Maths A Level Video Links for Subscribers Dark Mode

Maths A Level | 1st Year | Maths AS Level

Pure Maths 1

1.1 Algebraic Expressions Playlist

Algebraic Expressions | Prior Knowledge Check

The Laws of Indices

Expanding Brackets

Factorised and Expanded Expressions

Factorising Quadratics

Manipulating Indices

Surds

Rationalising the Denominator

Rationalising the Denominator | 1st Principles and Using Formulae

1.2 Quadratics Playlist

Quadratics | Prior Knowledge Check

Factorisation Review

Completing the Square

Functions: Range and Domain

Quadratics

The Discriminant

Modelling with Quadratics

1.3 Equations and Inequalities Playlist

Equations and Inequalities | Prior Knowledge Check

Simultaneous Linear Equations

Simultaneous Quadratic and Linear Equations

Intersections of Straight Lines and Circles

Simultaneous Equations on Graphs and Number Lines

Linear Inequalities

Solving Quadratic and Linear Inequalities

Solving Quadratic and Linear Inequalities Using Graphs

1.4 Graphs and Transformations Playlist

Graphs and Transformations | Prior Knowledge Check

Sketching Graphs

Transformations of Polynomial and Reciprocal Functions

Transformations of Straight Line, Quadratic and Trigonometric Functions

Stretching Graphs

1.5 Straight Line Equations Playlist

Straight Line Equations | Prior Knowledge Check

Equation of a Straight Line

Parallel and Perpendicular Lines

Length and Area

Modelling with Straight Lines

1.6 Quadratics and Straight Lines Playlist

Quadratics and Straight Lines | Prior Knowledge Check

Midpoints and Perpendicular Bisectors

Equation of a Circle

Intersections of Straight Lines and Circles

Circles - Tangents and Chord Properties

Circle and Triangle Properties

1.7 Algebraic Methods Playlist

Algebraic Methods | Prior Knowledge Check

Algebraic Fractions

Dividing Polynomials

The Factor Theorem

Mathematical Proof

Methods of Proof

1.8 Binomial Expansion Playlist

The Binomial Expansion | Prior Knowledge Check

Pascal's Triangle

Combinations and The Binomial Expansion

Binomial Problem Solving

Binomial Estimation

1.9 Trigonometric Ratios Playlist

Trigonometric Ratios | Prior Knowledge Check

The Cosine Rule

The Sine Rule

Areas of Triangles

Graphs of Sine, Cosine and Tangent

Transforming Trigonometric Graphs

1.10 Trigonometric Identities & Equations Playlist

Trigonometric Identities and Equations | Prior Knowledge Check

Angles in all Four Quadrants

Exact Values of Trigonometrical Ratios

Trigonometric Identities

Trigonometric Equations

Equations and Identities

1.11 Vectors Playlist

Vectors | Prior Knowledge Check

Introduction to Vectors

Representing Vectors

Magnitude and Direction

Position Vectors

Solving Geometric Problems

Modelling with Vectors

1.12 Differentiation Playlist

Differentiation | Prior Knowledge Check

Gradients of Curves

Differentiating Quadratics

Differentiating Functions with Two or More Terms

Gradients, Tangents and Normal

Increasing and Decreasing Functions

Second Order Derivatives

Stationary Points

Sketching Gradient Functions

Modelling with Differentiation

1.13 Integration Playlist

Integration | Prior Knowledge Check

Integrating Polynomials

Indefinite Integrals

Definite Integrals

Area Under a Curve

Areas Between Curves and Lines

1.14 Exponentials and Logarithms Playlist

Exponentials and Logarithms | Prior Knowledge Check

Exponential Functions

General Exponential Functions and $e^{\wedge}x$

Exponential Modelling

Laws of Logarithms

Logarithms

Solving Equations Using Logarithms

Working with Natural Logarithms

Logarithms and Non-Linear Data

Statistics 1

2.1 Data Collection Playlist

Data Collection | Prior Knowledge Check

Populations and Samples

Sampling

Types of Data

The Large Data Set

2.2 Measures of Location and Spread Playlist

Measures of Location and Spread | Prior knowledge Check

Measures of Central Tendency

More Measures of Location

Measures of Spread

Variance and Standard Deviation

Coding

2.3 Representations of Data Playlist

Representations of Data | Prior Knowledge Check

Outliers

Box Plots

Cumulative Frequency

Histograms

Comparing Data

2.4 Correlation Playlist

Correlation | Prior Knowledge Check

Correlation

Linear Regression

2.5 Probability Playlist

Probability | Prior Knowledge Check

Calculating Probabilities

Venn Diagrams

Mutually Exclusive and Independent Events

Tree Diagrams

2.6 Distributions Playlist

Statistical Distributions

Probability Distributions

The Binomial Distribution

Cumulative Probabilities

2.7 Hypothesis Testing Playlist

Hypothesis Testing | Prior Knowledge Check

Introduction to Hypothesis Testing | Finding Critical Values

One-tailed Tests

Two-tailed Tests

Mechanics 1

3.1 Modelling in Mechanics Playlist

Modelling in Mechanics | Prior Knowledge Check

Constructing a Model

Modelling Assumptions

Quantities and Units

Working with Vectors

3.2 Constant Acceleration Playlist

Constant Acceleration | Prior Knowledge Check

Displacement-Time Graphs

Velocity-Time Graphs

Constant Acceleration Formulae Part 1

Constant Acceleration Formulae Part 2

Vertical Motion Under Gravity

3.3 Forces and Motion Playlist

Forces and Motion | Prior Knowledge Check

Force Diagrams

Forces as Vectors

Forces and Acceleration

Forces in Two Dimensions

Connected Particles

Pulleys

3.4 Variable Acceleration Playlist

Variable Acceleration | Prior Knowledge Check

Functions of Time, Differentiation and Maxima and Minima

Using Integration

Constant Acceleration Formulae

Maths A Level | 2nd Year

Pure Maths 2

1.1 Algebraic Methods Playlist

Algebraic Methods | Prior Knowledge Check

Proof by Contradiction

Algebraic Fractions

Repeated Factors

Algebraic Division

1.2 Functions and Graphs Playlist

Functions and Graphs | Prior Knowledge Check

The Modulus Function

Functions and Mappings

Composite Functions

Inverse Functions

y=|f(x)| and y=f(|x|)

Combining Transformations

Solving Modulus Problems

1.3 Sequences and Series Playlist

Sequences and Series | Prior Knowledge Check

Arithmetic Sequences

Arithmetic Series

Geometric Sequences

Geometric Series

Sum to Infinity

Sigma Notation

Recurrence Relations

Modelling Series

1.4 The Binomial Expansion Playlist

The Binomial Expansion | Prior Knowledge Check

Expanding (1+x)^n

Expanding (a+bx)^n

Using Partial Fractions

1.5 Radians Playlist

Radians | Prior Knowledge Check

Radian Measure Part 1

Radian Measure Part 2

Arc Length

Areas of Sectors and Segments

Solving Trigonometric Equations

Small Angle Approximations

1.6 Trigonometric Functions Playlist

Trigonometric Functions | Prior Knowledge Check

Secant, Cosecant and Cotangent

Graphs of sec, cosec, cot

Using sec(x), cosec(x) and cot(x)

Trigonometric Identities

Inverse Trigonometric Functions

1.7 Trigonometry and Modelling Playlist

Trigonometry and Modelling | Prior Knowledge Check

Addition Formulae

Using the Angle Addition Formulae

Double Angle Formulae

Solving Trigonometric Equations

Simplifying acosx+-bsinx

Proving Trigonometric Identities

Modelling with Trigonometric Functions

1.8 Parametric Equations Playlist

Parametric Equations | Prior Knowledge Check

Parametric Equations

Using Trigonometric Identities

Curve Sketching

Points of Intersection

1.9 Differentiation Playlist

Differentiation | Prior Knowledge Check

Differentiating sinx and cosx

Differentiating Exponentials and Logarithms

The Chain Rule

The Product Rule

The Quotient Rule

Differentiating Trigonometric Functions

Parametric Differentiation

Implicit Differentiation

Using Second Derivatives

Rates of Change

1.10 Numerical Methods Playlist

Numerical Methods | Prior Knowledge Check

Locating Roots

Iteration

The Newton Raphson Method

1.11 Integration Playlist

Integration | Prior Knowledge Check

Integrating Standard Functions

Integrating f(ax+b)

Using Trigonometric Identities

Reverse Chain Rule

Integration by Substitution

Integration by Parts

Partial Fractions

Finding Areas

The Trapezium Rule

Solving Differential Equations

Modelling with Differential Equations

1.12 Vectors Playlist

Vectors | Prior Knowledge Check

3D Coordinates and Vectors in 3D

Solving Geometric Problems

Applications to Mechanics

Statistics 2

2.1 Regression, Correlation and Hypothesis Testing Playlist

Regression, Correlation & Hypothesis Testing | Prior Knowledge Check

Exponential Models

Measuring Correlation

Hypothesis Testing for Zero Correlation

2.2 Conditional Probability Playlist

Conditional Probability | Prior Knowledge Check

Set Notation

Conditional Probability

Conditional Probabilities with Venn Diagrams

Probability Formulae

Tree Diagrams

2.3 The Normal Distribution Playlist

The Normal Distribution | Prior Knowledge Check

The Normal Distribution

Finding Probabilities for Normal Distributions

The Inverse Normal Distribution Function

The Standard Normal Distribution

Finding the Mean and Standard Deviation

Approximating a Binomial Distribution

Hypothesis Testing with the Normal Distribution

Mechanics 2

3.1 Moments Playlist

Moments | Prior Knowledge Check

Moments

Resultant Moments

Equilibrium

Centres of Mass

Tilting

3.2 Forces and Friction Playlist

Forces and Friction | Prior Knowledge Check

Resolving Forces

Inclined Planes

Friction

3.3 Projectiles Playlist

Projectiles | Prior Knowledge Check

Horizontal Projection

Horizontal and Vertical Components

Projection at any Angle

Projectile Motion Formulae

3.4 Applications of Forces Playlist

Applications of Forces | Prior Knowledge Check

Static Particles

Modelling with Statics

Friction and Static Particles

Static Rigid Bodies

Dynamics and Inclined Planes

Connected Particles

3.5 Further Kinematics Playlist

Vectors in Kinematics

Vector Methods with Projectiles

Variable Acceleration in One Dimension

Differentiating Vectors

Integrating Vectors