

**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)**

初賽 (二零一八年十二月一日)  
 Semi-Final (1<sup>st</sup> December, 2018)

**小五組                      個人項目                      試卷**  
**Primary 5                      Individual Event                      Question Paper**

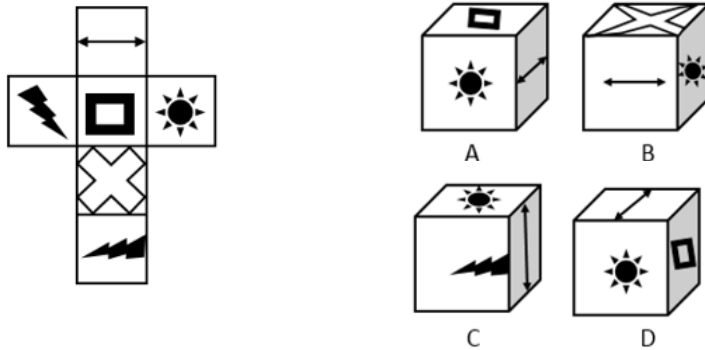
**參賽者須知 Instructions to Contestants**

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、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

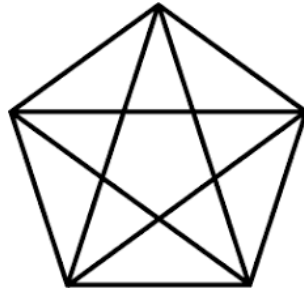
總分：100  
Total marks: 100

- 求  $1 - 3 + 5 - 7 + 9 - 11 + \dots - 95 + 97 - 99 + 101$  的值。  
Find the value of  $1 - 3 + 5 - 7 + 9 - 11 + \dots - 95 + 97 - 99 + 101$ . (2 分) (2 mark)
- 以下摺紙圖樣可以製成哪一個立方體？  
Which of the following cube can be made by the net? (2 分) (2 mark)



- 已知某長方形的長度和闊度都是質數及長方形的周界是 36 單位。  
問長方形的面積的最小值是多少？ (3 分)  
It is given that the length and the width of a rectangle are prime numbers and the perimeter of the rectangle is 36 units. What is the least area of the rectangle? (3 marks)
- 一個芒果比一個蘋果的售價貴兩倍。如一個芒果售 15 元及每公斤葡萄的售價是一個蘋果和一個芒果的售價之和，問一公斤葡萄的售價是多少元？ (3 分)  
The price of a mango is two times higher than the price of an apple. If a mango costs 15 dollars and 1 kg of grapes costs the same as the total price of an apple and a mango, how much does 1 kg of grapes cost? (3 marks)
- 正整數  $n$  剛好有 4 個正因數。求  $n$  的最小值。 (3 分)  
A positive integer  $n$  has exactly 4 positive factors. Find the smallest value of  $n$ . (3 marks)
- 這數列 1199, 1212, 1225, 1238, 1251,  $\dots$ , 2018 有多少個數？ (3 分)  
How many numbers are there in the sequence 1199, 1212, 1225, 1238, 1251,  $\dots$ , 2018? (3 marks)
- 求  $1 + 3 + 5 + \dots + 2019$  的個位數。 (4 分)  
Find the units digit of  $1 + 3 + 5 + \dots + 2019$ . (4 marks)
- 有多少個形如  $A48B$  的四位整數能被 5 和 11 整除？ (4 分)  
How many 4-digits integer(s) in the form  $A48B$  is/are divisible by 5 and 11? (4 marks)

9. 圖中有多少個三角形？ (5 分)  
 How many triangles are there in the given figure? (5 marks)



10. 123456654321 除本身之外，最大的因數是多少？ (5 分)  
 Besides itself, what is the largest factor of 123456654321? (5 marks)

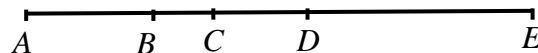
11.  $A$ 、 $B$  和  $C$  是三個不同的正整數，已知  $A \div B = 2$ ， $C \div A = 4$ ， $C - B = 56$ ，那麼  $A + B + C$  等於多少？ (5 分)  
 $A$ ,  $B$  and  $C$  represent three different positive integers. It is given that  $A \div B = 2$ ,  $C \div A = 4$ ,  $C - B = 56$ , what is the result of  $A + B + C$ ? (5 marks)

12. 將 2、3 和 4 組成所有不同的三位數(所有數字不能重覆使用)，求這些三位數之和是多少。 (6 分)  
 Find the sum of all different 3-digit numbers formed by 2, 3 and 4 (all digits cannot be repeated). (6 marks)

13. 求以下算式中各英文字母可代表的數字(0-9)。(每個英文字母均代表不同的數字) (7 分)  
 Find the digits (0-9) represented by the different letters in the following calculation. (Each letter has a different value.) (7 marks)

$$\begin{array}{r} \text{C R A C K} \\ + \quad \text{H A C K} \\ \hline \text{E R R O R} \end{array}$$

14. 在下圖中， $AB = 9 \text{ cm}$ ， $CE = 28 \text{ cm}$  及  $AC = BD$ 。求  $DE$  的長度。 (7 分)  
 In the following figure,  $AB = 9 \text{ cm}$ ,  $CE = 28 \text{ cm}$  and  $AC = BD$ . Find the length of  $DE$ . (7 marks)



15. 在 08:20 時，時鐘上的時針和分針之間的夾角是多少？ (7 分)  
 Find the angle between the hour hand and the minute hand at 08:20. (7 marks)

16. 2007 年 3 月 1 日是星期四，最快在何年的 9 月 1 日會是星期一？ (8 分)  
 1<sup>st</sup> March 2007 is Thursday. Which year will be the sooner for 1<sup>st</sup> September be Monday? (8 marks)

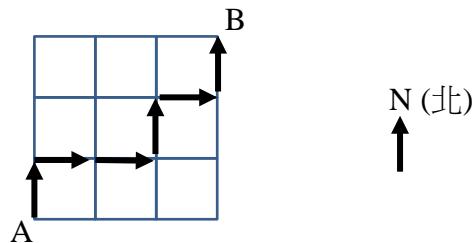
17. 約翰每月都會更改自己手機的登入密碼。第一個月他把原來的密碼乘以 2 得出密碼  $A$ ，第二個月再把密碼  $A$  減去自己的出生年份，轉為密碼  $B$ 。第三個月把密碼  $B$  除以自己的出生月份，轉為密碼  $C$ 。第四個月再把密碼  $C$  乘以自己的出生日的數字，現時他最新的密碼是 2576。已知約翰的出生日期為 1990 年 4 月 28 日，求約翰最初的登入密碼。(8 分)

John changes the login password of his mobile phone every month. In the first month, he multiplied the original password by 2 to generate password  $A$ . In the second month, he subtracted his birth year from password  $A$  to form password  $B$ . In the third month, he divided password  $B$  by his birth month to form password  $C$ . In the fourth month, he multiplied password  $C$  by the date of his birthday. His current password is 2576. Given John's birthday is 28th April 1990, find his initial login password. (8 marks)

18. 已知  $5 \Omega 12 = 22$ ， $12 \Omega 8 = 32$ ， $8 \Omega 7 = 23$ ，求  $7 \Omega 5$ 。(9 分)  
It is given that  $5 \Omega 12 = 22$ ,  $12 \Omega 8 = 32$ ,  $8 \Omega 7 = 23$ , find  $7 \Omega 5$ . (9 marks)

19. 彼得由  $A$  點走到  $B$  點，他只可以向北走或向東走。每到一個路口，他可以決定改變方向或繼續朝原本的方向走，如：北東東北東北。求由  $A$  點到  $B$  點有多少條不同的路徑？(9 分)

Peter travels from point  $A$  to point  $B$ . He can only walk towards the north or east, and he can decide whether to change the direction or keep the same direction in each street junction. One example of his path is NEENEN. Find the total number of different paths from  $A$  to  $B$ . (9 marks)



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