## The Big 50 Revision Guidelines for C1

If you can understand all of these you'll do very well...

- Know the Laws of Indices, including the handling of negative and fractional powers, and powers of powers
- Know how to manipulate surds with multiplying and dividing, for example knowing how to write the square root of 60 in terms of the roots of 3 and 5
- Know how to rationalise surd denominators using the technique of The Difference of Two Squares
- 4. Know how to write the equation of a straight line in various forms
- 5. Know what is meant by parallel and perpendicular gradients
- 6. Know how to find the equation of a line given two points
- Know how to find the equation of a line given one point and the gradient
- Know how to find the equation of a line given one point and a parallel line
- Know how to find the equation of a line given one point and a perpendicular line
- 10.Know how to use f(x) notation for polynomials

- 11.Understand the geometrical interpretation of algebraic solutions of equations
- 12. Know how to solve Quadratic equations using a variety of techniques
- 13. Understand and use the technique of completing the square
- 14.Know how to find the discriminant of a quadratic, and how to use it to classify the quadratic into one of three types.
- 15.Know how to sketch quadratic graphs
- 16. Know how to solve simultaneous equations where both are linear
- 17.Know how to solve simultaneous equations where one is linear and one is quadratic
- 18. Know how to solve Linear inequalities
- 19. Know how to solve Quadratic inequalities
- 20. Know what is meant by a Sequence
- 21. Know what is special about an Arithmetic sequence
- 22.Know how to write the nth term of any given arithmetic sequence e.g. 4, 7, 10, 13, 16, 19
- 23. Know how to write the nth term of the general arithmetic sequence
- 24.Know what n, a, d and l represent in the context of sequences and series

- 25.Know the proof of the sum formula Sn for any n, a, d and l
- 26. Know what is meant by a Series
- 27.Be able to understand and use Sigma notation
- 28.Know what is meant by a Recurrence Relation where each new term of a sequence depends on one or more previous terms
- 29. Know the shape of the reciprocal function
- 30. Know the shape of the cubic equation
- 31. Know what an asymptote is
- 32.Know the technique of Curve Sketching based on asymptotes, x,y intercepts and behaviour towards infinity
- 33.Understand and use Transformations of functions using f(x±a)
- 34. Understand and use Transformation of functions using f(x)±a
- 35. Understand and use Transformation of functions using f(±ax)
- 36. Understand and use Transformation of functions using ±af(x)
- 37. Know what is meant by a Tangent to a curve at any point
- 38. Understand the difference between Tangents and normals
- 39.Know that the gradient of the tangent at any point x on y=f(x) is defined as the Gradient Function f'(x)

- 40.Know how to find the derivative f'(x) for any polynomial function y=f(x)
- 41. Understand the idea of f'(x) representing the Rate of Change of f(x)
- 42.Know what is meant by Local Minimum and Local Maximum of y=f(x)
- 43. Know how to find the Second derivative of any polynomial function
- 44.Know how to use the Second Derivative to distinguish between Minimum and Maximum turning points on a graph
- 45.Know how to apply techniques of differentiation to problems involving gradients, tangents and normals to a curve
- 46. Understand Indefinite Integration as the reverse of differentiation
- 47.Know how to integrate any polynomial function involving x<sup>n</sup> for any power n except n = -1
- 48. Know why it is necessary to have a "constant of integration"
- 49. Know how to calculate and interpret a Definite Integral
- 50. Given a point on a curve and the derivative function f'(x), know how to find the equation of the curve in the form y=f(x)