

Year 13 Maths A Level

Subject and Year Group	Autumn 1 Year 13	Autumn 2 Year 13	Spring 1 Year 13	Spring 2 Year 13	Summer 1 Year 13
Topic/Unit to be studied	<ul style="list-style-type: none"> • Functions and Graphs • Radians • Proof • Algebraic fractions • Partial Fractions • Binomial expansion • Forces and Friction 	<ul style="list-style-type: none"> • Trigonometric Functions • Trigonometry and modelling • Differentiations • Integration 	<ul style="list-style-type: none"> • Parametric equations • Numerical methods • Sequences and series • Vectors • Moments • Projectiles • Applications of Forces 	<ul style="list-style-type: none"> • Regression, Correlations and Hypothesis testing • Conditional Probability • Differentiation Part 2 • Integration Part 2 	<ul style="list-style-type: none"> • The Normal distribution • Further Kinematics
Core Knowledge and skills	<ul style="list-style-type: none"> • Modulus • Mappings • Composite and inverse functions • $y = f(x)$ and $y = f(x)$ • Combining transformations • Solving modulus problems • Radian measure • Arc length • Area of segments and sectors • Solving trigonometric equations with radians • Small angle approximation • Recap proof by contradiction • Algebraic and partial fractions • Algebraic division • Resolving Forces • Inclined Planes • Friction 	<ul style="list-style-type: none"> • Secant, cosecant and cotangent and their graphs. • Trigonometric identities with sec, cosec and cot • Inverse trigonometric functions • Addition formulae • Double angle formulae • Simplifying $a\cos x + b\sin x$ • Proving trigonometric identities • Differentiating: $\sin x$, $\cos x$, Exponentials, and Logs; The chain, product and quotient rules. • Integrating: Standard functions, $f(ax+b)$ • Reverse chain rule • By substitution • By parts • With partial fractions • Finding area. 	<ul style="list-style-type: none"> • Parametric equations • Curve sketching • Points of intersections • Locating roots • Iteration • The Newton-Raphson method • Arithmetic and geometric sequences and series • Sum to infinity • Sigma notation • Recurrence relations • Vectors in 3D • Moments, Equilibrium, Centres of mass, Tilting, Horizontal and vertical components • Projection at any angle • Projectile motion formulae • Modelling with static particles • Friction on static particles • Static rigid bodies • Dynamics and inclined planes • Connected particles 	<ul style="list-style-type: none"> • Exponential models • Measuring correlation • Hypothesis testing for zero correlation • Set notation • Conditional probability with venn diagrams • Probability formula • Tree diagrams • Parametric and Implicit differentiation • Using second derivatives • Rates of change • The Trapezium Rule • Solving differential equations 	<ul style="list-style-type: none"> • The normal distribution • Finding probabilities • Inverse normal distribution • Standard normal distribution • Finding μ and σ • Approximating a binomial distribution • Hypothesis testing with a normal distribution • Vectors in kinematics • Vector methods with projectiles • Variable acceleration in one dimension • Differentiating vectors • Integrating vectors
Assessment for and of learning	Unit assessments	Unit assessments	Unit assessments Mock exam	Unit assessments	Unit assessments