

第一屆全港小學數學挑戰賽(2014-2015)
The First Annual Hong Kong Primary Mathematics Challenge (2014-2015)

決賽（二零一五年三月廿八日）
Final (28th March, 2015)

小五組	個人項目	題目紙
Primary 5	Individual 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、比賽試場、座位編號。
Write your name, class, admission number, venue, 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 sheets 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 your working out.
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 in the form of fractions 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 risks 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：100
Total marks: 100

1. 求 36 和 128 兩數之最大公因數與最小公倍數的積。 (5 分)
Find the product of the H.C.F. and L.C.M. of 36 and 128. (5 marks)

2. 已知八位整數 $9x3x2x2x$ 能被 11 整除，求 x 的值。 (5 分)
If the 8-digit integer $9x3x2x2x$ is divisible by 11, find the value of x . (5 marks)

3. 某 4 位數 $X777$ 除以 9 餘 8，求 X 的值。 (5 分)
When the 4-digit number $X777$ is divided by 9, the remainder is 8. Find the thousands digit X . (5 marks)

4. 求 2813 和 3007 的最大公因數。 (6 分)
Find the Highest Common Factor (H.C.F.) of 2813 and 3007. (6 marks)

5. 設 $a \odot b = \frac{a \times b}{a + b}$ ，求 $8 \odot 2 \odot 8$ 。 (5 分)
Let $a \odot b = \frac{a \times b}{a + b}$. Find $8 \odot 2 \odot 8$. (5 marks)

6. 如果 a 與 b 是質數，同時 $c = a \times b$ 及 $\frac{1}{c} + \frac{1}{a} = \frac{3}{b}$ ，求 $a + b + c$ 的值。 (7 分)
If a and b are prime numbers, $c = a \times b$ and $\frac{1}{c} + \frac{1}{a} = \frac{3}{b}$, find the value of $a + b + c$. (7 marks)

7. 計算 $\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right) \cdots \left(1 - \frac{1}{100}\right)$ 。 (5 分)
Evaluate $\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right) \cdots \left(1 - \frac{1}{100}\right)$. (5 marks)

8. 這數列 1308, 1315, 1322, 1329, 1336, ..., 2015 有多少個數? (5 分)
How many numbers are there in the sequence 1308, 1315, 1322, 1329, 1336, ..., 2015? (5 marks)

9. 將 5、6、7、8 組成不同的四位數(所有數位不重覆)，所有這些四位數之和是多少? (6 分)
Find the sum of all 4-digit numbers(all digits are not repeated) formed by 5, 6, 7 and 8. (6 marks)

10. 在少於 1111 的自然數中，共有多少個既不是 25 的倍數又不是 45 的倍數的自然數？(6 分)

How many natural numbers less than 1111 are not a multiple of 25 and also not a multiple of 45?

(6 marks)

11. 計算 $333311115555 \div 9999$ 。

(5 分)

Evaluate $333311115555 \div 9999$.

(5 marks)

12. 小麗 4 年前的歲數與妹妹 5 年後的歲數相等，兩姐妹去年的年齡合共 41 歲，求小麗今年的年齡。

(5 分)

Age of Lily four years ago is equal to her sister's age 5 years later. The sum of their ages was 41 last year. Find the present age of Lily.

(5 marks)

- 13.

$$\begin{array}{r} \\ \\ \times \\ \hline 1 \\ 4 \\ 9 \\ B \end{array}$$

以上乘法的算式中，A 和 B 皆是 0 至 9 之間不同的數字。求 $A + B$ 。

(4 分)

In the above expression, A and B represent different numbers from 0 to 9. Find $A + B$.

(4 marks)

14. 求 $13 \times 23 \times 33 \times 43 \times \dots \times 993$ 的個位數。

(5 分)

Find the units digit of $13 \times 23 \times 33 \times 43 \times \dots \times 993$.

(5 marks)

15. 若兩位數的十位數與個位數對調後，這數與原本的兩位數之和是一正方形數，這樣的數有多少個。

(6 分)

If the tens digit and units digit of a 2-digit number are swapped, the sum of this number and the original number is a square number. How many 2-digit numbers have this feature?

(6 marks)

16. 下圖中，A、B、C、D、E 皆是自然數，令每行、每列及每條對角線上的三個數之和都相等。求 B 的值。

(7 分)

In the figure below, A, B, C, D, E are natural numbers, such that the sum of the three numbers on each row, each column and each diagonal are equal. Find the value of B.

(7 marks)

8	A	B
C	D	6
E	10	18

17. 若算式 $2015 \times 3 \times 28 \times n$ 的積的最右方四位數字都是 0，求正整數 n 的最小數值。 (7 分)
 If the last four digits on the right of the product of the expression $2015 \times 3 \times 28 \times n$ are all '0', find the smallest value of the positive integer n . (7 marks)

18. 小明是一名間諜，他截取了敵方的暗號如下：
 Billy is a spy. He intercepted a secret code from an opponent as follows:



以下是解開暗號的提示。

The following are the hints for breaking the code.

$A\dot{J}$	$B\dot{K}$	$C\dot{L}$
$D\dot{M}$	$E\dot{N}$	$F\dot{O}$
$G\dot{P}$	$H\dot{Q}$	$I\dot{R}$

	$S\dot{W}$	
$V\dot{Z}$		$T\dot{X}$
	$U\dot{Y}$	

這暗號代表的是甚麼? (6 分)

What is the meaning of the secret code? (6 marks)

試卷完 END OF PAPER