

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 個人項目 試卷
Primary 4 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、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：100

Total marks: 100

1. 計算 $3+4+5+\dots+51$ 。

Evaluate $3+4+5+\dots+51$.

(2 分)

(2 marks)

2. 已知一個正數是 5 的倍數加 3，亦是 13 的倍數減 1，求該數的最小值。

A positive number is larger than a multiple of 5 by 3 and it is also smaller than a multiple of 13 by 1. Find the minimum value of the number.

(2 分)

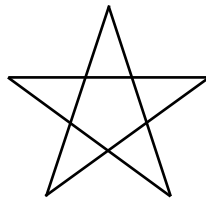
(2 marks)

3. 圖中的星形是由一個正五邊形及五個相同的三角形組成。若五邊形的周界是 37cm 及每個三角形的周界是 25cm，求星形的周界。

In the figure, a star consists of a regular pentagon and five identical triangles. If the perimeter of the pentagon is 37cm and the perimeter of each triangle is 25cm, find the perimeter of the star.

(2 分)

(2 marks)



4. 已知 A 是正偶數，B 是正奇數，且 A 大於 B。下列各式的值是奇數還是偶數？

(a) $A(A+B)$

(b) $(A-B)(A+B)$

(c) $A \times A + B \times B$

Given that A is a positive even number and B is a positive odd number while A is larger than B, determine whether the values of the following expressions is/are odd or even.

(3 分)

(3 marks)

(a) $A(A+B)$

(b) $(A-B)(A+B)$

(c) $A \times A + B \times B$

5. $5a1419$ 是一個可被 3 整除的六位數，求 a 所有可能值的和。

$5a1419$ is a 6-digit number and it is divisible by 3. Find the sum of all possible values of a.

(3 分)

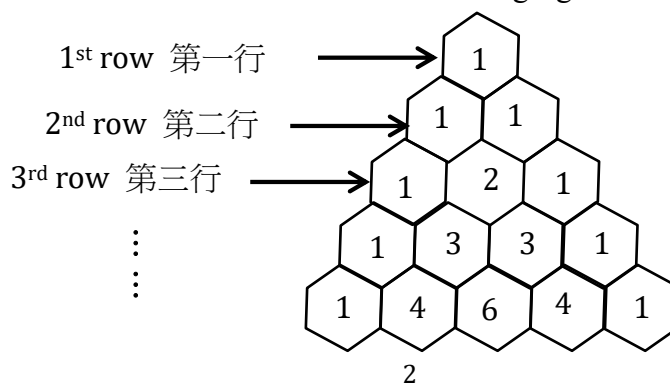
(3 marks)

6. 根據下圖，求第六行數字的和。

Find the sum of the numbers of 6th row in the following figure.

(3 分)

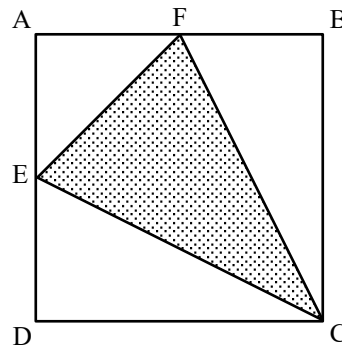
(3 marks)



7. 求 $2019 \times 2019 \times 2019 \times 2019 \times 2019 \times 2019$ 的個位數。 (4 分)
 Find the units digit of $2019 \times 2019 \times 2019 \times 2019 \times 2019 \times 2019$. (4 marks)
8. 兩正整數之積是 210，求該兩數之和的
 (a) 最大值；
 (b) 最小值。 (4 分)
 The product of two positive integers is 210. Find the
 (a) maximum value;
 (b) minimum value,
 of the sum of these two integers. (4 marks)
9. 有一張長方形紙，長 45 cm，寬是 30 cm。如果長和寬分別裁去 5 cm 和 x cm，面積比原來的減少 550 cm^2 ，求 x 的值。 (5 分)
 There is a piece of rectangular paper with 45 cm long and 30 cm wide. If the length and width are cut by 5 cm and x cm respectively, the area will be reduced by 550 cm^2 .
 Find the value of x . (5 marks)
10. 彼得在計算一條加法時，把一個加數十位上的 5 看成了 8，把另一個加數個位的 8 錯寫成 3，這樣計算出來的和是 180。正確的和應該是多少？ (5 分)
 When Peter calculates an addition, he misreads “5” on the tens digit of a summand as “8” and miswrites “8” on the units digit of another augend as “3”, then the total sum is 180. What is the actual sum if there is no mistake? (5 marks)
11. 由 1, 2, 5, 6, 7, 8 六個數字所組成(數字可以重覆)的四位數中，含有一個「1」或三個「1」的四位數共有多少個？ (5 分)
 Six numbers 1, 2, 5, 6, 7, 8 are used to form a four-digit number (each number can be used more than once). How many four-digit numbers can be formed with one “1” or three “1”s? (5 marks)
12. 某班別中男女學生共有 50 人。若某次數學測驗的全班平均成績為 60.8 分，女生平均成績為 50 分，男生平均成績為 68 分，問班中男、女學生各有多少人？ (6 分)
 In a class, there are 50 students including boys and girls. In a mathematics test, the average mark of all students is 60.8 while the average mark of girls and boys are 50 and 68 respectively. How many boys and girls are there in this class? (6 marks)

13. 圖中，ABCD 是一個正方形，E 和 F 分別是 AD 和 AB 的中點。若 ABCD 的面積為 40cm^2 ，求陰影部份的面積。 (6 分)

In the figure, ABCD is a square, E and F are the mid-points of AD and AB respectively. If the area of ABCD is 40cm^2 , find the area of the shaded region. (6 marks)



14. 某城市的鐵路收費如下：

	收費
首 3 個站或其部分	\$12
其後每個站	
直至應收款額達 \$30	\$3
在應收款額達 \$30 後	\$2

已知彼得某次乘鐵路的費用為 \$44，求該次旅程他乘搭了多少個站？ (6 分)

The following is the fare table of railway in a city:

	Fare
First 3 stations or any part thereof	\$12
Every subsequent station	
Until the chargeable amount reaches \$30	\$3
After the chargeable amount has reached \$30	\$2

Given that Peter's railway fare was \$44 in his trip, how many stations did he take for his trip? (6 marks)

15. 參考下列的規律，求 X 的值。 (6 分)

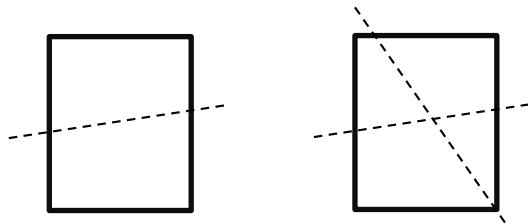
According to the following pattern, find the value of X. (6 marks)

0001 = 1 ,
 0010 = 2 ,
 0011 = 3
 0100 = 4 ,
 0101 = 5 ,
 0110 = 6 ,

 1000 = X

16. 如下圖，一張紙切割了一次，可分成兩份；若切割了兩次，則可分成四份。
若一張紙切割了五次，最多可分成多少份？ (7 分)

As shown in the figures below, a piece of paper can be divided into two pieces if it is cut once. The paper can be divided into four pieces if it is cut twice. If a piece of paper is cut five times, what is the maximum number of pieces can it be divided? (7 marks)



17. 瑪莉有 \$ 454 購買零食，她先買了 14 包餅乾，每包售價為 \$ m ，且 m 為整數。之後她再買了 16 罐每罐售價 \$ 7 的汽水。最後，她餘下的錢不足夠再購買餅乾或汽水。求 m 的值。 (7 分)

Mary has \$ 454 to buy snacks. Firstly, she buys 14 packs of biscuit which cost \$ m per pack and m is an integer. Then she buys 16 cans of soft drink and each costs \$ 7. The money left is not enough for Mary to buy more biscuit or soft drink. Find the value of m . (7 marks)

18. 求以下算式中各英文字母可代表的數字(0-9)，使算式之和是最大。
(每個英文字母均代表不同數字) (8 分)

Find the digits (0-9) represented by the different letters in the following calculation so that the sum of the calculation is the maximum.
(Each letter has a different value.) (8 marks)

$$\begin{array}{rcccc}
 & A & B & C & D \\
 + & 2 & 0 & 1 & 9 \\
 \hline
 & E & F & G & H
 \end{array}$$

19. 已知三個不同的整數之和是 126， (8 分)

- (a) 求這三個數的最大公因數(H.C.F.)的最小值。
(b) 求這三個數的最大公因數(H.C.F.)的最大值。

Given that the sum of three different integers is 126, (8 marks)

- (a) find the minimum value of the highest common factor (H.C.F.) of these three integers.
(b) find the maximum value of the highest common factor (H.C.F.) of these three integers.

20. 已知 $\frac{1}{a} + \frac{1}{b} = \frac{4}{15}$ ，其中 $a > b$ 。求 a 和 b 的值。 (8 分)

Given that $\frac{1}{a} + \frac{1}{b} = \frac{4}{15}$, where $a > b$. Find the values of a and b . (8 marks)