The Big 50 Revision Guidelines for C2

1. Know how to simplify algebraic fractions by division and cancelling, especially by recognising factors of $a^2 - b^2$
2. Know how to divide a polynomial by $(x \pm p)$ using long division or by inspection
3. Understand how to factorise a polynomial using the Factor Theorem
4. Know how to use and interpret the Remainder Theorem
5. Know how to find the midpoint of a line between two points
6. Know how to find the distance between two points on a line
7. Know how to find and use the equation of a circle $(x-a)^2 + (y-b)^2 = r^2$
8. Know how to use Geometric sequences and series, and the associated formulae
9. Know how to use Geometric progressions and how to find the *n*th term of a sequence
10. Know how to use geometric sequences to solve problems
11. Know how to find the sum of a geometric series
12. Know when and how to use the sum to infinity of a geometric series

13. Understand and use Pascal's Triangle to find binomial coefficients

14. Know how to calculate with combinations and factorial notation

15. Know how to use ${}^{n}C_{r}$ or $\binom{n}{r}$ in the Binomial expansion

16. Know how to expand $(a+bx)^n$ using the Binomial expansion

17. Know how to use the Sine rule to find missing sides of any triangle

18. Know how to use the Sine rule to find unknown angles of any triangle

19. Know when to look for the "ambiguous case" of the Sine rule and finding two solutions for a missing angle in such cases

20. Know how to use the Cosine rule to find an unknown side of any triangle

21. Know how to use the Cosine rule to find a missing angle in any triangle

22. Know when and how to use the Sine rule, the Cosine rule and Pythagoras' theorem in order to solve triangles completely

23. Know how to calculate the area of a general triangle using sine.

24. Know how to use radians to measure angles

25. Know how to find the length of the arc of a circle

26. Know how to find the area of a sector of a circle

27. Know how to find the area of a segment of a circle

28. Understand the properties of the Sine, Cosine and Tangent functions and the relationships between them

29. Know how to interpret the values of the three trigonometric functions in the four quadrants (A, S, T, C Diagram)

30. Know how to find and use the exact values in surd form for the trig functions of 0º, 30º, 45º, 60º, 90º, 180º and related angles

31. Recognise and use the graphs of Sine θ, Cosine θ and Tangent θ and their reciprocal functions Cosecant θ, Secant θ and Cotangent θ

32. Know how to apply simple transformations of Sin θ, Cos θ and Tan θ

33. Know how to derive and use simple trigonometric identities

34. Know how to solve simple trig equations

35. Know how to solve equations of the form $\sin(n\theta+\alpha)=k$, $\cos(n\theta+\alpha)=k$ or $\tan(n\theta+\alpha)=k$

36. Know how to solve quadratic trig equations

37. Know how to sketch and use the function $y=a^x$

38. Know how to write expressions as logarithms

39. Know how to calculate using logarithms to base 10

40. Understand and use the Laws of logarithms

41. Know how to solve equations of the form $a^x = b$

42. Know how to change the base of logarithms

43. Understand and use Increasing & decreasing functions

44. Know how to find and distinguish between Stationary points: maximum, minimum and points of inflexion

45. Know how to use turning points to solve problems

46. Know how to calculate and apply simple definite integration

47. Know how to calculate the Area under a curve

48. Know how to interpret an Area under a curve that gives negative values

49. Know how to find the Area between a straight line and a curve

50. Know how to apply the trapezium rule to approximate areas