Student's Guide – What You Must Be Able To Do

*This section outlines the specification in straightforward language. The specification breaks down into 28 key parts that 'you must be able to do'. At the end of your course you can test that you know each of these points by using the Students Final Revision Tests A and B. These tests are fairly quick and designed to check that you have a basic understanding of **EVERY** aspect of the specification.*

Student's Final Revision Tests – Do test A and revise the parts you get wrong, then do Test B to show your improvement!

Test A Date _ _/_ _/_ _ Test B Date _ _/_ _/_ _

ch.	N^{u}	**What You Must Be Able To Do**	A ✓ × ½	B ✓ × ½
1.1 & 1.3	1	Manipulate polynomials - expand brackets		
1.4 & 1.5	2	Factorise quadratics and simple expressions		
1.2 & 1.6	3	Use the laws of indices		
1.7 – 1.8	4	Simplify surds and rationalise denominators		
2.1 - 2.5	5	Solve quadratic expressions by factorising, using the formulae and completing the square		
2.6	6	Draw quadratics and calculate their discriminants		
3.1 - 3.3	7	Solve simultaneous equations, including where one is quadratic		
3.4 - 3.5	8	Solve linear and quadratic inequalities		
4.1 - 4.3	9	Sketch simple cubics, including kx^3, $(x-1)(x+2)(x+3)$ and x^3 + k, and also reciprocals of the form $\frac{k}{x}$ with $x \neq 0$		
4.3	10	Understand the term 'asymptote'		
4.4	11	Understand that intersection points can give solutions to equations, & interpret algebraic solutions geometrically		
4.5 - 4.7	12	Understand and sketch simple transformations		
5.1 - 5.4	13	Use $y = mx + c$ to find out the gradient, y-intercept, points on a straight line and to solve problems		
5.1 & 5.3	14	Be comfortable with alternative straight line equations, e.g. $ax + by + c = 0$		
5.5	15	Find out whether lines are parallel, perpendicular, or neither		
6.1 - 6.2	16	Use the formula for the nth term of any sequence		
6.3	17	Use the recurrence relationship of the form $x_{n+1} = f(x_n)$		
6.4 - 6.6	18	Recall and use the general term, and the sum to n terms, of an arithmetic series		
6.6	19	Prove the formula for the sum to n terms of an arithmetic series		
6.6	20	Know or derive the formula for the sum of the first n natural numbers		
6.7	21	Understand $\sum$ notation		
7.1 - 7.2	22	Understand that the limit of a chord can represent gradient or differentiation		
7.3 - 7.8	23	Use $\frac{dy}{dx}$ to find the gradient of $y = f(x)$ at a point		
7.2	24	Differentiate x^n, related sums and differences and calculate second order derivatives		
7.8	25	Find the gradient of normals and tangents to curves		
8.1 - 8.5	26	Understand indefinite integration as the reverse of differentiation - adding a constant of integration where required		
8.1	27	Integrate x^n for example $\frac{1}{2}x^2 - 3x^{-\frac{1}{2}}$ and $\frac{x^2+5x-3}{3x^{\frac{1}{2}}}$		
8.5	28	Find the equation of a curve in the form $y = f(x)$, given $f'(x)$ and a point on the curve		

