

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

決賽 (二零一九年三月三十日)
Final (30th March, 2019)

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

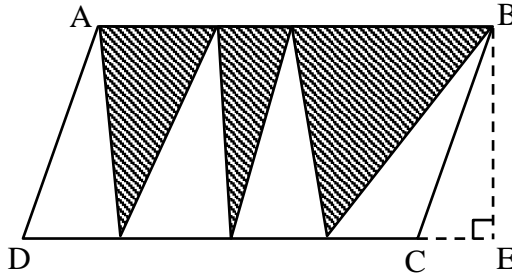
Total marks: 400

1. 圖中，ABCD 是一個平行四邊形，若 $AB = 10\text{cm}$ 及 $BE = 7\text{cm}$ ，求陰影部份的面積。

(13 分)

In the figure, ABCD is a parallelogram. If $AB = 10\text{cm}$ and $BE = 7\text{cm}$, find the area of the shaded region.

(13 marks)



2. 已知 $a * b = 2 \times a + 3 \times b$ ，其中 a 及 b 均為正整數。

求 $4 * [3 * (2 * 1)]$ 的值。

(14 分)

Given that $a * b = 2 \times a + 3 \times b$, where a and b are positive integers.

Find the value of $4 * [3 * (2 * 1)]$.

(14 marks)

3. 考慮以下數列：

1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5,

求首 30 個數的和。

(16 分)

Consider the following sequence:

1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5,

find the sum of the first 30 numbers.

(16 marks)

4. 圖中是一個 2×2 的數獨謎題(用 1-4 填入方格內)，求 A、B 和 C 的值。

(18 分)

The following figure is a 2×2 Sudoku question (with 1-4 to be filled in the boxes). Find the values of A, B and C.

(18 marks)

A		1	
			3
4	B		2
	2	C	

5. 試把 0、1、2、3、4、5、6 七個數字填入以下數式的 ○ 內，使算式成立。(每個數字只能使用一次) (19 分)

Put the seven numbers 0, 1, 2, 3, 4, 5, 6 into ○ of the following formula to make the equality holds. (Each number can only be used once.) (19 marks)

$$\bigcirc \times \bigcirc = \bigcirc \bigcirc = \bigcirc \bigcirc \div \bigcirc$$

6. 用 5、6、7、8 這四個數字組成沒有重複數字的四位數。求這些四位數之和。 (21 分)

Different four-digit numbers are formed from the numbers 5, 6, 7 and 8 without repetition. Find the sum of all these four-digit numbers. (21 marks)

7. 某小學組織秋季學校旅行，共有 620 名師生參加。租車公司現有兩種旅遊車可供出租。

種類	每輛限坐人數	每輛每天租金
大型旅遊車	50 人	\$300
中型旅遊車	30 人	\$210

負責租車的老師需租用多少輛大型旅遊車及中型旅遊車以達至最低租車費用？ (23 分)

A primary school organizes an autumn school picnic for 620 teachers and students.

There are two types of coaches for rent from the coach company.

Types	Maximum capacity of each vehicle	Daily rental per vehicle
Large coach	50 persons	\$300
Medium coach	30 persons	\$210

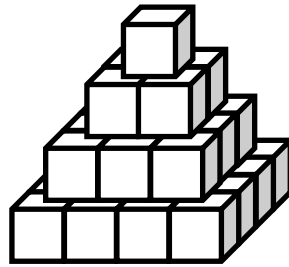
How many large coach(es) and medium coach(es) do the teacher need to rent in order to get the lowest cost? (23 marks)

8. 求數列 0, 1, 3, 7, 15, 31, ..., 的第十二項。 (25 分)

Find the 12th term of the sequence 0, 1, 3, 7, 15, 31, (25 marks)

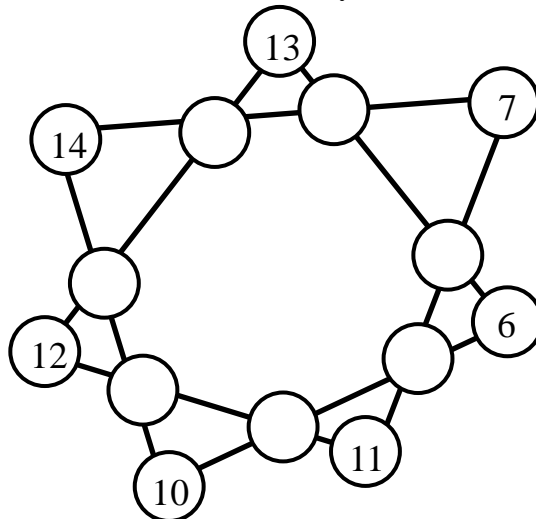
9. 如圖，30 個邊長為 1 單位的正方體堆疊成一座四層塔，求這座塔的總表面面積。 (28 分)

As shown in the figure, 30 cubes of each side 1 unit are stacked together to form a four-level tower. Find the total surface area of the tower. (28 marks)



10. 將數字 1, 2, 3, 4, 5, 8 和 9 填入空的圓形，使每條直線上圓形內數字之和是 30。(每個數字只能使用一次) (28 分)

Put numbers 1, 2, 3, 4, 5, 8 and 9 into the circles to make the sum of each straight line equals to 30. (Each number can only be used once) (28 marks)



11. 計算 $(2^2 + 4^2 + 6^2 + 8^2 + \dots + 100^2) - (1^2 + 3^2 + 5^2 + 7^2 + \dots + 99^2)$ 。 (30 分)
Evaluate $(2^2 + 4^2 + 6^2 + 8^2 + \dots + 100^2) - (1^2 + 3^2 + 5^2 + 7^2 + \dots + 99^2)$. (30 marks)

12. 彼得第一天讀了一本書的 $\frac{1}{5}$ ，第二天讀了餘下的 $\frac{1}{4}$ ，第三天讀了餘下的 $\frac{1}{3}$ ，第四天讀了餘下的 $\frac{1}{2}$ 。若四天後彼得還有 17 頁未閱讀，求書本的頁數。(31 分)

Peter read $\frac{1}{5}$ of the book on the first day. He read $\frac{1}{4}$ of the remaining part

on the second day. He read $\frac{1}{3}$ of the remaining part on the third day and read

$\frac{1}{2}$ of the remaining part on the fourth day. If there were 17 unread pages of the

book after four days, find the number of pages of the book. (31 marks)

13. 已知 $A = \underbrace{999\dots99}_{\text{共一百個「9」}} \times \underbrace{999\dots99}_{\text{共一百個「9」}} + \underbrace{999\dots99}_{\text{共一百個「9」}}$ ，問 A 有多少個「0」？ (32 分)

Given that $A = \underbrace{999\dots99}_{\text{Total onehundred of "9"}} \times \underbrace{999\dots99}_{\text{Total onehundred of "9"}} + \underbrace{999\dots99}_{\text{Total onehundred of "9"}}$, how many "0" are

there in A? (32 marks)

14. 四個不同的整數的積是偶數，它們的和是偶數，最大和最小的數相差 5，最小的兩個數之和是 24，求這四個整數的和。 (33 分)

The product of four different integers is an even number. Their sum is an even number. The difference between the largest and the smallest integers is 5.

The sum of the two smallest integers is 24. Find the sum of these four integers. (33 marks)

15. 在下圖中，一隻螞蟻由 A 點往上走到 B 點，每到一個路口，牠都能選擇任何一個方向繼續向上走(牠只能向上走)，問由

- (a) A 點走到 B 點，
 (b) A 點走到 C 點，
 (c) A 點走到 D 點，

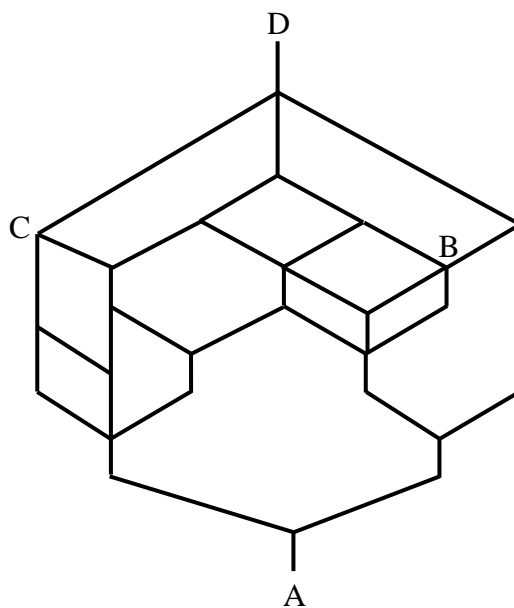
有多少條路徑？ (33 分)

An ant travels from point A to point B in the following figure. Every time it reaches a junction, it can go upwards by any direction (it can only go upwards).

Find the number of different paths from

- (a) A to B,
 (b) A to C,
 (c) A to D.

(33 marks)



16. 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)

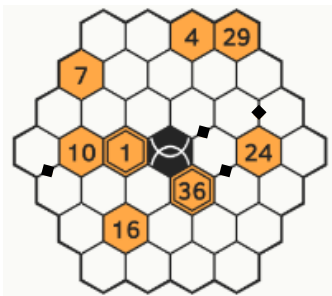


Figure 1
圖一

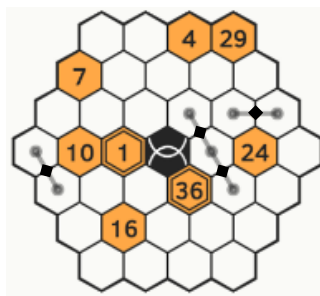


Figure 2
圖二



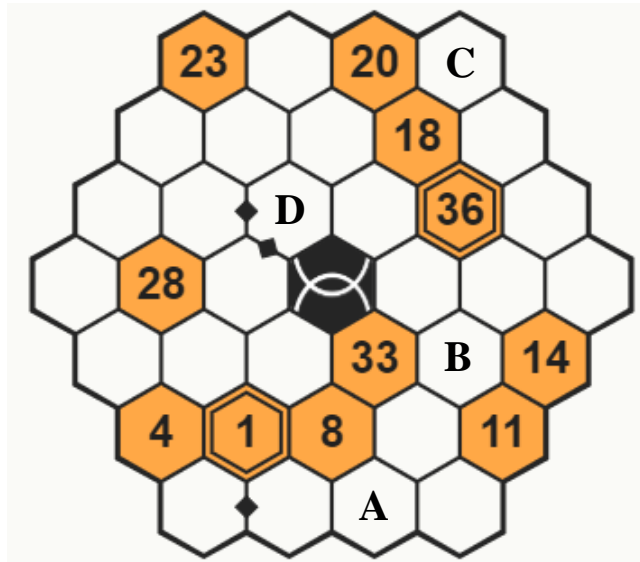
Figure 3
圖三

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)



試卷完 END OF PAPER