formulae from The Log Tables to prove Trigonometric Identities.
- Exam Questions from Section A & Section B of the Exam Papers on Trigonometry.

LC Maths H Course 5

Functions, Indices & Logarithms

- *Functions:* Composite Functions, Completed Square Form, Inverse Functions, Injective Surjective & Bijective Functions.
- *Indices:* Solving Quadratic Equations Using Indices.
- *Logarithms:* Solving Log Equations, Writing Expressions a Single Logs,
- Using the Natural Log to get a Power Down, Log Word Problems.
- Exam Questions from Section A & Section B of the Exam Papers on Functions, Indices & Logarithm.

LC Maths H Course 6

Financial Maths

- Lump Sum & Deprecation Questions.
- Annuity, Savings & Investment Questions.
- Amortisation Schedules & Using the Amortisation Formula.
- The Present Value Series.
- Problems Involving Bonds & Pensions.
- Deriving the Amortisation Formula.
- Exam Questions from Section A & Section B of the Exam Papers on Financial Maths.