



黎 sir 教室 A Lai Learning Center

DSE-MAT-15-C2S

HKDSE / IB Diploma / GCE AS AL / AP / SAT / HSC
IGCSE / GCSE / IB MYP / KS3 / MO / F.1 - F.6 / Y9 - Y13

2015 HKDSE Mathematics Core Paper 2 Suggested Solutions

Prepared by Andy Lai

HKDSE 5☆☆ Mathematics Teacher
(100% M.C. Right!)

MC 係分 ABC Grade 既地方,
越出越煩, 越出越深,
同學一定要快又要好小心!



We deliver quality education.

We teach with hearts!

2015 HKDSE Mathematics Paper 2 Suggested Answers

1.	D	2.	D	3.	A	4.	D	5.	B
6.	A	7.	A	8.	D	9.	B	10.	D
11.	C	12.	D	13.	B	14.	C	15.	C
16.	B	17.	D	18.	A	19.	C	20.	C
21.	B	22.	A	23.	C	24.	A	25.	B
26.	C	27.	A	28.	B	29.	A	30.	B
31.	C	32.	A	33.	A	34.	B	35.	C
36.	D	37.	D	38.	B	39.	D	40.	C
41.	B	42.	A	43.	C	44.	D	45.	B

MC 係分 ABC Grade 既地方,
越出越煩, 越出越難! 轉數快, 概念清!
缺一不可! 同學一定要快又要好小心!

Andy's predicted M.C. Grade boundaries:

5:** 43 / 45 **5*:** 40 / 45 **5:** 38 / 45

4: 34 / 46 **3:** 30 / 45 **2:** 26 / 45



Section A		
1.	D	黎 Sir 提提你 : $(x+1)(x^2+x+1) = x^3 + x^2 + x + x^2 + x + 1 = x^3 + 2x^2 + 2x + 1$
2.	D	黎 Sir 提提你 : $\frac{(3y^6)^4}{3y^2} = \frac{3^4 y^{24}}{3y^2} = 27y^{22}$
3.	A	黎 Sir 提提你 : 1. Method 1: Elimination of Simultaneous equation in two unknowns $\begin{cases} p+3q=4 \\ 5p+9q=2 \end{cases} \Rightarrow \begin{cases} 5p+15q=20 \\ 5p+9q=2 \end{cases} \Rightarrow 6q=18 \Rightarrow q=3$ $p+3(3)=4 \Rightarrow p=-5$ 2. Method 2: Program in calculator! $p=-5$ and $q=3$
4.	D	黎 Sir 提提你 : $0.0023456789 = 0.00235$ (correct to 5 decimal places) $0.0023456789 = 0.002346$ (correct to 6 decimal places) $0.0023456789 = 0.00234568$ (correct to 6 significant figures) - Therefore, the answer is D

5.	B	黎 Sir 提提你 : • $x^2 + mx + n \equiv (x + 4)(x - m) + 6$ • $x^2 + mx + n \equiv x^2 + (4 - m)x + 6 - 4m$ • Comparing coefficients and constants on both sides gives • $4 - m = m$ and $6 - 4m = n \Rightarrow m = 2$ and $n = -2$
----	---	--

6.	A	黎 Sir 提提你 : • $18 + 7x > 4$ or $5 - 2x < 3$ • $x > \frac{-14}{7}$ or $x > \frac{-2}{-2}$ • $x > -2$ or $x > 1$ • Therefore, $x > -2$
----	---	--

7.	A	黎 Sir 提提你 : • $4x^2 - 5x - 1 = 0$ and β is the root of the equation. • Therefore, $4\beta^2 - 5\beta - 1 = 0 \Rightarrow 8\beta^2 - 10\beta - 2 = 0 \Rightarrow 7 + 10\beta - 8\beta^2 = 5$
----	---	--

8.	D	黎 Sir 提提你 : ● $y = a(x+b)^2 \Rightarrow$ Vertex form: $y = a[x - (-b)]^2 + 0 \Rightarrow$ Min Point: $(-b, 0)$ ● From the graph, $-b < 0 \Rightarrow b > 0$. ● From the graph, the parabola's opening is upward $\Rightarrow a > 0$ ● Therefore, $a > 0$ and $b > 0$
9.	B	黎 Sir 提提你 : ● $1.7 \times (1 - 0.6) = 0.68$ ● $0.68 - 1 = -0.32 = -32\%$ ● Therefore, percentage change = -32%
10.	D	黎 Sir 提提你 : ● $50000(1 + \frac{6\%}{4})^{3 \times 4} = 59,780.9 = 59781$ (correct to the nearest dollar)
11.	C	黎 Sir 提提你 : ● $a : c = 5 : 3$ $b : c = 3 : 2$ $a : b : c = 10 : 9 : 6$ ● Let $a = 10k$, $b = 9k$ and $c = 6k \Rightarrow (a+c):(b+c) = 16k:15k = 16:15$

12.	D	黎 Sir 提提你 : $z = kx^3y^2 \Rightarrow 14 = k(2)^3(1)^2 \Rightarrow k = \frac{7}{4}$ $z = \frac{7}{4}3^3(-2)^2 = 189$
-----	---	--

13.	B	黎 Sir 提提你 : 1st Term: 5 dots, 2nd Term: 9 dots, 3rd Term: 13 dots, etc.. 4th Term = 13 + 4 = 17 dots, 5th Term = 17 + 4 = 21 dots - Therefore, 6th Term = 21 + 4 = 25 dots.
-----	---	---

14.	C	黎 Sir 提提你 : - Upper limit of the weight of the white sugar in the bad = $5 + \frac{1}{2} = 5.5$ kg - Lower limited of the weight of white sugar in each packet = $10 - \frac{1}{2} = 9.5$ g $n \leq \frac{5500}{0.5} = 578.9 \Rightarrow$ The greatest possible value of n = 578
-----	---	---

15.	C	黎 Sir 提提你 : - By Pyth. Theorem, $AN = \sqrt{13^2 - 5^2} = 12$ and $CN = \sqrt{10^2 - 6^2} = 8$ - Since $AC^2 = AB^2 + BC^2$ and $AB = \sqrt{20^2 - 16^2} = 12$ - Therefore, Area of $\triangle ABC = \frac{1}{2}(12)(16) = 96 \text{ cm}^2$
-----	---	--

16. B

黎 Sir 提提你 :

- Similar figures $\Rightarrow \frac{V_1}{V_2} = \left(\frac{l_1}{l_2}\right)^3 \Rightarrow \frac{V_1}{V_2} = \left(\frac{12}{4}\right)^3 \Rightarrow \frac{V_1}{V_2} = \frac{27}{1}$
- Volume of the Biggest circular cone = $\frac{1}{3}(\pi)(9)^2(12) = 324\pi$
- Volume of the upper smaller circular cone = $\frac{324\pi}{27} = 12\pi$
- Therefore, the volume of the frustum = $324\pi - 12\pi = 312\pi \text{ cm}^3$

17. D

黎 Sir 提提你 :

- Given $DE : EC = 2 : 3 \Rightarrow \text{Area of } \triangle ADE : \text{Area of } \triangle BEC = 2a : 3a$
(Same height $\Rightarrow$ Base ratio = Area ratio)
- $\triangle DEF \sim \triangle CEB$ (AAA) $\Rightarrow \frac{8}{3a} = \left(\frac{2}{3}\right)^2 \Rightarrow a = 6$
- $\triangle AEF \sim \triangle GEB$ (AAA) $\Rightarrow \frac{8+2a}{3a+X} = \left(\frac{2}{3}\right)^2 \Rightarrow X = 27 \text{ cm}^2$

- Do you know how to calculate the area of $\triangle ABE$? 30 cm^2 Why?

18.	A	黎 Sir 提提你 : $\frac{AD}{AC} = \cos \alpha$ and $\frac{AC}{AB} = \tan \beta$ - Therefore, $\frac{AD}{AC} \times \frac{AC}{AB} = \cos \alpha \tan \beta$
-----	---	---

19.	C	黎 Sir 提提你 : $\begin{aligned} & \frac{\cos 180^\circ}{1 + \sin(90^\circ + \theta)} + \frac{\cos 360^\circ}{1 + \sin(270^\circ + \theta)} \\ &= \frac{-1}{1 + \cos \theta} + \frac{1}{1 - \cos \theta} \\ &= \frac{-(1 - \cos \theta) + (1 + \cos \theta)}{(1 + \cos \theta)(1 - \cos \theta)} \\ &= \frac{2 \cos \theta}{1 - \cos^2 \theta} \\ &= \frac{2 \cos \theta}{\sin^2 \theta} \end{aligned}$
-----	---	--

20.	C	黎 Sir 提提你 : $\angle ABD = \angle ACD = 90^\circ$ (Angle in semi circle) $BC = CD \Rightarrow \angle BAC = \angle DAC$ (Equal chord, Equal angle) $\Rightarrow \angle BAC = \frac{58^\circ}{2} = 29^\circ$ $\angle BCA = 180 - 58^\circ - 90^\circ = 32^\circ$ (opp angles, cyclic quadrilateral) $\angle CBD = \frac{180^\circ - 90^\circ - 32^\circ}{2} = 29^\circ$ - Therefore, $\angle AEC = 180 - 29^\circ - 90^\circ = 61^\circ$
-----	---	--

21.	B	黎 Sir 提提你 : Area of $\triangle AEB = \frac{1}{2} \left(\frac{24}{2} \right) \left(\frac{24}{2} \right) \sin 90^\circ = 72 \text{ cm}^2$
-----	---	--

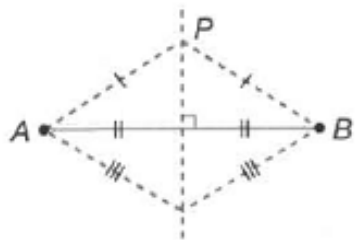
22.	A	黎 Sir 提提你 : $\frac{(n-2)(180^\circ)}{n} = 5 \left(\frac{360^\circ}{n} \right) \Rightarrow n = 12$ - Therefore, each interior angle of the polygon = $\frac{(12-2)(180^\circ)}{12} = 150^\circ$ - The number of diagonals of the polygon = $C_2^{12} - 12 = 54$ - The number of folds of rotational symmetry of the polygon is 12.
-----	---	--

23.	C	黎 Sir 提提你 : - Reflection about y-axis $\Rightarrow$ No change in y-coordinate - Reflection about y-axis $\Rightarrow$ Negative value of the x-coordinate - The rectangular coordinates of its image is $(-\sqrt{3}, -1)$ - By $\tan \theta = \frac{1}{\sqrt{3}} \Rightarrow \tan \theta = \frac{1}{\sqrt{3}} \Rightarrow \theta = 30^\circ$ and $r = \sqrt{1+3} = 2$ - Therefore, polar coordinates of its image is $(2, 210^\circ)$
-----	---	--

24. A

黎 Sir 提提你 :

- A moving point P is always equidistant from two points A and B.
- The locus of P is perpendicular bisector of AB.

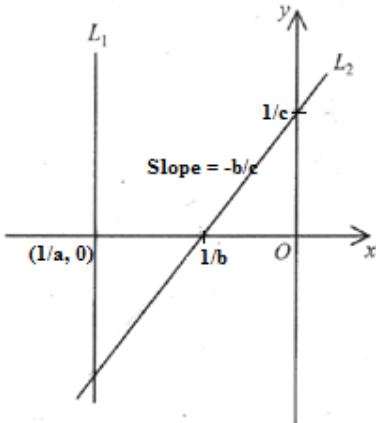


Locus of P: Perpendicular bisector of AB

25. B

黎 Sir 提提你 :

- $ax = 1 \Rightarrow x = \frac{1}{a} \Rightarrow \frac{1}{a} < 0 \Rightarrow a < 0$
- $bx + cy = 1 \Rightarrow y = -\frac{b}{c}x + \frac{1}{c} \Rightarrow -\frac{b}{c} > 0 \text{ and } \frac{1}{c} > 0 \Rightarrow c > 0 \text{ and } b < 0$
- $\frac{1}{a} < \frac{1}{b} < 0 \Rightarrow b < a < 0$
- Label the diagram below:



26.	C	黎 Sir 提提你 : - Standard form of circle: $(x-h)^2 + (y-k)^2 = r^2$ - Coordinates of the center of circle: (h,k) and radius = r $(x - (-4))^2 + (y - 3)^2 = (-4 - 0)^2 + (3 - 3)^2$ $\Rightarrow (x + 4)^2 + (y - 3)^2 = 16$ $\Rightarrow x^2 + 8x + 16 + y^2 - 6y + 9 = 16$ $\Rightarrow x^2 + 8x + y^2 - 6y + 9 = 0$
-----	---	--

27.	A	黎 Sir 提提你 : Expected value = $\frac{6}{36} \times 36 + \frac{30}{36} \times 6 = \\11
-----	---	--

28.	B	黎 Sir 提提你 : $\frac{8}{12+16+8+4+4} = \frac{8}{44} = \frac{2}{11}$
-----	---	--

29.	A	黎 Sir 提提你 : Inter-quartile range = 75%th datum – 25%th datum = $45 - 25 = 20$
-----	---	--

30.	B	黎 Sir 提提你 : ● Total numbers of data = 15 $\Rightarrow$ The median = 8th datum = q ● $3 \leq m \leq 5 \Rightarrow$ q may be 3, 4, 5 ● Mode = r = 3 ● $p = \frac{2+2+3+3+3+3+3+m+5+5+6+8+8+9+10}{15} \Rightarrow p = \frac{70+m}{15}$ ● If m = 3 $\Rightarrow$ q = 3 $\Rightarrow p = \frac{73}{15} = 4.866... > q = r$ ● If m = 4 $\Rightarrow$ q = 4 $\Rightarrow p = \frac{74}{15} = 4.933... > q > r$ ● If m = 5 $\Rightarrow$ q = 5 $\Rightarrow p = \frac{75}{15} = 5 = q > r$. ● Therefore, Only p > r must be true.
-----	---	---

31.	C	黎 Sir 提提你 : ● $\frac{1}{x^2 - 2x + 1} - \frac{1}{x^2 + x - 2} = \frac{1}{(x-1)^2} - \frac{1}{(x+2)(x-1)} = \frac{x+2-(x-1)}{(x+2)(x-1)^2} = \frac{3}{(x+2)(x-1)^2}$
-----	---	--

32.	A	黎 Sir 提提你 : By slope-intercept form: $\log_3 y = (-\frac{2}{3})\log_3 x + 2$ $\Rightarrow \log_3 y = (-\frac{2}{3})\log_3 x + 2 \Rightarrow \log_3 y = \log_3 x^{-\frac{2}{3}} + 2 \Rightarrow \log_3 y - \log_3 x^{-\frac{2}{3}} = 2$ $\Rightarrow \log_3 \frac{y}{x^{-\frac{2}{3}}} = 2 \Rightarrow \log_3 (yx^{\frac{2}{3}}) = 2 \Rightarrow yx^{\frac{2}{3}} = 3^2 \Rightarrow y^3 x^2 = 9^3 \Rightarrow x^2 y^3 = 729$
-----	---	--

33.	A	黎 Sir 提提你 : $11 + 2^6 + 2^{11} + 2^{11} = 2^0 + 2^1 + 2^3 + 2^6 + 2^{10} + 2^{11} = 110001001011_2$
-----	---	--

34.	B	黎 Sir 提提你 : $x^2 + kx - 2 = 0$ and roots are α and $\beta \Rightarrow \alpha + \beta = -k$ and $\alpha\beta = -2$ $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = (-k)^2 - 2(-2) = k^2 + 4$
-----	---	--

35.	C	黎 Sir 提提你 : $z = (a+5)i^6 + (a-3)i^7 \Rightarrow z = (a+5)i^2 + (a-3)i^3$ ($i^{4n} = 1$ for all integer n) $z = (a+5)(-1) + (a-3)(-i) = -a+5 - (a-3)i$ - Since z is a real number $\Rightarrow -(a-3) = 0 \Rightarrow a = 3$
-----	---	---

36.	D	黎 Sir 提提你 : - To solve graphical inequalities: Substitute some points co-ordinates in the shaded region. - To coordinates of the 3 vertex of shaded region: (4,9), (4,3) and (0, 10/3) - Therefore, for convenience, substitute (a, b) be (3, 7) into 3 equations. - The results follows.
-----	---	---

37.	D	黎 Sir 提提你 : $x_6 = 216$ and $x_8 = 96 \Rightarrow ar^5 = 216$ and $ar^7 = 96$ $\Rightarrow r = \frac{2}{3}$ and $a = \frac{6561}{4}$ or $r = -\frac{2}{3}$ and $a = -\frac{6561}{4}$ $x_3 = \frac{6561}{4}(\frac{2}{3})^2 = 729$ or $x_3 = -\frac{6561}{4}(-\frac{2}{3})^2 = -729$ $\frac{x_5}{x_7} = \frac{ar^4}{ar^6} = \frac{1}{r^2} = \frac{1}{(\frac{2}{3})^2} = \frac{9}{4} > 1$ or $\frac{x_5}{x_7} = \frac{ar^4}{ar^6} = \frac{1}{r^2} = \frac{1}{(-\frac{2}{3})^2} = \frac{9}{4} > 1$ $x_2 + x_4 + x_6 + \dots + x_{2n} = ar + ar^3 + ar^5 + \dots + ar^{2n-1} = a(r + r^3 + r^5 + \dots + r^{2n-1})$ $< \frac{a(r)}{1-r^2} = \frac{\frac{6561}{4}(\frac{2}{3})}{1-(\frac{2}{3})^2} = \frac{2187}{\frac{5}{9}} = 1968.3 < 2015$
-----	---	---

38.	B	黎 Sir 提提你 : $\cos^2 x - \sin x = 1$ for $0^\circ \leq x < 360^\circ$ $\Rightarrow 1 - \sin^2 x - \sin x = 1$ $\Rightarrow \sin x(1 - \sin x) = 0$ $\Rightarrow \sin x = 0 \text{ or } \sin x = 1$ $\Rightarrow x = 0^\circ \text{ or } x = 180^\circ \text{ or } x = 90^\circ \text{ for } 0^\circ \leq x < 360^\circ$ - Therefore, there are only 3 solutions.
-----	---	--

39.	D	黎 Sir 提提你 : $0.5T = 165 - 75 = 90^\circ \Rightarrow T = 180^\circ = \frac{360^\circ}{2} \Rightarrow k = 2$ - The sine curve is shift to the left by $15^\circ \Rightarrow k(x^\circ + \frac{\theta}{k}) \Rightarrow \frac{\theta}{k} = 15^\circ \Rightarrow \theta = 30^\circ$
-----	---	---

40.	C	黎 Sir 提提你 : - By Pyth. Theorem, $BE = \sqrt{10^2 - 6^2} = 8 \text{ cm}$ $AC = AB$ (Tangent properties) $CE = 10 - 6 = 4$ and $EE = 8 - 2r$ where r is the radius of the circle - By Pyth. Theorem, $4^2 = (8 - r)^2 - r^2 \Rightarrow 16 = 64 - 16r + r^2 - r^2$ $\Rightarrow 16r = 48 \Rightarrow r = \frac{48}{16} \Rightarrow r = 3$ - Therefore, the diameter $BD = 6 \text{ cm}$
-----	---	--

41.	B	黎 Sir 提提你 : Method 1: Discriminant = 0 $\begin{cases} x^2 + y^2 + 2x - 6y + k = 0 \\ x + y + 4 = 0 \end{cases} \Rightarrow x^2 + (-x-4)^2 + 2x - 6(-x-4) + k = 0$ $\Rightarrow 2x^2 + 16x + 40 + k = 0$ $\Rightarrow \Delta = 0 \text{ (Only 1 repeated solution!)}$ $\Rightarrow 16^2 - 4(2)(40 + k) = 0$ $\Rightarrow 256 - 320 - 8k = 0$ $\Rightarrow k = -8$ Method 2: Calculator program (Problem solved within 1 minute!)
-----	---	--

42.	A	黎 Sir 提提你 : Method 1: Draw diagram in scale (Problem solved within 1 minute!) Method 2: Calculator program (Problem solved within 10 seconds!!!)
-----	---	---

43.	C	黎 Sir 提提你 : $P_8^8 - 7 \times 2 \times P_6^6 = 40320 - 10080 = 30240$
-----	---	--

44.	D	黎 Sir 提提你 : By drawing a tree diagram $\Rightarrow \frac{1}{2} \times \frac{4}{6} + \frac{1}{2} \times \frac{3}{4} = \frac{17}{24}$
-----	---	---

45.

B

黎 Sir 提提你 :

- $\frac{a_1 + a_2 + a_3 + \dots + a_{50}}{50} = x_1 \Rightarrow 50x_1 = a_1 + a_2 + a_3 + \dots + a_{50}$
- $\frac{a_{25} + a_{26}}{2} = y_1$ and $z_1 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (a_{50} - x_1)^2}{50}$
- $\frac{a_1 + a_2 + a_3 + \dots + a_{49}}{49} = x_2 \Rightarrow 49x_2 = a_1 + a_2 + a_3 + \dots + a_{49}$
- $a_{25} = y_2$ and $z_2 = \frac{(a_1 - x_2)^2 + (a_2 - x_2)^2 + (a_3 - x_2)^2 + \dots + (a_{49} - x_2)^2}{49}$
- If $x_1 = a_{50} \Rightarrow 50x_1 = 49x_2 + x_1 \Rightarrow x_1 = x_2$
- If $a_{25} = a_{26} \Rightarrow y_1 = y_2$ but if $a_{25} < a_{26} \Rightarrow y_1 < y_2 \Rightarrow y_1 \leq y_2$
- If $x_1 = a_{50} \Rightarrow z_1 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (x_1 - x_1)^2}{50}$
 $\Rightarrow z_1 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (a_{49} - x_1)^2}{50}$
- However, $z_2 = \frac{(a_1 - x_2)^2 + (a_2 - x_2)^2 + (a_3 - x_2)^2 + \dots + (a_{49} - x_2)^2}{49}$
 $\Rightarrow z_2 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (a_{49} - x_1)^2}{49}$
- Comparing $z_1 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (a_{49} - x_1)^2}{50}$ and
 $z_2 = \frac{(a_1 - x_1)^2 + (a_2 - x_1)^2 + (a_3 - x_1)^2 + \dots + (a_{49} - x_1)^2}{49} \Rightarrow$ Numerator is the same but denominator is smaller $\Rightarrow z_2 > z_1$

The end.



黎 sir 教室將於 2015 年 9 月
推出中六數學/物理/化學/經濟科精讀班
同學想奪星? 梗係要上由
黎 sir 教室 5**導師團隊教授既課堂啦!
集齊最少 3 位同學報名, 可以即時開班,
課題任選, 內容為你度身訂做!
詳情請致電 6772 3001 查詢.
或瀏覽本教室網址:

<http://www.andylai.hk/dseintensive.htm>



HKDSE 5★★★Teacher
Mathematics 5★★★
Economics 5★★★
Physics 5★★★
We are devoted to teaching!

HKDSE / IB Diploma / GCE AS AL / SAT / HSC / AP
IGCSE / GCSE / IBMYP / IMO / F1 - F6 / Y7 - Y13

Work hard, Play hard!
No pains, No gains!

- ◇ 畢業於香港中文大學電子工程學系，黎 sir 教室創辦人之一。
- ◇ 超過 15 年教授中學文憑 / IB Diploma / GCE / HSC / SAT / AP / GCSE / IGCSE / IB MYP 課程經驗。
- ◇ 與學生面對新制度的中學文憑試，黎 sir 親身上陣，以實力於物理科和經濟科奪取 5**，證明寶刀未老。
- ◇ 熟悉出題趨勢，教授考試取分技巧；鼓勵同學獨立思考，增強同學理解能力。
- ◇ 善用生活化例子講解，教法生動，增加學習趣味；深入淺出，明白學生學習上的困難和需要。
- ◇ 精心編制筆記，適合中文和英文中學學生就讀；精心編制練習和試題，協助同學盡快掌握答題技巧。
- ◇ 黎 sir 在中學和大學時代已是一名傑出學生，曾獲取的多項學業上和運動上的獎學金及獎項。
- ◇ 曾代表香港參加國際性運動比賽，取得優異成績，又讀得又玩得，絕不是死讀書的書呆子。
- ◇ 任教科目：所有數學科，物理科，化學科，生物科，經濟科，商業科。



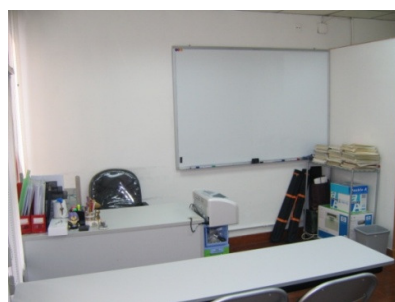
黎 sir 教室學生佳績: *Excellent Results*

- ◇ 首屆香港中學文憑 (HKDSE)，多位學生取得 5/5*/5** 級以上佳績。更有學生考獲 5 科 5** 級 2 科 5* 級 1 科 5 級 **優異成績**，在全港 72620 考生中，排名 28，入讀港大醫學院。
- ◇ 英國高考 (GCE AS/AL)，多位學生取得 A*/A 最高級別，更有學生考獲 5 科 A*。
- ◇ 國際文憑 (IB Diploma)，多位學生取得 6/7 級別，更有學生取得 44/45 總分。
- ◇ 英國會考 (IGCSE / GCSE)，多位學生取得 A/A* 成績，更有學生取得 8 科 A*。
- ◇ 加拿大大學預科 (CESI) 數學課程 MCV4U，取得 98/100, 99/100 成績。
- ◇ 學生成功拔尖 (EAS)，提早入讀港大理學院和中大法律學院。
- ◇ 香港中學會考 (HKCEE)，多位學生取得 20 分以上佳績。
- ◇ 保加利亞國際數學競賽 (BIMC 2013) 隊際賽金牌。
- ◇ 奧數華夏杯/港澳杯/華杯，多位學生取得特等獎/金獎/一等獎/全港第二名。
- ◇ 還有更多，恕不能盡錄，詳情請瀏覽以下網址: www.andylai.hk/result.htm



黎 sir 教室課程特色:

- ◇ 小組教學 (1-6 人)，導師親身教學；照顧每位學生需要，事半功倍。
- ◇ 精心編制筆記，練習以近 30 年本地和外國公開試題為藍本。
- ◇ 概念理解，取分技巧並重；協助同學盡快掌握答題技巧。
- ◇ 歡迎自由組合小組上課，時間及課程內容編排更有彈性。
- ◇ 詳情請瀏覽以下網址: www.andylai.hk





黎 sir 教室 A Lai Learning Center

HKDSE / IB Diploma / GCE AS AL / AP / SAT / HSC

IGCSE / GCSE / IB MYP / KS3 / MO / F.1 – F.6 / Y9 – Y13

資深中學補習導師 小組補習 事半功倍!!!

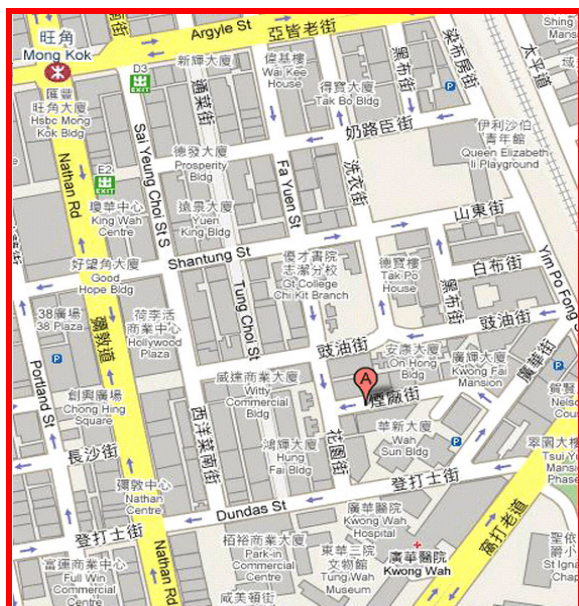
黎 sir 簡介 *Andy Lai* Beng CUHK, MIEEE

5★ ★★ Mathematics
★ ★★ Economics
★ ★★ Physics

- ◇ 畢業於香港中文大學，黎 sir 教室創辦人之一。
- ◇ 超過 16 年教授 中學文憑 / IB Diploma / GCE / HSC / SAT / AP / GCSE / IGCSE / IB MYP 課程經驗。
- ◇ 與學生面對新中學文憑試，黎 sir 親身上陣，於數學科，物理科和經濟科奪取 5**，證明寶刀未老。
- ◇ 現於黎 sir 教室任教補習班，學生就讀於英文中學，中文中學，國際學校及英國留學生。
- ◇ 熟悉近年出題趨勢，教授考試取分技巧；鼓勵同學獨立思考，增強同學理解能力
- ◇ 善用生活化例子講解，教法生動，增加學習趣味；深入淺出，明白學生學習上的困難和需要。
- ◇ 中英對照筆記，適合中文和英文中學學生就讀；精心編制練習和試題，協助同學盡快掌握答題技巧。
- ◇ 黎 sir 在中學和大學時代已是一名傑出學生，曾獲取多項學業上和運動上的獎學金及獎項；曾代表香港參加國際性運動比賽，取得優異成績，「又讀得又玩得」，絕不是死讀書的書呆子。
- ◇ 黎 sir 在就讀大學時曾於全球最大美資電腦公司任實習生超過一年，大學畢業後旋即於全港大型英資電腦公司，負責主理該公司所代理的全球大型美資電腦公司儲存系統銷售業務。
- ◇ 於短短半年內將該產品線銷售業績提升超過 50%。同時更被公司評選為"傑出表現員工 Outstanding Performer"，成功將書本上的知識靈活運用於工作上。
- ◇ 黎 sir 為了教學理想，毅然辭去工作，全身投入教學事業，希望將自己的一套學習方法教授學生

黎 sir 教室 課程特色

- ◇ 小組教學 (1 – 6 人)，導師親身教學；照顧每位學生需要，事半功倍。
- ◇ 精心編制筆記，練習以近 30 年本地和外國公開試題為藍本。
- ◇ 概念理解，取分技巧並重；協助同學盡快掌握答題技巧。
- ◇ 歡迎自由組合小組上課，時間及課程內容編排更有彈性。
- ◇ 時間及課程請瀏覽以下網址：www.andylai.hk



地鐵：旺角 E2 出口，油麻地 A2 出口

小巴：1, 1A, 2, 3C, 6, 6C, 6F, 9, 30X, 35A, 41A, 42A, 60X, 63X, 68X, 69X, 81S, 87D, 93K, 95, 104, 117, 203, 212, 230X, 234P, 234X, 238P, 238S, 259B, 270P, 281A

小巴：21K, 74, 74S



黎Sir教室 A Lai Learning Center

上課地址：香港九龍旺角煙廠街 9 號興發商業大廈 706 室。

查詢熱線：6772 3001

電郵地址：enquiry@andylai.hk

網址：www.andylai.hk