**AS Level Core 2**

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|  | **What You Need To Know** | pe03020_[1] | pe03018_[1] | pe03019_[1] |
| 1. Algebra and Functions | * To understand and use the laws of indices * Knowledge of the effect of simple transformations on the graph of *y=*f(*x*) as represented by *y*=*a*f(*x*), *y=*f(*x*)+*a*, *y* =f(*x* +*a*), *y=*f (*ax*) . |  |  |  |
| 1. Sequences and Series | * Sequences, including those given by a formula for the *n*th term. Including using the Σ notation. * Sequences generated by a simple relation of the form * Arithmetic series, including the formula for the sum of the first *n* natural numbers. * The sum of a finite geometric series. * The sum to infinity of a convergent (**–**1 < *r* < 1) geometric series. * The binomial expansion of (1 + *x*)*n* for positive integer *n*. |  |  |  |
| 1. Trigonometry | * The sine and cosine rules. * The area of a triangle in the * form * Degree and radian measure. * Arc length, area of a sector of a circle. * Sine, cosine and tangent functions. Their graphs, symmetries and periodicity. * Knowledge and use of and * Solution of simple trigonometric equations in a given interval of degrees or radians. |  |  |  |
| 1. Exponentials and Logarithms | * and its graph. * Logarithms and the laws of logarithms. * The solution of equations of the form |  |  |  |
| 1. Differentiation | * Differentiation of , where *n* is a rational number, and related sums and differences. |  |  |  |
| 1. Integration | * Integration of , *n* ≠**–**1, and related sums and differences. * Approximation of the area under a curve using the trapezium rule. |  |  |  |