

# Curriculum Plan

Year: 13 (A level)

Subject: Pure Mathematics P3 (WMA13/01)

Term	Week	Focus	Summary	Learning Outcomes	Parental Support	Indenpendant Learning
1A	1	<b>Algebraic Methods</b>	Mastering addition, subtraction, multiplication and division of algebraic fractions. Convert an improper fraction into partial fraction form.	Perform algebraic long division. Express rational functions in partial fraction form.	Encourage attention to detail in algebraic steps. Review algebraic fractions from earlier topics.	Work through worked examples. Complete exercises Ex 1A, 1B and 1C.
	2-3	<b>Functions and Graphs</b>	Modulus function, mapping and functions, and use of domain and range. Composite and inverse of a function graphically and algebraically. Transform the modulus function.	Understand definition of a function, domain and range. Form composite functions $fg(x)$ . Find inverse functions $f^{-1}(x)$ . Sketch the graphs of the modulus function.		Complete exercises: Ex 2A to 2G.
	4	<b>Trigonometric Functions</b>	Advanced trigonometric identities and equations.	Understand the definitions, graphs and their domain and range of sec, cosec and cot. Use identities $\sec^2(x) \equiv 1 + \tan^2(x)$	Review P1/P2 trigonometric identities. Provide access to formula booklets for practice.	Study trigonometric identities and equations. Memorize and practice deriving identities. Solve varied trigonometric equations from

				and $\operatorname{cosec}^2(x) \equiv 1 + \cot^2(x)$ . Understand and use inverse trig. functions.		exercises including: Ex3A to 3E.
5	<b>Trigonometric Additional Formulae</b>	Prove and use additional and double-angle formulae. R-formula and its applications.	Use addition formulae ( $\sin(A \pm B)$ , $\cos(A \pm B)$ , $\tan(A \pm B)$ ). Use double angle formulae ( $\sin 2A$ , $\cos 2A$ , $\tan 2A$ ). Solve trigonometric equations using identities. Express $a \cos \theta + b \sin \theta$ in the form $R \cos(\theta \pm \alpha)$ or $R \sin(\theta \pm \alpha)$ . Solve equations involving this form.	Discuss the graphical interpretation of combining sine and cosine waves.	Memorize and practice deriving the addition and double-angle formulae. Focus on understanding the R-formula derivation and its application in solving equations. Complete exercises: Ex4A to 4F.	
6	<b>Term 1A Review &amp; Assessment</b>	Consolidation of topics from Term 1A, identifying strengths and weaknesses.	Confidently apply algebraic methods, function concepts, and advanced trigonometry. Improve problem-solving and exam technique for P3.	Encourage detailed review of misconceptions. Ensure timed practice of relevant past paper questions.	Complete Review Exercise 1 from the textbook. Re-attempt challenging questions from Chapters 1-4. Work through relevant past paper questions.	
7	<b>Exponentials &amp; Logarithms</b>	Properties, graphs, and applications of natural logarithms and exponentials.	Understand and use $y = e^x$ and $y = \ln x$ . Apply laws of logarithms. Solve equations involving exponentials and logarithms. Model	Discuss natural growth/decay examples. Review basic log rules.	Work through problems involving natural logs and exponentials, particularly modelling and equation solving. Ex5A to 5E.	

				real-world situations using these functions.		
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<b>1B</b>	<b>8-9</b>	<b>Differentiation</b>	Extending differentiation to more complex functions.	Differentiate trig. functions, exponential and logarithmic functions. Differentiate functions using the chain, product quotient rules.	Reinforce the idea of breaking down complex problems. Review P1/P2 differentiation.	Practice applying the chain, product and quotient, and rules to various combinations of functions. Ex6A to 6F.
	<b>10-11</b>	<b>Integration</b>	Integration standard functions including trig. and exponential functions. Use trig. identities and the reverse of the chain rule to integrate more complex functions.	Students will be able to integrate functions using trig. identities and the reverse of the chain rule.	Review P1/P2 integration. Discuss how integration 'undoes' differentiation.	Focus on practice for integration reverse chain rule. Work through examples for various function types including exercises: Ex7A to 7D.
	<b>12</b>	<b>Numerical Methods</b>	Locate roots of $f(x)=0$ by considering changes in sign. Use iteration to find an approximation	Students will be able to locate roots of a function by change of sign and approximation.		Exercises: Ex8A and 8B.

			to the root of the equation $f(x)=0$ .			
<b>13</b>	<b>Comprehensive P3 Review</b>	Systematic review of all P3 syllabus content, strengthening inter-topic connections.	Confidently apply all P3 concepts. Identify and rectify common misconceptions. Develop fluency in applying all P3 techniques.	Encourage active recall of formulas and methods. Discuss areas of difficulty calmly.	Revisit all P3 chapters. Work through Review Exercise 2.	
<b>14</b>	<b>P3 Mock Exams &amp; Exam Technique</b>	Practice full P3 papers under timed conditions and refine exam strategies.	Master time management for P3 exams. Understand mark scheme expectations. Present solutions clearly and logically.	Provide a conducive, quiet environment for mock exam revision. Offer constructive feedback on performance.	Complete multiple full P3 past papers under timed conditions. Analyse mark schemes to refine exam technique and error correction.	