

# CUHK FAA CHAN CHUN HA SECONDARY SCHOOL

Teaching Schedule (2005-2006)

Secondary 6 Pure Mathematics

**Subject Teacher : Mr. ER Sing-seng**

**Periods per week : 5**

**Text Books :**

**Breakthrough P. Maths. Algebra. Vision.**

**Breakthrough P. Maths. Calculus and Coordinate Geometry. Vision.**

Month	Proposed no. of periods	Topics	Main Contents	Actual progress & comments
Sep.	9	Preliminary Chapter		
Sep.	9	Mathematical Logic and Set Notations	<ol style="list-style-type: none"><li>1. Set Language.</li><li>2. Simple logic.</li></ol>	
Sep.-Oct	6	Mathematical Induction	<ol style="list-style-type: none"><li>1. The Principle of Mathematical Induction.</li><li>2. Other common variations of the Principle of Mathematical Induction and their applications.</li></ol>	
Oct.	9	The Binomial Theorem	<ol style="list-style-type: none"><li>1. The binomial theorem for positive integral indices.</li><li>2. Applications of the binomial theorem for positive integral indices.</li><li>3. Simple properties of the binomial coefficients.</li></ol>	
Oct.-Nov.	12	Determinants and Matrices	<ol style="list-style-type: none"><li>1. Matrices and their operation.</li><li>2. Square matrices of order 2 and 3.</li></ol>	

			3. Applications to two dimensional geometry.	
Nov.	10	System of Linear Equations	1. Polynomials with real coefficients in one variable. 2. Rational functions. 3. Polynomial equations with real coefficients.	
Dec.	9	Intutive Concepts of Limit, Continuity and Differentiation	1. Limit of a function. 2. Continuity of a function. 3. Differentiability of a function.	
Dec	12(3 on Dec) continue after 1 <sup>st</sup> Exam	Methods of Differentiation	1. The L'Hospital's Rule. 2. Rate of change. 3. Monotonic functions. 4. Maxima and minima.	
Dec.-Jan.	4	1 <sup>st</sup> Term Revision		
Dec.			Christmas Holidays	
Jan.	9	Methods of Differentiation		
Jan.-Feb.			Chinese New Year Holidays	
Feb.-Mar.	19	Indefinite integration and Definite integration	1. Indefinite integration. 2. Simple properties of definite integrals. 3. The Mean Value Theorem for integrals. 4. Fundamental Theorem of Integral Calculus and its application to the evaluation of integrals. 5. Method of integration. (i) Method of Substitution.	

			(ii) Integration by parts. (iii) Reduction Formula. (iv) Integration by Partial Fractions. (v) Improper integrals.	
Mar.	12	Higher Derivatives and Applications of Differential Calculus	Parabola, Ellipse, Hyperbola	
Mar	3	Geometric Applications of Definite Integrals	1. Plane area. 2. Volume of revolution.	
Apr.	6	Pairs of Straight Lines. The Circle	1. Equations and Conditions of Pairs of Straight Lines. 2. The Circle: Tangents, Normal and Chords	
Apr.			Easter Holidays	
Apr.-May	12	Conics Sections	1. Conic sections in rectangular system. 2. Tangents and normals of conic sections.	
May	4	Theory of General Conics	Reduction of Equations of Quadratic Curves to Standard Forms	
June	7	Revision of the Whole Year Learning		
June			The Final Examination	

**Text Books:**

**Breakthrough P. Maths. Algebra. Vision.**

**Breakthrough P. Maths. Calculus and Coordinate Geometry. Vision.**

**Reference Books :**

A. L. P. Maths. Algebra Hung Fung ,  
 A. L. P. Maths. Calculus and Analytical Geometry Hung Fung.

20	Applications of Integration	1. .	
31	Analytical Geometry	1.	
Revision			
Final Examination			



## SECOND YEAR A LEVEL PURE MATHS WORK SCHEME

### New Syllabus

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**2005/06**

Detail of the work covered each week is in the [log](#)

Week	Beginning	Topic <sup>1</sup>	Pages <sup>2</sup>	Work <sup>3</sup>
<b>C3</b>				
1	19 September	<b>Functions</b>	1 - 22	
2	26 September			✓
3	3 October	<b>Transformation of Graphs and the Modulus Function</b>	23 - 41	✓

4	10 October	<b>Inverse Trigonometric Functions and Secant, Cosecant and Cotangent</b>	42 - 60	✓
5	17 October	<b>The number e and calculus</b>	61 - 78	✓
<b>Half Term</b>				
6	31 October	<b>Further Differentiation and the Chain Rule</b>	79 - 96	
7	7 November	<b>Differentiation using the Product and the Quotient Rule</b>	97 - 115	✓
8	14 November	<b>Numerical Solution of Equations and Iterative Methods</b>	116 - 134	✓
9	21 November	<b>Integration by Inspection and Substitution</b>	135 - 153	✓
10	28 November	<b>Integration by Parts and Standard Integrals</b>	154 - 162	✓
11	5 December	<b>Volume of Revolution and Numerical Integration</b>	163 - 180	✓
12	12 December	<b>C3 Exam Style Practice Paper</b>	181 - 182	✓
<b>Christmas Holidays</b>				
<b>C4</b>				
1	2 January	<b>Binomial Series Expansion</b>	183 - 197	✓
2	9 January	<b>Rational Functions and Division of Polynomials</b>	198 - 214	
3	16 January			✓
4	23 January	<b>Partial Fractions and Applications</b>	215 - 229	✓
5	30 January	<b>Implicit Differentiation and Applications</b>	230 - 239	✓
6	6 February	<b>Parametric Equations for Curves and Differentiation</b>	240 - 255	✓

<b>Half Term</b>				
7	20 February	<b>Further Trigonometry with Integration</b>	256 - 274	
8	27 February			✓
9	6 March	<b>Exponential Growth and Decay</b>	275 - 290	✓
10	13 March	<b>Differential Equations</b>	291 - 305	✓
11	20 March	<b>Vector Equations of Lines</b>	306 - 331	
12	27 March			✓
13	3 April	<b>C4 Exam Style Practice Paper</b>	332 - 333	✓
<b>Easter Holidays</b>			<b>Your chance to catch up!</b>	
1	24 April	<b>REVISION</b>	Please try each paper <i>before</i> the class then write it up perfectly <i>after</i> the class  Do use <i>all</i> the support you can get outside the class	
2	1 May			
3	8 May			
4	15 May			
5	22 May			
6	29 May			

7	5 June		<a href="#">Study Advice</a> <a href="#">Mathematics Forum</a> <a href="#">Clara</a> <a href="#">Email</a>
8	12 June	<b>Exams</b>	

Notes	
1	Links are to the <a href="#">syllabus</a>
2	Number of pages in the set books: <a href="#">Advancing Maths for AQA: Pure Core 3 &amp; 4 2nd Edition (C3 &amp; C4)</a>
3	Work to be handed in for marking

Steve Mayer



## A2 Pure Mathematics

[Home Page](#)

*By popular request here is what we have been doing each week.*

*I hope you will make good use of it if you are ever absent and need to catch up with what you've missed*

Date (Monday)	Paper	Questions	Homework
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**Revision****Past Paper Answers**

13 June		Individual help	
6 June	P4 January 2005	All Questions	
	P5 January 2005	All Questions	
23 May	P4 June 2004	All Questions	
	P5 June 2004	All Questions	
16 May	P4 January 2004	All Questions	
	P5 January 2004	All Questions	
9 May	P4 June 2003	All Questions	
	P5 June 2003	All Questions	
25 April	P4 January 2003	All Questions	
	P5 January 2003	All Questions	

18 April	P4 June 2002	All Questions		
	P5 June 2002	All Questions		
11 April	P4 January 2002	All Questions		
	P5 January 2002	All Questions		
21 March	P4 June 2001	All Questions	P4 January 2002	
	P5 June 2001	All Questions	P5 January 2002	
14 March	P5 Specimen Paper	Q 1 - 7	P4 June 2001	
7 March	P4 Specimen Paper	Q 1 - 6	Q 7, 8	
Date ( <i>Monday</i> )	Subject	Pages	Exercises	Homework
References are to the temporary textbook <b>Understanding Pure Mathematics</b>				
28 February	Vectors - Planes	423 - 429	<i>Exercise 17D</i> Q 3, 4, 6, 7, 9(a), 17, 23(b), 24	

21 February	Vectors - Lines	65 - 67	<i>Exercise 2E Q 1, 7, 11(b)</i>	
	3 Dimensions	409 - 410 415 - 416	<i>Exercise 17A Q 1, 5, 7</i> <i>Exercise 17C Q 15, 16</i>	
7 February	Vectors	47 - 63	<i>Exercise 2A Q 9</i> <i>Exercise 2B Q 5, 14, 15</i> <i>Exercise 2C Q 1 - 6, 8, 9, 10</i>	
References are to <b>Advancing Maths For AQA: Pure Maths 5 (P5)</b>				
31 January	Differential Equations	Chapter 8	<i>Exercise 8B Q 1-18</i> <i>Exercise 8C Q 1,5,10,12</i> <i>Mixed Exercise Q6,10</i>	
24 January	Numerical Integration	Chapter 7	<i>Exercise 7B Q 1, 6(a)(i)</i> <i>Exercise 7C Q 1, 5(a)</i> <i>Exercise 7D Q 1, 2(b)</i>	
	Differential Equations	Chapter 8	<i>Exercise 8A Q 1(d),(e), 2(c),(e),(g), 3</i>	
17 January	Integration by substitution	Chapter 6	<i>Exercise 6B Q 1(a),(c),(f),(j),(l)</i>	

	<p>Integration by parts</p> <p>Parametric Integration</p>		<p>Q 2(e),(g),(k)</p> <p><i>Exercise 6C</i> Q1(c),(e),(h),(i) 2(d)</p> <p><i>Exercise 6D</i> Q1, 2</p>	
10 January	<p>Curve Sketching</p> <p><b>Curve Sketch Program</b></p> <p>Normals</p> <p>Points of inflection</p> <p>Implicit differentiation</p>	Chapter 3	<p><i>Exercise 3A</i> Q 2, 3, 6</p> <p><i>Exercise 3B</i> Q 2, 4</p> <p><i>Exercise 3C</i> Q 5, 7</p> <p><i>Exercise 3D</i> Q 4, 5, 7, 6</p>	<i>Exercise 3E</i> Q 1, 3
13 December	<p>Binomial Series Expansion</p> <p>Trigonometry</p>	<p>Chapter 1</p> <p>Chapter 2</p>	<p><i>Exercise 1D</i> Q 4, 6</p> <p><i>Exercise 1E</i> Q 2</p> <p><i>Mixed Exercise</i> Q 6</p> <p><i>Exercise 2A</i> Q 1(a),(b), 5(a)</p> <p><i>Exercise 2C</i> Q 3, 4</p>	

			<i>Exercise 2D</i> Q 1, 6	
6 December	Binomial Series Expansion	Chapter 1	<i>Exercise 1B</i> Q 3, 6, 8 <i>Exercise 1C</i> Q 4, 6, 7	
References are to <b>Advancing Maths For AQA: Pure Maths 4 (P4)</b>				
6 December	Exam Style Practice Paper 4	195 - 196	Q 2,7,8	
29 November	Cobweb & Staircase Diagrams	186 - 189	<i>Exercise 10D</i> Q 9, 7	Q6
	Exam Style Practice Paper 4	195 - 196	Q 1 - 6	
22 November	Sequences	170 - 177	<i>Exercise 10A</i> Q 6, 7 <i>Exercise 10B</i> Q 3	
	Roots of Equations	178 - 183	<i>Exercise 10C</i> Q 2, 7, 8	
15 November	Integration - Trigonometry and fractions	150 -160	<i>Exercise 9C</i> Q 1(b) 2(b),(c),(d) 4(b),(e),(f) <i>Exercise 9D</i> Q 1(b),(g),(h) 5(b),(e) <i>Exercise 9E</i> Q 2(a),(c),(e)	<i>Mixed Exercises</i> Page 166 Q 3, 4, 5, 6
	Volumes of revolution	161 - 164		

			<i>Exercise 9F Q 1(a),(c), 4</i>	
8 November	Exponentials & Logs	141 - 144	<i>Exercise 8D Q1 - 4</i>	
	Integration	146 - 149	<i>Exercise 9A Q 1 - 5</i> <i>Exercise 9B Q 6, 7</i>	
1 November	sec, cosec & cot	72 -82	<i>Exercise 5C Q 13, 16</i>	
	Exponentials & Logs	132 - 140	<i>Exercise 8A</i> Q 5(a), 6(d). 7(d), 8(a),(e), 4 <i>Exercise 8B Q 5, 6</i> <i>Exercise 8C Q 5, 7</i>	
18 October	Trigonometry	46 - 48	<i>Exercise 3D Q 1, 4</i>	<i>Exercise 3D Q 2, 5</i>
	Lines	52 - 60	<i>Exercise 4A Q 1(c), (d)</i> <i>Exercise 4B Q 1(a), 2 (a), 5</i> <i>Exercise 4C Q 1, 2</i>	<i>Mixed Exercise</i> <i>P 68 Q 2</i>
	Circles	61 - 67	<i>Exercise 4D Q 1, 2, 3</i> <i>Exercise 4E Q 1</i> <i>Exercise 4F Q 1</i>	

11 October	Trigonometry  See <b>table</b>	34 - 38  38 - 41  43 - 44	<i>Exercise 3A</i> Q1(a),(e), 2(a),(e), 4  <i>Exercise 3B</i> Q 2, 3, 4, 9  <i>Exercise 3C</i> Q 3, 4, 5, 10, 12, 1	
4 October	Synthetic Division  Remainder Theorem  Partial Fractions	<b>Handout</b>  23 -27  27 - 31	<i>Exercise 2D</i> Q1(c)(d)(e)(f),(h) (j)  <i>Exercise 2E</i> Q1(a),(d),(e), 2(c),(e), 3, 8  <i>Exercise 2F</i> Q1, 4, 5, 10, 13	<i>Exercise 2F</i> Q1, 4, 5, 10, 13
20 September	Binomial Theorem  Rational Expressions	8 - 14  15 - 20	<i>Exercise 1C</i> Q1(a),(c),(g),(h) Q4(c) Q7  <i>Exercise 2A</i> Q2,6 <i>Exercise 2B</i> Q1,4 <i>Exercise 2C</i>	Find $(1/2)!$ on the internet

			Q1 (a),(c),(e)	
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*Steve Mayer*

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