

$$(a+b)^n = \binom{n}{0}a^n b^0 + \binom{n}{1}a^{n-1}b^1 + \binom{n}{2}a^{n-2}b^2 + \dots + \binom{n}{n}a^0 b^n$$

$$\text{where } \binom{n}{r} = {}^n C_r = \frac{n!}{r!(n-r)!}$$

Binomial Expansion

Pascal's triangle, Factorial notation, binomial expansion, binomial estimation, binomial expansion for negative and fractional exponents.



Sequences & Series

Arithmetic sequences, arithmetic series, geometric series, sum to infinity, sigma notation, recurrence relations, modelling with series.



Further Algebraic Methods

Cubic graphs, quartic graphs, reciprocal graphs, points of intersection, translating graphs, stretching graphs, transforming functions.



Further Integration

Integrating standard functions, using trigonometric identities, reverse chain rule, integration by substitution, integration by parts, partial fractions, finding areas, trapezium rule, differential equations, modelling with integration, parametric integration.



Functions & Graphs

Modulus of a function, functions and mappings, composite functions, inverse functions, combining transformations, solving modulus problems.



Numerical Methods

Locating roots, iteration, the Newton-Raphson method, applications to modelling.



Past Paper 1 Practice

Exam questions that focus on paper 1.



Past Paper 2 Practice

Exam questions that focus on paper 2.



STEP Paper 2 Practice

Sixth Term Examination Papers 2



STEP Paper 3 Practice

Sixth Term Examination Papers 3



$$\frac{dy}{dx} = f(x, y)$$



$$\frac{dy}{dx} + a(x)y = f(x)$$