Mathematics

UNIVERSITY , FURTHER EDUCATION, APPRENTICESHIP

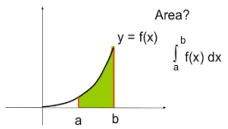
FINAL EXAMS

EXAM PREPARATION

PAST PAPER QUESTIONS

REVISION Past Papers

Further Integration
By Substitution or by Parts



Parametric Equations
Curves expressed in terms of a parameter.

Differential Equations
Using integration to solve problems involving rates of change

Numerical methods
Newton-Raphson method, rearrangements, and the trapezium rule

REVISIT
Theory content learnt through Y12 and 13

January Mock Exams

Projectiles
Projectile problems and the equation of a trajectory

$F = ma$

Friction
Using the coefficient of friction

Forces and Motion
Forces in 2 dimensions, resolving forces including inclined planes

Moments
The turning effects of forces

Kinematics in two and three dimensions

$v = u + at$
$v^2 = u^2 + 2as$
$s = ut + \frac{1}{2}at^2$
$s = vt - \frac{1}{2}at^2$
$s = \frac{1}{2}(u+v)t$

s – displacement
u – initial velocity
v – final velocity
a – acceleration
t - time

Exam Skills (REVISION)

Integration of e and natural log. Integration of Trig Functions

Further Differentiation
Differentiating exponentials and trig functions

Trigonometric Identities
Compound Angle, Double Angle and R Cos (x + α) Formulas

Vectors in three Dimensions

October AS Mock

MOCK EXAM REVIEW AND GAP FILLING

Proofs by exhaustion, contradiction, and deduction

Differentiation
The chain, product and quotient rules

Trigonometric Functions
Intro to sec, cosec, cot

Normal Distribution
Including Hypothesis Testing

YEAR 13

Mock Exams

Correlation and Regression including hypothesis testing using PMCC

Exam Skills (REVISION)

INTRODUCTION TO THE LARGE DATA SET

Variable acceleration
Using calculus when acceleration isn't constant

Further Algebra
More Binomial Expansions and Partial Fractions

Sequences and series
Arithmetic and Geometric sequences

Conditional Probability

Vectors including column, component, and magnitude – direction form

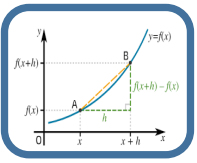
Half Term 5 Assessment

Year 2 Work Starts

Core
The Core Maths topics are all delivered by Teacher A

Mechanics
Linked to Physics, work on forces and motion, both with constant and variable acceleration.

Statistics
Developing work on probability , graphs and averages from GCSE, also introducing the idea of probability distributions.



Differentiation including from first principles. Turning points, maxima and minima including modelling

Exponentials and Logs

Kinematics
Using graphs to solve motion problems and introducing the constant acceleration formulae

Functions Composite, Inverse and Modulus Functions

Integration
As the inverse of differentiation and to find the area under a curve

Forces and Newton's Laws
Understanding the connection between force and motion, including with connected particles

Half Term 4 Assessment

Half Term 3 Assessment

Half Term 2 Assessment

Hypothesis testing
Using the Binomial distribution to test a hypothesis

Binomial Distribution
A probability distribution involving a fixed number of trials of success or failure

Probability including Tree Diagrams and Venn Diagrams and Discrete Random Variables

Applied Mathematics

Data collection , analysis and representation
Sampling, graphs and analysis. Introducing standard deviation.

Trigonometry
Surds and indices
Perpendicular Bisectors

Trigonometry
Solving trigonometric equations with basic identities. Introduction to Radians

Transition Assessment HT1

Transition Teaching

YEAR 12

Transition
These are topics that you will have met at GCSE, taught to ensure you've got key skills in order to access the A level curriculum.

Binomial Expansion
Expanding higher order polynomials

Polynomials
Introducing the Factor Theorem and working with higher degree polynomials

Coordinate geometry
Developing work on straight lines but doing more with curves and circles. Also Graph Transformations

Core Mathematics

Quadratics
Solving equations
Straight lines