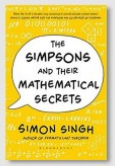
The English Martyrs Catholic School and Sixth Form College

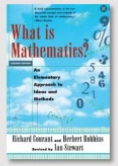
Year 13 Maths	Module 1	Module 2	Module 3
Topic Theme and Intent	In Module 1, Teacher 1 studies Pure topics, while Teacher 2 studies Mechanics.	In Module 2, Teacher 1 continues to teach the Pure content, while Teacher 2 studies Statistics.	Students cover their final few topics before the end of year exams.
Knowledge	• Split a fraction up into a Partial Fraction including when there is a repeated factor. • $2\pi\ rad = 180°$ • Exact trig values in both degrees and radians (eg sin(60) or sin $(\pi/3)$) • Small angle approximations (these are given in formula booklet but students need to know how to properly apply). • Definitions of sec, cosec and cot. • Double angle formulae or be able to derive these from the addition formulae. • Definitions of one-one, many-one or one-many and when the mapping would be a function	• Differentiate trig/exponential/logarithm functions using the chain/product/quotient rules • Solve problems involving connected rates of change • Construct and solve simple differential equations • Integrate standard mathematical functions and use the reverse chain rule • Convert parametric equations into Cartesian form • Understand and use parametric equations to sketch curves	• Formula for nth term and sum of an arithmetic and geometric • How to use and apply the Newton Raphson method • How to find the magnitude of a vector and the angle formed with an axis (x,y or z) • SUVAT equations- apply these to more complex problems.
Skills	• How use ABS button on the graphical calculators in order to sketch modulus graphs • Use the GSOLVE key on graphical calculator to help with Function exam questions. • Use the factorial and modulus button on the 991 calculator.	Use 991 to: • check differential or integral (when substituting a value in) • Calculate the PMCC • Calculate values needed for the normal distribution	• Use and apply the correct formula. Understand when a convergent sequence would sum to infinity. • Solve an equation using iterative methods and use the NR formula to approximate the roots of a function.
Literacy Links	**Reading Skills** Know that is a fraction is given in the question, it may need to be split into a partial fraction without the question specifying this. **Writing Skills** Write any formulae down first before substituting values into it (ie double angle formula).	**Reading Skills** Become familiar with key phrases words (initially, greatest speed, maximum) and understand how these would translate into Mathematical instructions. **Writing Skills** Add the constant of integration in your answer and find this if given boundary conditions to do so.	**Reading Skills** Carefully interpret the text and decide whether it depicts a linear/geometric sequence. **Writing Skills** Use the correct formula, if you sequence is being summed use Sn, if you are finding a specific term, use Un.
Essential Vocabulary	Divisor, Remainder, Domain, Range, Modulus One to Many, Many to One, One to One, Infinite series, Radians, Resultant, Moment, Reaction, Pivot,	ascending powers of x, derivative, formula, distinct solution, dimensions, minimum, negligible thickness, maximum height, turning point	Sequence, series, geometric, arithmetic, sum, sigma, infinity, decreasing, increasing, modulus, multiplier, logarithm, modulus,

Disciplinary Reading **Reading for Pleasure**



Fermat's Last Theorem
Maths in the Simpsons

Mathematical Puzzles: A Connoisseur's Collection



What is Mathematics