

第二屆全港小學數學挑戰賽(2015-2016)
The Second Annual Hong Kong Primary Mathematics Challenge (2015-2016)

決賽 (二零一六年四月二日)
Final (2nd April, 2016)

小四組 組別項目 試卷
Primary 4 Group Event Question Paper

參賽者須知 Instructions to Contestants

1. 在比賽過程中，參賽者必須將准考證放在桌上。
You should place your Admission Form on your desk for the whole session.
2. 於比賽期間必須關掉所有手提電話、通訊工具及其他響鬧裝置。
During the competition, you should switch off your mobile phone and any other electronic or communication devices that can emit sound.
3. 本項目以筆試形式舉行，須於限時 45 分鐘內完成所有題目。
Contestants should finish all questions in this 45-minutes written test.
4. 在答題紙上填寫學校名稱、參賽者姓名及班級、參賽者編號、座位編號。
Write your name, class, admission number, seat number and school name on the front cover of your answer sheet.
5. 參賽者於比賽時只准使用大會提供之草稿紙。
You can only use the rough work sheet provided by the organizer.
6. 參賽者不可於比賽中使用計算機。
The use of calculators is NOT allowed.
7. 每題只需把答案填寫在大會提供之答題紙上，否則不予評分。參賽者不需填寫計算步驟。
Put your answers on the answer sheet provided, otherwise, the answers will not be marked. You are not required to show the steps in your calculations.
8. 除非問題特別聲明，分數的答案須化至最簡。
Unless otherwise stated by the question, answers of fraction should be expressed in their simplest form.
9. 除特殊情況外，參賽者於本項目完結前不能提早交卷或離場。
Under normal circumstances, contestants are not allowed to leave the contest venue before the end of this session.
10. 違反比賽規則者有可能被取消參賽資格。
Any contestant who violates the rules and regulations of the competition might risk disqualification.
11. 參賽者如對比賽過程或試題內容有任何疑問或爭議，參賽者須於當天比賽結束後立即向大會提出，否則不予受理。大會保留是次比賽的所有最終決定權。
If you have any queries, you should contact the officer-in-charge immediately after the competition. Late queries will not be entertained. The decision of the organizing committee will be final.

時限：四十五分鐘
Time Allowed: 45 minutes

總分：400
Total marks: 400

1. 彼得在做乘數時把其中一個數 65 看錯成了 56，而計算出來的結果成為 2072。問原本正確答案應該是多少？ (13 分)

Peter was multiplying and mistakenly read one of the numbers 65 as 56, and the answer came out as 2072. What should the correct answer be? (13 marks)

2. 一個五位數，除以 13，餘數是 11，這個五位數最小的值是多少？ (15 分)

When a 5-digit number is divided by 13, the remainder is 11.

Find the least value of that 5-digit number. (15 marks)

3. 求 $\frac{2}{1 \times 3} + \frac{2}{3 \times 5} + \frac{2}{5 \times 7} + \dots + \frac{2}{19 \times 21}$ 的值。 (17 分)

Find the value of $\frac{2}{1 \times 3} + \frac{2}{3 \times 5} + \frac{2}{5 \times 7} + \dots + \frac{2}{19 \times 21}$. (17 marks)

4. 彼得重覆抄寫句子「I LOVE MATHEMATICS」，問他抄寫的第 100 個字母是什麼？ (18 分)

Peter wrote the sentence 'I LOVE MATHEMATICS' repeatedly, what is the 100th letter?

(18 marks)

5. 6 個工人 5 天可生產 285 件零件，那麼要在 3 天內生產 399 件零件需要多少個工人？ (20 分)

6 workers produce 285 components in 5 days. How many workers are required to produce 399 components in 3 days? (20 marks)

6. 求以下算式的值。 (20 分)

Find the value of the following expression. (20 marks)

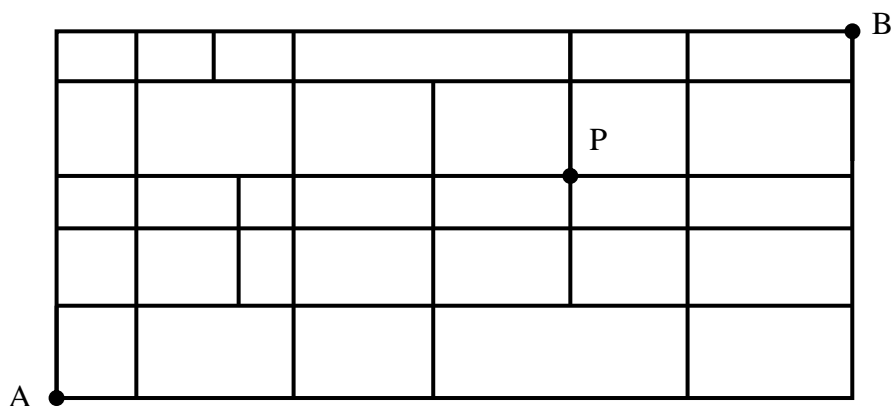
$$\frac{1}{1 + \frac{1}{1 - \frac{1}{1 + \frac{1}{1 - \frac{1}{4}}}}}$$

7. 根據以下規律，求 A 代表的值。 (22 分)
 According to the following pattern, find the value of A. (22 marks)
 1, 2, 5, 27, A, 538783, ...

8. 有四個不同的數字。任意兩數之積的結果如下：
 There are four different numbers. The products of any two numbers are as follows:
 4, 9, 16, 18, 32, 72
 由此，求這四個數字。 (24 分)
 Thus, find these four numbers. (24 marks)

9. 將 12 個長闊高分別為 5cm，8cm 和 12cm 的小長方體合併成一大長方體，大長方體面積最大是多少？ (25 分)
 A larger cuboid is formed by combining 12 smaller cuboids which dimensions are 5cm×8cm×12cm, what is the largest surface area of the larger cuboid?
 (25 marks)

10. 如圖所示，從 A 點出發到 B 點，每步只能向上或向右走，求其中必須經過 P 點的共有多少種走法？ (27 分)
 Refer to the following figure, if a person moves from point A to point B, he can move upwards or rightwards only. How many different ways are there that he must walk through point P?
 (27 marks)



11. 把 1、2、3、4、5、6 填入下列方格內，每個數字只能用一次。求 P 的最少值。

(27 分)

Put 1, 2, 3, 4, 5 and 6 into the following boxes, each digit can be used once only. Find the least value of P.

(27 marks)

$$P = \square \square \square \times \square \square \square$$

12. 求 $2016^{2016} \div 7$ 的餘數。

(30 分)

Find the remainder of $2016^{2016} \div 7$.

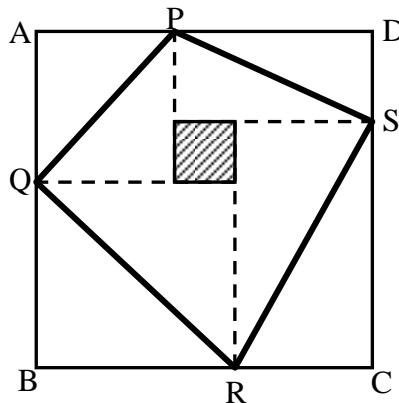
(30 marks)

13. 如圖所示，ABCD 是一邊長 36cm 的正方形，中間陰影部份是一個面積為 24cm^2 的小正方形。求圖中四邊形 PQRS 的面積。

(33 分)

In the figure, ABCD is a square with sides 36cm and the shaded part is a smaller square with area 24cm^2 . Find the area of the quadrilateral PQRS.

(33 marks)



14. 圖中是一個 3×2 的數獨謎題(用 1-6 填入方格內)，求 S 的值。

(34 分)

The following figure is a 3×2 Sudoku question (with 1-6 to be filled in the boxes).

Find the value of S.

(34 marks)

2				3	
	3				S
		5		4	
3		6			
	1				4
			5	2	

15. 如
If

$1 = \bullet,$

$2 = \bullet\circ,$

$3 = \bullet\bullet,$

$4 = \bullet\circ\circ,$

$5 = \bullet\circ\bullet,$

$6 = \bullet\bullet\circ,$

$7 = \bullet\bullet\bullet,$

$8 = \bullet\circ\circ\circ, \dots$

求 $\bullet\circ\bullet\bullet\circ$ 的值。

(36 分)

Find the value of $\bullet\circ\bullet\bullet\circ$.

(36 marks)

16. 下圖是由 6 個相同的長方體組合而成，已知它的體積是 1296 cm^3 ，求它的表面積是多少。

(39 分)

The following figure is formed by 6 identical cuboids. Given that the volume of the figure is 1296 cm^3 , find the surface area of the figure.

(39 marks)

