

# Higher Maths Distance Scheme of Learning

This scheme is designed to be used alongside the course textbook you have been issued.

## Unit 1

### **Straight Line**

Straight Line Introduction

Collinearity and gradient of perpendicular lines

Equation of a Straight Line

Medians

Altitudes

Perpendicular Bisectors

Intersections of Lines

Tan $\theta$

### **Functions**

Functions Introduction

Composite Functions

Inverse Functions

Logarithmic and Exponential Graphs

Graph Transformations

### **Trig Equations**

Revision of N5 Trig

Radians

Exact Values

Solving Trig Equations

## Recurrence Relations

[Finding a Recurrence Relation for a Sequence](#)

[Limit of a Sequence](#)

[Linear Recurrence Relations](#)

## Differentiation

[Introduction to Differentiation](#)

[Differentiating more complex terms](#)

[Differentiating with respect to other variables](#)

[Rate of Change](#)

[Tangent to a Curve](#)

[Differentiating  \$\sin x\$  and  \$\cos x\$](#)

[Chain Rule](#)

[Increasing and Decreasing Curves](#)

[Stationary Points](#)

[Curve Sketching](#)

[Closed Intervals](#)

[Graphs of Derived Functions](#)

## Unit 2

### Polynomials

[Synthetic Division](#)

[Finding Unknown Coefficients](#)

[Intersection of a Line and a Curve](#)

[Determining the Equation of a Curve](#)

### Quadratic Theory

[The Discriminant](#)

[Completing the Square](#)

[Sketching Parabolas](#)

[Finding the Equation of a Parabola](#)

[Solving Quadratic Inequalities](#)

[Intersection of a Line and a Parabola](#)

## Integration

[Indefinite Integrals](#)

[Preparing for Integration](#)

[Differential Equations](#)

[Definite Integrals](#)

[Integrating  \$\sin x\$  and  \$\cos x\$](#)

[Chain Rule for Integration](#)

[Chain Rule with Trig](#)

## Addition Formulae

[Compound Angles](#)

[Double Angle Formulae](#)

[Further Trig Equations](#)

## Wave Function

[Expressing  \$p\cos x + q\sin x\$  in the form  \$k\cos\(x - a\)\$  \(1\)](#)

[Expressing  \$p\cos x + q\sin x\$  in the form  \$k\sin\(x - a\)\$  \(2\)](#)

[Expressing  \$p\cos x + q\sin x\$  in other forms](#)

[Multiple Angles](#)

[Minimum and Maximum Values](#)

[Solving Equations](#)

[Sketching Graphs of the form  \$y = p\cos x + q\sin x\$](#)

## The Circle

[Representing a Circle](#)

[The General Equation of a Circle](#)

[Intersection of a Line and a Circle](#)

[Tangent to a Circle](#)

[Equation of a Tangent](#)

[Intersections of Circles](#)

## Further Calculus

[Optimisation](#)

[Further Optimisation](#)

[Area Above and Below the x-axis](#)

[Area Between Two Curves](#)

## Vectors

[Vectors Introduction](#)

[Position Vectors and Collinearity](#)

[Section Formula/Dividing Lines in a Ratio](#)

[Scalar/Dot Product](#)

[Angle Between Two Vectors](#)

[Perpendicular Vectors](#)

[Properties of the Scalar Product](#)

## Logs & Exponentials

[Laws of Logs](#)

[Logarithmic Equations](#)

[Exponential Equations](#)

[Graphing with Logarithmic Axis](#)

[Graph Transformations](#)