

**第五屆全港小學數學挑戰賽(2018-2019)**  
**The 5<sup>th</sup> Hong Kong Primary Mathematics Challenge (2018-2019)**

**決賽 (二零一九年三月三十日)**  
**Final (30<sup>th</sup> March, 2019)**

<b>小五組</b>	<b>組別項目</b>	<b>試卷</b>
<b>Primary 5</b>	<b>Group Event</b>	<b>Question Paper</b>

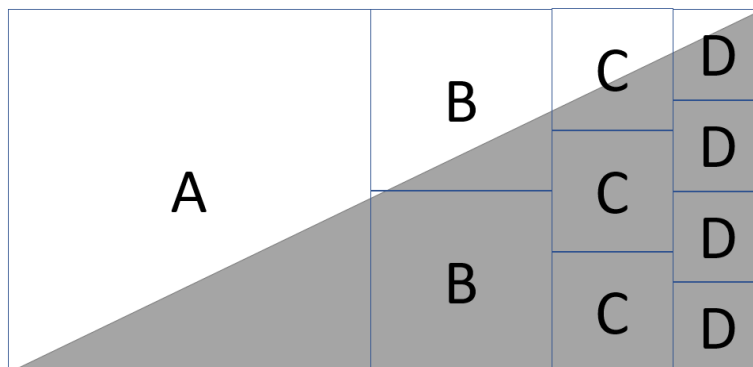
**參賽者須知 Instructions to Contestants**

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

- 把 2、0、0、3、7 和 8 排成最小的六位數和最大的六位數，它們的差是多少？(12 分)  
What is the difference between the greatest 6-digit number and the smallest 6-digit number formed by 2, 0, 0, 3, 7 and 8? (12 marks)
- 已知  $\frac{1}{24} + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$ ，其中  $a$ 、 $b$  和  $c$  是三個不同的正整數。  
求  $a + b + c$  的值。(15 分)  
Given that  $\frac{1}{24} + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$ , where  $a$ ,  $b$  and  $c$  are three different positive integers.  
Find the value of  $a + b + c$ . (15 marks)
- 一個長方形房間的長和闊分別為 15 m 和 12 m。有兩款地板，A 地板的大小為 30 cm × 30 cm，每塊 A 地板的價格為 \$10；B 地板的大小為 40 cm × 50 cm，每塊 B 地板的價格為 \$20。如果要用地板鋪滿整個房間，最少的成本為多少？(17 分)  
The length and the width of the floor of a rectangular room are 15 m and 12 m respectively. There are two types of floor tiles. The dimension of type A floor tile is 30 cm × 30 cm, the cost of each tile of type A is \$10; the dimension of type B floor tile is 40 cm × 50 cm, the cost of each tile of type B is \$20. What is the minimum cost to floor tiles for the whole room? (17 marks)
- 下圖由 4 款 (A、B、C 和 D) 大小不同的 10 個正方形組成。若正方形 A 的周界是 96 cm，求圖中陰影部分的三角形面積。(19 分)  
The following figure is formed by 10 squares with 4 different sizes (A, B, C and D).  
If the perimeter of the square A is 96 cm, find the area of the shaded triangle. (19 marks)



5. 已知 A, B, C 和 D 四個數字的和是 66。若  $4A = B - 2 = C + 4 = D \div 2$ ，  
求 A, B, C 和 D 四個數值。 (21 分)  
Given that the sum of the four numbers A, B, C and D is 66,  
if  $4A = B - 2 = C + 4 = D \div 2$ , find the values of A, B, C and D. (21 marks)

6. 第二個大於 320 的質數是什麼？ (21 分)  
What is the second prime number which is greater than 320? (21 marks)

7. 求  $1+2+3+4-5+6+7+8+9-10+\dots+94-95+96+97+98+99-100$  的  
數值。 (22 分)  
Find the value of  
 $1+2+3+4-5+6+7+8+9-10+\dots+94-95+96+97+98+99-100$ . (22 marks)

8. 在以下算式的五個方格中，填上 1-9 的數字使算式獲得最大值。(每個數字  
最多可使用一次) (23 分)  
Fill the numbers 1 to 9 into the boxes in the expression below, so that the value of  
the expression is the greatest.(Each number can be used once only.) (23 marks)

$$(\square - \square)^\square \times \square \div \square$$

9. 現有五條長度分別為 2 cm、4 cm、5 cm、8 cm 和 11 cm 的繩。陳老師任意  
選取三條繩組合成三角形，問能組成多少個大小不同的三角形？ (24 分)  
There are five strings with length 2 cm, 4 cm, 5 cm, 8 cm and 11 cm. If Miss Chan  
randomly chooses three strings to form a triangle, how many different triangles can  
be formed? (24 marks)
10. 用 0, 2, 3, 5 和 7 五個數字，可以組成多少個數值大於 4001 且是 5 的倍數的  
四位數？(數字不可重複使用) (25 分)  
How many 4-digits numbers can be formed by using the digits 0, 2, 3, 5 and 7 such  
that they are multiples of 5 and the values are greater than 4001? (The digits can be  
used once only.) (25 marks)

11. 彼得和西蒙各有一袋麵粉。彼得從自己的袋中取出 $1\frac{1}{2}$ 公斤麵粉給西蒙後，兩人的麵粉重量便相同。若兩人原先共有麵粉 $14\frac{1}{4}$ 公斤，問彼得原先有麵粉多少公斤？ (28 分)

Peter and Simon each has a bag of flour. After Peter gives  $1\frac{1}{2}$  kg flour from his bag to Simon, the weights of the two bags are the same. If the total weight of the two bags is  $14\frac{1}{4}$  kg, what is the original weight of Peter's bag? (28 marks)

12. 已知一個長方形的面積是  $204 \text{ cm}^2$ 。它的長度和闊度的差是  $5 \text{ cm}$ 。若它的長度減少  $8 \text{ cm}$  且闊度增加  $8 \text{ cm}$ ，求長方形新的面積。 (31 分)

Given that the area of a rectangle is  $204 \text{ cm}^2$  and the difference between its length and its width is  $5 \text{ cm}$ . If the length is decreased by  $8 \text{ cm}$  and the width is increased by  $8 \text{ cm}$ , find the new area of the rectangle. (31 marks)

13. 彼得、保羅、瑪麗、大衛和湯姆被老師分配到以下同一組的坐位上。根據以下提示，把他們的名字填在下圖座位表上。

提示 1: 保羅在彼得的西方。

提示 2: 大衛在保羅的東北方。

提示 3: 湯姆在瑪麗的南方。

(32 分)

A teacher assigns Peter, Paul, Mary, David and Tom into the following seats in a group.

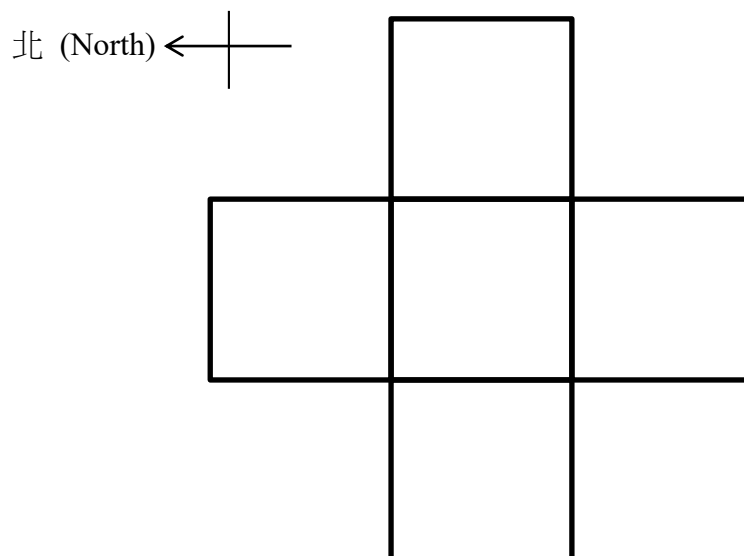
According the hints below, fill in their names in the following seating plan.

Hint 1: Paul is sitting to the West of Peter.

Hint 2: David is sitting to the Northeast of Paul.

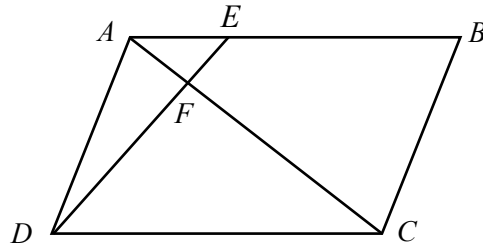
Hint 3: Tom is sitting to the South of Mary.

(32 marks)



14. 圖中， $ABCD$  是一平行四邊形且  $EB = 3AE$ 。若  $\triangle AEF$  的面積是  $1 \text{ cm}^2$ ，求平行四邊形  $ABCD$  的面積。 (35 分)

In the figure,  $ABCD$  is a parallelogram with  $EB = 3AE$ . If the area of  $\triangle AEF$  is  $1 \text{ cm}^2$ , find the area of parallelogram  $ABCD$ . (35 marks)



15. 一個填字遊戲需要依照下列規則：  
 規則一：將數字填入空格內，使數字能由 1 連續至 36。(圖一)  
 規則二：有交點「◆」的空格必須相連。(圖二)  
 規則三：最後填滿所有空格。(圖三)

A puzzle game follows the following rules:

Rule 1: Put the numbers from 1 to 36 to create a path of consecutive numbers. Numbers and links between cells are given to help finish the puzzle. Two consecutive numbers must be next to each other. (Figure 1)

Rule 2: A link indicates a crossing point “◆” of the path. (Figure 2)

Rule 3: At the end, the entire grid must be filled up. (Figure 3)

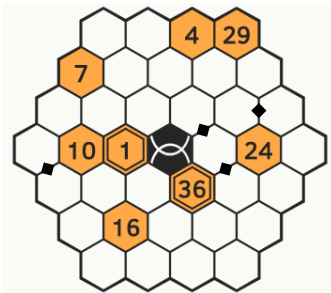


Figure 1

圖一

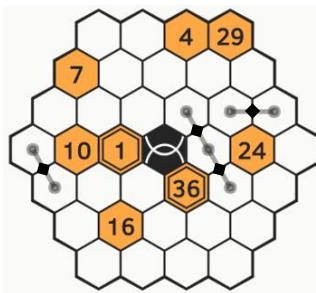


Figure 2

圖二



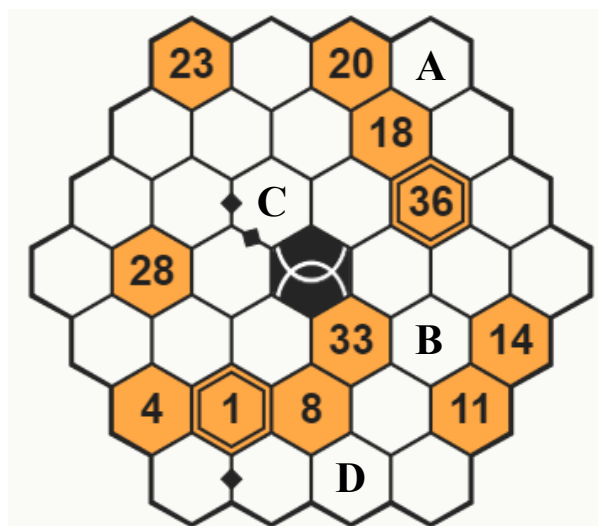
Figure 3

圖三

若要完成以下圖形，求 A、B、C 和 D 的值。

(36 分)

To complete the following puzzle, find the values of A, B, C and D. (36 marks)



16. 設  $[x]$  表示小於或等於  $x$  的最大整數，例如  $[17.8]=17$ 、 $[31.2]=31$ 。

若整數  $n$  滿足

$$\left[\frac{1}{12}\right] + \left[\frac{2}{12}\right] + \left[\frac{3}{12}\right] + \dots + \left[\frac{n}{12}\right] > 19,$$

求  $n$  的最小值。

(39 分)

Let  $[x]$  represents the largest integer less than or equal to  $x$ , such as  $[17.8]=17$ ,

$[31.2]=31$ .

If  $n$  is a natural number satisfying

$$\left[\frac{1}{12}\right] + \left[\frac{2}{12}\right] + \left[\frac{3}{12}\right] + \dots + \left[\frac{n}{12}\right] > 19,$$

find the minimum value of  $n$ .

(39 marks)

試卷完 END OF PAPER