**AS Level Core 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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 $x\_{n+1}=f\left(x\_{n}\right)$
* 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 $\frac{1}{2}ab\sin(C)$
* 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 $\tan(θ)=\frac{\sin(θ)}{\cos(θ)}$ and $sin^{2}θ+cos^{2}θ=1$
* Solution of simple trigonometric equations in a given interval of degrees or radians.
 |  |  |  |
| 1. Exponentials and Logarithms
 | * $y=a^{x}$and its graph.
* Logarithms and the laws of logarithms.
* The solution of equations of the form $a^{x}=b$
 |  |  |  |
| 1. Differentiation
 | * Differentiation of $x^{n}$, where *n* is a rational number, and related sums and differences.
 |  |  |  |
| 1. Integration
 | * Integration of $x^{n}$, *n* ≠**–**1, and related sums and differences.
* Approximation of the area under a curve using the trapezium rule.
 |  |  |  |