

**第三屆全港小學數學挑戰賽(2016-2017)**  
**The 3<sup>rd</sup> Hong Kong Primary Mathematics Challenge (2016-2017)**

**決賽 (二零一七年四月一日)**  
**Final (1<sup>st</sup> April, 2017)**

<b>小四組</b>	<b>組別項目</b>	<b>試卷</b>
<b>Primary 4</b>	<b>Group Event</b>	<b>Question Paper</b>

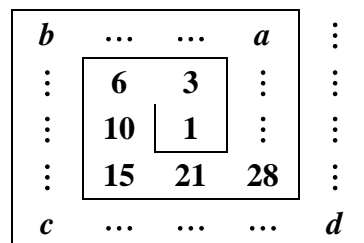
**參賽者須知 Instructions to Contestants**

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.

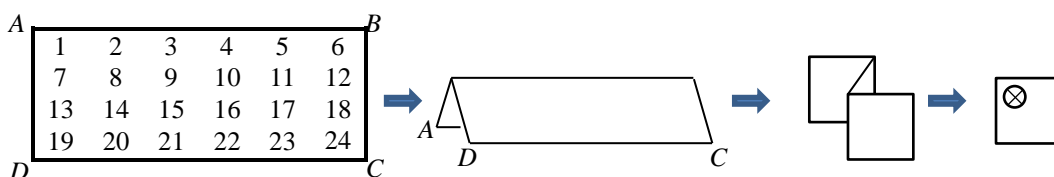
時限：四十五分鐘  
Time allowed: 45 minutes

總分：400  
Total marks: 400

- 計算在 1 至 200 之中有多少個質數，它們數字之和是等於 4。  
(例如：質數 2017 的數字之和是  $2 + 0 + 1 + 7 = 10$ ) (14 分)  
How many prime numbers in between 1 to 200, the sum of digits of the prime number is equal to 4?  
(Example: the sum of digits of the prime number 2017 is  $2 + 0 + 1 + 7 = 10$ ) (14 marks)
- 一個四位數，除以 17，餘數是 5，這個四位數最大的值是多少？ (15 分)  
When a 4-digit number is divided by 17, the remainder is 5.  
Find the greatest value of that 4-digit number. (15 marks)
- 如果  $7m + 2n = 137$ ，而  $m, n$  為不同的質數。求  $m + n$  的最小值。 (17 分)  
If  $7m + 2n = 137$ , where  $m, n$  are different prime numbers.  
Find the least value of  $m + n$ . (17 marks)
- 把一個  $2017\text{ cm} \times 41\text{ cm}$  的長方形完全切割成多個(大小可以不相同)正方形，最少可以切割出多少個正方形？ (18 分)  
A  $2017\text{ cm} \times 41\text{ cm}$  rectangle is completely cut into several squares (sizes may not be the same), find the least number of squares being cut. (18 marks)
- 彼得重覆抄寫句子「MATHEMATICS IS GREAT」，問他抄寫的第 200 個字母是什麼？ (20 分)  
Peter wrote the sentence 'MATHEMATICS IS GREAT' repeatedly, what is the 200th letter? (20 marks)
- 求圖中  $a + b + c + d$  的數值。 (21 分)  
In the following figure, find the value of  $a + b + c + d$ . (21 marks)

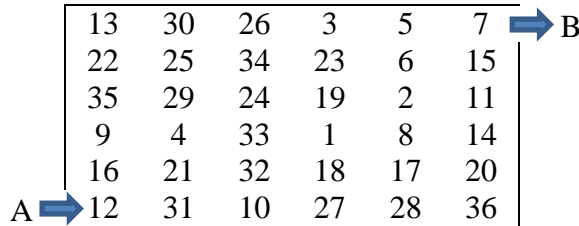


- 在長方形紙上寫上由 1 到 24 的數字，如圖所示對摺了三次，並在一角打上小孔。之後將長方形紙展開，求所有打上小孔的數字。 (23 分)  
A piece of rectangular paper numbered from 1 to 24 is folded 3 times as follows. If a small hole is made at one corner of the paper after folding.  
Find all the numbers with a hole on it when the paper is unfolded. (23 marks)

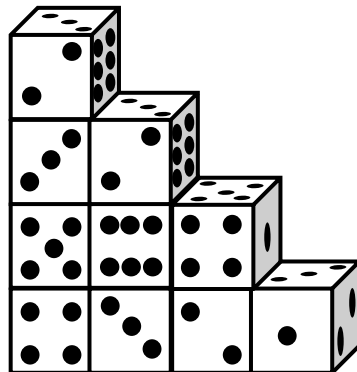


8. 如果英文字 'PRIMARY' 的數字密碼是 '12584162518'，請寫出英文字 'HELLO' 的數字密碼。  
If the word 'PRIMARY' can be represented by the code '12584162518', write down the code of the word 'HELLO'.
- (23 分)  
(23 marks)

9. 若只可以橫向或直向走動，下圖中由 A 點至 B 點，途中所經過的數值之和最少是多少？  
The diagram below shows a map. If you are only allowed to move horizontally or vertically from point A to point B, find the least value of the sum of the numbers you passed through.
- (24 分)  
(24 marks)



10. 求圖中十粒骰子骰面朝上的點數總和最大是多少。  
Find the greatest sum of the points faced upwards of the following ten dice in the following figure.
- (27 分)  
(27 marks)

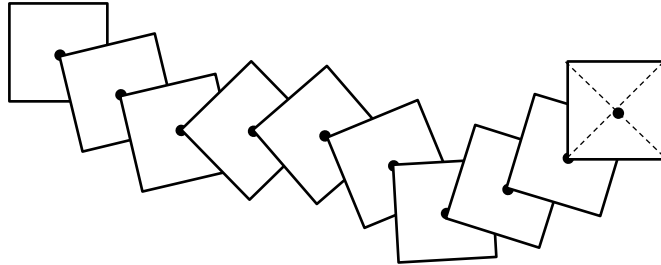


11. 將 16 個長闊高分別為 2cm, 5cm 和 9cm 的小長方體合併成一大長方體，求大長方體總表面面積最大是多少？  
A larger cuboid is formed by combining 16 smaller cuboids which dimensions are 2cm × 5cm × 9cm, what is the largest surface area of the larger cuboid?
- (29 分)  
(29 marks)

12. 如  
If
- 1 = ●,                      2 = ●○,                      3 = ●●,                      4 = ●○○,
- 5 = ●○○,                      6 = ●●○,                      7 = ●●●,                      8 = ●○○○, ...
- 求 ●●○○●○○ 的值。  
Find the value of ●●○○●○○.
- (30 分)  
(30 marks)

13. 下圖是由 10 張  $6\text{ cm} \times 6\text{ cm}$  的正方形手工紙堆疊在枱面上情況，在上的手工紙一角必須貼在對下的手工紙的中心點，求該 10 張手工紙所佔枱面的面積。 (31 分)

There are 10 square cardboards in  $6\text{ cm} \times 6\text{ cm}$  stacked up on the table, a corner of the cardboard on top must point to the centre of the cardboard below. Find the total area covered by these 10 cardboards on the table. (31 marks)



14. 根據圖中數字的排列，如果第四行第二個數字是 11，第 20 行第 17 個數字是多少？ (33 分)

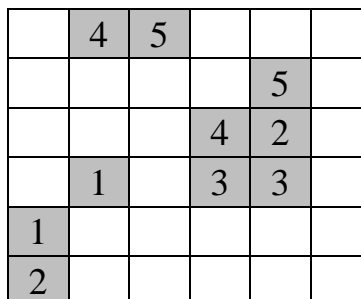
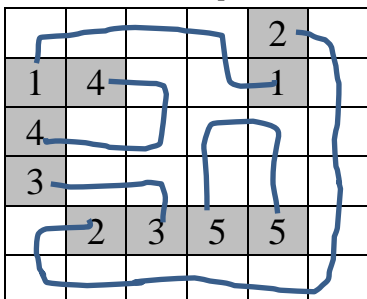
Follow the number patterns in the figure. If 11 is the 2nd number on the 4th row, find the value of the 17th number on the 20th row. (33 marks)

			1				
			2	3	4		
		5	6	7	8	9	
10	11	12	13	14	15	16	
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

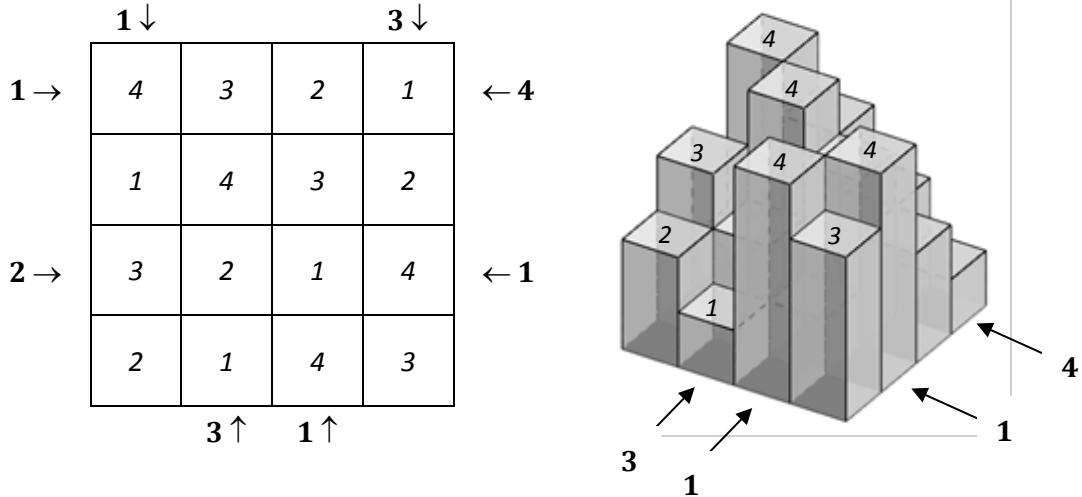
15. 如圖例所示，用不重覆及不相交的線段將圖中相同數字連接，並須用盡所有空格。 (36 分)

Follow the example, connect matching numbers with lines and fill up all the boxes, but lines cannot cross or overlap. (36 marks)

例 Example



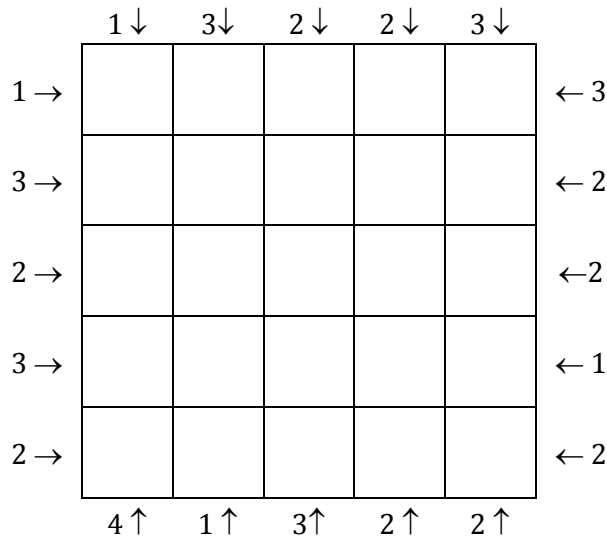
16.



在以上  $4 \times 4$  的方格中，1 至 4 分別代表高度為 1 至 4 的柱子。右圖表示其對應的立體圖像。方格外圍的數字表示沿箭號方向可看見多少根柱子（‘3’表示可看到 3 根不同高度的柱子、‘4’表示可看到 4 根不同高度的柱子，高的柱子會遮蓋較矮的柱子）。每一行或列 1、2、3、4 只會出現一次。

根據以上的規則，將 1 至 5 填入以下  $5 \times 5$  的方格中。 (39 分)

In the above  $4 \times 4$  table, 1 to 4 represented the pillar with height 1 to 4 units respectively. The figure on the right side is the corresponding 3-dimension diagram. The numbers surrounding the table tell you how many pillars you can see in the direction of arrow. (‘3’ means 3 pillars with different heights can be seen, ‘4’ means 4 pillars with different heights can be seen, you can’t see a shorter pillar behind a taller one.) Every row/column contains 1 to 4 exactly once. According to the rules, fill 1 to 5 into the following  $5 \times 5$  table. (39 marks)



試卷完 END OF PAPER