

## Prof. Mathgic 頂尖數學速效技巧課程目錄 Prof. Mathgic Course Content

只需選擇課程難度及課題編號，電郵至 [drmathematician@gmail.com](mailto:drmathematician@gmail.com)，或 WhatsApp 至 61253120，收到報名後會給您 2 個上課時間選擇，如可以便付費留位。

Just select the course difficulty and topic number, email to [drmathematician@gmail.com](mailto:drmathematician@gmail.com), or WhatsApp to 61253120, and we will give you two options for the class time after receiving the registration. You have pay to reserve a place.

如您不清楚是哪個課題，可拍/寫/形容該課題或題目給我們。

If you are not sure which topic it is, you can shoot/write/describe the topic or topic to us.

### 課程難度 Difficulty

基礎 Basic

進階 Advanced

課程及課題（寫出課題編號，如選擇 HKDSE 數學 M1（中文版）中的「二項展式」，基礎難度，電郵或 WhatsApp 時需填寫“115 基礎”）

Curriculum and topics (Write down the topic number, e.g. If you choose advanced level of “Binomial expansion” in HKDSE Math. M1(English version), you should write down “101advanced” in the email or WhatsApp)

HKDSE Math. M1 (English version)	HKDSE 數學 M1 (中文版)
101. Binomial expansion	115. 二項展式
102. Exponential functions and logarithmic functions	116. 指數函數與對數函數
103. Limits and derivatives	117. 極限與導數
104. Differentiation	118. 微分法
105. Applications of differentiation	119. 微分法的應用
106. Indefinite integration and its applications	120. 不定積分法及其應用
107. Definite integration and its applications	121. 定積分法及其應用
108. Estimate definite integrals by trapezoidal rule	122. 梯形法則
109. Further probability	123. 進階概率
110. Discrete probability distributions	124. 離散概率分佈
111. Some discrete probability distributions	125. 一些特殊的離散概率分佈
112. Normal distribution and its applications	126. 正態分佈及其應用
113. Point and interval estimation	127. 點及區間估計
114. Exam-based Integrated Training	128. 公開考試綜合訓練
HKDSE Math. M2 (English version)	HKDSE 數學 M2 (中文版)
201. Surds	221. 根式
202. Mathematical induction	222. 數學歸納法
203. Binomial theorem	223. 二項式定理
204. More about trigonometric functions (I)	224. 續三角函數(一)
205. More about trigonometric functions (II)	225. 續三角函數(二)
206. Introduction to number $e$ and natural logarithms	226. $e$ 及自然對數的簡介
207. Limits and derivatives	227. 極限與導數
208. Differentiation (I)	228. 微分法(一)
209. Differentiation (II)	229. 微分法(二)
210. Applications of differentiation	230. 微分法的應用
211. Indefinite integration (I)	231. 不定積分法(一)
212. Indefinite integration (II)	232. 不定積分法(二)
213. Definite integration	233. 定積分法
214. Applications of definite integration	234. 定積分法的應用
215. Matrices	235. 矩陣
216. Determinants and inverses of square matrices	236. 行列式與方陣的逆矩陣
217. System of linear equations	237. 線性方程組
218. Introduction to vectors	238. 向量簡介
219. Scalar Products and vector products with applications	239. 純量積與向量積及其應用
220. Exam-based Integrated Training	240. 公開考試綜合訓練
HKDSE Math. senior form compulsory part (English version)	HKDSE 高中數學必修部分 (中文版)
301. Quadratic equations in one unknown (I)	330. 一元二次方程(一)
302. Quadratic equations in one unknown (II)	331. 一元二次方程(二)
303. Functions and graphs	332. 函數及其圖像
304. Exponential functions	333. 指數函數

- 305. Logarithmic functions
- 306. Equations of straight lines
- 307. More about polynomials (I)
- 308. More about polynomials (II)
- 309. Simultaneous equations, one linear and one quadratic
- 310. More about trigonometry
- 311. Applications of trigonometry in 2-dimensional problems
- 312. Variations
- 313. More about quadratic equations
- 314. Basic properties of circles
- 315. Tangents to circles
- 316. Locus
- 317. Equations of circles
- 318. Inequalities
- 319. Linear programming
- 320. More about graphs of functions
- 321. Permutation and combination
- 322. More about probability
- 323. Arithmetic and geometric sequences
- 324. Summation of arithmetic and geometric sequences
- 325. Applications of trigonometry in 3-dimensional problems
- 326. Measures of dispersion
- 327. Uses and abuses of statistics
- 328. Exam-based Integrated Training (Paper 1)
- 329. Exam-based Integrated Training (Paper 2)

- 334. 對數函數
- 335. 直線的方程
- 336. 續多項式(一)
- 337. 續多項式(二)
- 338. 一次及二次的聯立方程
- 339. 續三角
- 340. 三角學的應用:二維空間
- 341. 變分
- 342. 續二次方程
- 343. 圓的基本性質
- 344. 圓的切線
- 345. 軌跡
- 346. 圓的方程
- 347. 不等式
- 348. 線性規畫
- 349. 續函數圖像
- 350. 排列與組合
- 351. 續概率
- 352. 等差數列和等比數列
- 353. 等差數列和等比數列的求和法
- 354. 三角學的應用:三維空間
- 355. 離差的量度
- 356. 統計的應用及誤用
- 357. 公開考試綜合訓練(卷一)
- 358. 公開考試綜合訓練(卷二)

Junior secondary Math. (English version)

初中數學(中文版)

- 401. Directed numbers and the number line
- 402. Introduction to algebra
- 403. Algebraic equations in one unknown
- 404. Percentages (I)
- 405. Estimation in numbers and measurement
- 406. Introduction to geometry
- 407. Symmetry and transformation
- 408. Areas and volumes (I)
- 409. Congruence and similarity
- 410. Introduction to coordinates
- 411. Angles related to lines
- 412. Manipulation of simple polynomials
- 413. Introduction to various stages of statistics
- 414. Simple statistical diagrams and graphs (I)
- 415. Rate and ratio
- 416. Identities and factorization
- 417. Algebraic fractions and formulas
- 418. More about factorization of polynomials
- 419. Approximation and errors
- 420. Angles related to rectilinear figures
- 421. Simple statistical diagrams and graphs (II)
- 422. Linear equations in two unknowns
- 423. Laws of integral indices
- 424. Introduction to deductive geometry
- 425. Rational and irrational numbers
- 426. Pythagoras' theorem
- 427. Areas and volumes (II)
- 428. Trigonometric ratios
- 429. Linear inequalities in one unknown
- 430. Percentages (II)
- 431. Special lines and centres in a triangle
- 432. Quadrilaterals
- 433. More about 3-D figures

- 440. 有向數及數線
- 441. 代數簡介
- 442. 一元代數方程
- 443. 百分法(一)
- 444. 數值與度量的估算
- 445. 幾何簡介
- 446. 對稱及變換
- 447. 面積和體積(一)
- 448. 全等及相似
- 449. 坐標簡介
- 450. 與線相關的角
- 451. 簡易多項式的運算
- 452. 統計工作簡介
- 453. 簡單的統計圖表和圖像(一)
- 454. 率及比
- 455. 恆等式及因式分解
- 456. 代數分式與公式
- 457. 續多項式的因式分解
- 458. 近似與誤差
- 459. 與直線圖形相關的角
- 460. 簡單的統計圖表和圖像(二)
- 461. 二元一次方程
- 462. 整數指數律
- 463. 演繹幾何簡介
- 464. 有理數及無理數
- 465. 畢氏定理
- 466. 面積和體積(二)
- 467. 三角比
- 468. 一元一次不等式
- 469. 百分法(二)
- 470. 三角形的一些特殊的線和中心
- 471. 四邊形
- 472. 續立體圖形

434. Measures of central tendency 435. Areas and volumes (III) 436. Coordinate geometry of straight lines 437. Trigonometric relations 438. Applications of trigonometry 439. Introduction to probability	473. 集中趨勢的度量 474. 面積和體積(三) 475. 直線的坐標幾何 476. 三角比的關係 477. 三角的應用 478. 概率簡介
AP Calculus	AP Statistics
501. Functions (AB) 502. Functions (BC) 503. Limits and continuity 504. Differentiation (AB) 505. Differentiation (BC) 506. Applications of differential calculus (AB) 507. Applications of differential calculus (BC) 508. Antidifferentiation (AB) 509. Antidifferentiation (BC) 510. Definite integrals 511. Applications of integration to geometry (AB) 512. Applications of integration to geometry (BC) 513. Further applications of integration (AB) 514. Further applications of integration (BC) 515. Differential equations (AB) 516. Differential equations (BC) 517. Sequences and series (BC) 518. Exam-based Integrated Training (AB Multiple Choice) 519. Exam-based Integrated Training (AB Free Response) 520. Exam-based Integrated Training (BC Multiple Choice) 521. Exam-based Integrated Training (BC Free Response)	551. Graphical displays 552. Summarizing distributions 553. Exploring bivariate data 554. Exploring categorical data: Two-way tables 555. Planning and conducting surveys 556. Planning and conducting experiments 557. Probability as relative frequency 558. Combining and transforming random variables 559. The normal distribution 560. Sampling distributions 561. Confidence intervals 562. Tests of significance-Proportions and Means 563. Tests of significance-Chi-square and slope of least squares line 564. Exam-based Integrated Training (Multiple Choice) 565. Exam-based Integrated Training (Free Response)
IAL P1	IAL P2
601. Algebraic expressions 602. Quadratics 603. Equations and inequalities 604. Graphs and transformations 605. Straight line graphs 606. Trigonometric ratios 607. Radians 608. Differentiation 609. Integration 610. Exam-based Integrated Training	611. Algebraic methods 612. Coordinates geometry in the (x,y) plane 613. Exponentials and logarithms 614. The binomial expansion 615. Sequences and series 616. Trigonometric identities and equations 617. Differentiation 618. Integration 619. Exam-based Integrated Training
IAL P3	IAL P4
621. Algebraic methods 622. Functions and graphs 623. Trigonometric functions 624. Trigonometric addition formulae 625. Exponentials and logarithms 626. Differentiation 627. Integration 628. Numerical methods 629. Exam-based Integrated Training	631. Proof 632. Partial Fractions 633. Coordinate geometry in the (x,y) plane 634. Binomial expansion 635. Differentiation 636. Integration 637. Vectors 638. Exam-based Integrated Training
IAL FP1	IAL FP2
641. Complex numbers 642. Numerical solutions of equations 643. Coordinate systems 644. Matrix algebra 645. Series 646. Proof by mathematical induction 647. Exam-based Integrated Training	651. Inequalities 652. Series 653. Further complex numbers 654. First order differential equations 655. Second order differential equations 656. Maclaurin and Taylor series 657. Polar coordinates 658. Exam-based Integrated Training
IAL FP3	IAL S1
661. Hyperbolic functions 662. Further coordinate systems 663. Differentiation 664. Integration 665. Vectors 666. Further matrix algebra 667. Exam-based Integrated Training	671. Mathematical modelling 672. Measures of location and spread 673. Representations of data 674. Probability 675. Correlation and regression 676. Discrete random variables 677. The normal distribution

	<b>678. Exam-based Integrated Training</b>
<b>IAL S2</b>	<b>IAL S3</b>
681. Binomial distributions 682. Poisson distributions 683. Approximations 684. Continuous random variables 685. Continuous uniform distribution 686. Sampling and sampling distributions 687. Hypothesis testing 688. Exam-based Integrated Training	691. Sampling 692. Combinations of random variables 693. Estimators and confidence intervals 694. Central limit theorem and testing the mean 695. Correlation 696. Goodness of fit and contingency tables 697. Exam-based Integrated Training
<b>IAL M1</b>	<b>IAL M2</b>
701. Kinematics of a particle moving in a straight line 702. Dynamics of a particle moving in a straight line 703. Statics of a particle 704. Moments 705. Vectors 706. Exam-based Integrated Training	711. Projectiles 712. Variable acceleration 713. Centres of mass 714. Work and energy 715. Impulses and collisions 716. Statics of rigid bodies 717. Exam-based Integrated Training
<b>IAL M3</b>	<b>IAL D1</b>
721. Kinematics 722. Elastic strings and springs 723. Dynamics 724. Circular motion 725. Further centres of mass 726. Statics of rigid bodies 727. Exam-based Integrated Training	731. Algorithms 732. Graphs and networks 733. Algorithms on graphs 734. Route inspection 735. The Travelling Salesman Problem 736. Critical path analysis 737. Linear programming 738. Exam-based Integrated Training
<b>IGCSE</b>	
<b>Number</b>	<b>Algebra and graphs</b>
801. Number and language 802. Accuracy 803. Calculations and order 804. Integers, fractions, decimals and percentages 805. Further percentages 806. Ratio and proportion 807. Indices and standard form 808. Money and finance 809. Time	811. Algebraic representation and manipulation 812. Algebraic indices 813. Equations and inequalities 814. Linear programming 815. Sequences 816. Variation 817. Graphs in practical situations 818. Graphs of functions 819. Functions
<b>Geometry</b>	<b>Mensuration</b>
821. Geometrical vocabulary 822. Geometrical constructions and scale drawings 823. Similarity 824. Symmetry 825. Angle properties 826. Loci	831. Measures 832. Perimeter, area and volume
<b>Coordinate geometry</b>	<b>Trigonometry</b>
841. Straight-line graphs	851. Bearings 852. Trigonometry 853. Further trigonometry
<b>Matrices and transformations</b>	<b>Probability</b>
861. Vectors 862. Matrices 863. Transformations	871. Probability 872. Further probability
<b>Statistics</b>	
881. Mean, median, mode and range 882. Collecting and displaying data 883. Cumulative frequency	891. Exam-based Integrated Training (Mathematics) 892. Exam-based Integrated Training (Additional Mathematics)
<b>SAT Subject Test Math. Level 1</b>	<b>SAT Subject Test Math. Level 2 (exclude the syllabus of Level 1)</b>
901. Algebra 902. Geometry 903. Basic trigonometry 904. Algebraic functions 905. Elementary statistics 906. Miscellaneous topics (logic, number theory, arithmetic, geometric sequences) 907. Exam-based Integrated Training	911. Algebra 912. Geometry 913. Trigonometry 914. Functions 915. Statistics 916. Miscellaneous topics (logic and proof, number theory, sequences, limits) 917. Exam-based Integrated Training