

**第八屆全港小學數學挑戰賽(2021-2022)**  
**The 8<sup>th</sup> Hong Kong Primary Mathematics Challenge (2021-2022)**

**決賽 (二零二一年十二月四日)**  
**Final (4<sup>th</sup> December, 2021)**

**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，須於限時一小時內完成所有題目。  
Contestants should finish all questions in this 1-hour 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.

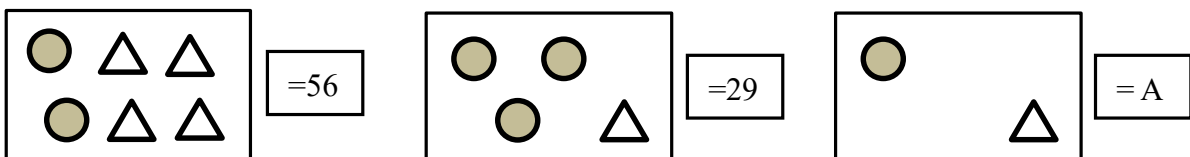
時限：一小時  
Time Allowed: 1 hour

總分：100  
Total marks: 100

1. 附表是一個魔方陣，將 A、B、C、D 和 E 填入適當的數字，使得每一「橫列」、「直行」與「對角線」上三個數的和都相等，求  $A+B+C+D+E$  的值。 (2 分)  
The following table is a magic square, filling in the numbers A, B, C, D and E, the sum of the numbers in each row, each column and each diagonal is equal.  
What is the value of  $A+B+C+D+E$ ? (2 marks)

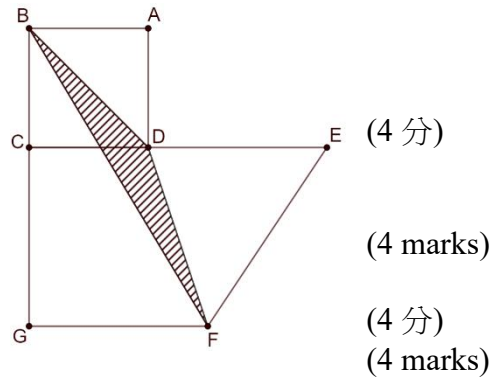
A	B	9
C	10	D
11	5	E

2. 一個正六邊形可以畫多少條對角線？ (2 分)  
How many diagonals can be drawn on a regular hexagon? (2 marks)
3. 一個三角形三條邊長的比是 7 : 9 : 10，若最長與最短的邊相差 36 cm，求該三角形的周界。 (3 分)  
The ratio of the sides of a triangle is 7 : 9 : 10. If the difference between the longest and the shortest sides is 36 cm, what is the perimeter of this triangle? (3 marks)
4. 一漢堡扒牌子建議的漢堡扒最佳烹調時間為每面各煎 2 分鐘，若一個平底鍋最多可以同時煎 2 塊漢堡扒，請問若想以建議的最佳烹調時間煎好 3 塊漢堡扒，最少需要多少分鐘？ (3 分)  
One burger steak brand suggested that the best cooking time for their burger steak is to pan-fry each side of the steak for 2 mins. If the size of the pan for frying those steaks can only accommodate 2 pieces of steaks at the same time. What is the minimum time for cooking 3 pieces of burger steaks with its suggested cooking time? (3 marks)
5. 在 47 位食客中，有 31 人吃牛肉，有 23 人吃豬肉，有 18 人既吃牛肉又吃豬肉，請問有多少食客既不吃牛肉又不吃豬肉？ (3 分)  
There are 47 customers in a restaurant. 31 of them eat beef and 23 of them eat pork. 18 of them eat both beef and pork. How many customers eat neither beef nor pork? (3 marks)
6. 若將某班學生分為 6 組則餘下 1 人，若將他們分成 5 組，則餘下 3 人。若這個班上有 27 位女學生，而男學生人數比女學生人數為少，求這班學生的總人數。 (3 分)  
If a class is split into groups of six, there is one student left. If the same class is split into groups of 5, there are three students left. If there are 27 girls in the class and the number of boys is less than that of girls, find the total number of students in the class? (3 marks)
7. 求下圖中 A 的值。 (3 分)  
In the following figures, find the value of A. (3 marks)

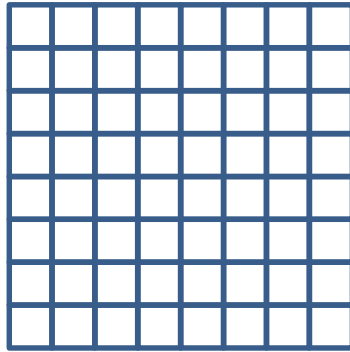


8. 三個連續正整數之乘積為 46 620。請問它們的總和是多少？ (3 分)  
The product of three consecutive numbers is 46 620. What is their sum? (3 marks)
9. 一個七位數可同時被 2、3 及 5 整除。求這七位數的最大可能值。 (4 分)  
A 7-digit number can be divisible by 2, 3 and 5. Find the greatest possible value of this 7-digit number. (4 marks)

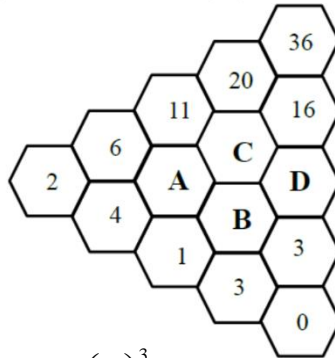
10. 已知正方形 ABCD 的邊長為 4 cm，直角梯形 ECGF 的下底 GF 與高 CG 同為 6 cm 長。三角形 DBF 的面積為多少  $\text{cm}^2$  ?  
The length of the square ABCD is 4 cm, the length of GF and CG of the right-angled trapezium ECGF are 6 cm. What is the area of the triangle DBF in  $\text{cm}^2$  ?



11. 下圖中共有多少個正方形?  
In the following figure, how many squares are there?



12. 求下圖中 A、B、C 和 D 的值。  
In the following figure, find the values of A, B, C and D. (4 分) (4 marks)



13. 定義  $a^n = \underbrace{a \times a \times \dots \times a}_{n \text{ 個 } "a"}$ 。求  $2^7 \times \left(\frac{1}{4}\right)^3$  的值。 (4 分)

Define  $a^n = \underbrace{a \times a \times \dots \times a}_{"a" \text{ appear } n \text{ times}}$ . Find the value of  $2^7 \times \left(\frac{1}{4}\right)^3$ . (4 marks)

14. 家朗替他的行李箱設定一個由 3 個數字組成的密碼，其中每個數字可從「0」至「9」中選取，但每個數字都不能夠重複。請問家朗可組成多少個不同的密碼？ (5 分)  
John is setting a 3-digit password from 0 to 9 inclusive without repetition for his suitcase. How many different passwords can be formed? (5 marks)
15. 將 2022 個蘋果分成若干份，每份的蘋果數目各不相同，且每份最少有 1 個蘋果，問最多可分成多少份？ (5 分)  
2022 apples are separated into groups. Numbers of apples in each group are distinct. There is at least an apple in each group. At most how many groups of apples can be formed? (5 marks)
16. 已知  $1+2+3+\dots+100=5050$  及  $1 \times 1 + 2 \times 2 + 3 \times 3 + \dots + 100 \times 100 = 338350$ ，  
求  $1 \times 3 + 2 \times 5 + 3 \times 7 + 4 \times 9 + \dots + 100 \times 201$ 。 (5 分)  
It is given that  $1+2+3+\dots+100=5050$  and  $1 \times 1 + 2 \times 2 + 3 \times 3 + \dots + 100 \times 100 = 338350$ .  
Find  $1 \times 3 + 2 \times 5 + 3 \times 7 + 4 \times 9 + \dots + 100 \times 201$ . (5 marks)

17. 3ABC8 是一個 5 位數。若 3ABC8 是 9 的倍數，且  $A \neq B \neq C$ 。求該 5 位數的最大可能值。  
(6 分)

3ABC8 is a 5-digit number. If 3ABC8 is multiple of 9, where  $A \neq B \neq C$ . Find the greatest possible number of the 5-digit number.  
(6 marks)

18. 下列算式中，若「身」、「體」、「健」和「康」代表不重複的數字(0-9)，

$$\begin{array}{r} \text{身 體} \\ \text{X} \quad \text{健 康} \\ \hline 3 \quad 9 \quad 7 \quad 6 \end{array}$$

求算式「身 + 體 + 健 + 康」的數值？  
(6 分)

In the following calculation, 'C', 'A', 'R' and 'E' represent a non-repeated number (0-9).

$$\begin{array}{r} \text{C A} \\ \text{X} \quad \text{R E} \\ \hline 3 \quad 9 \quad 7 \quad 6 \end{array}$$

What is the value of the calculation of 'C + A + R + E' ?  
(6 marks)

19. 計算  $\frac{1}{10 \times 11} + \frac{1}{11 \times 12} + \frac{1}{12 \times 13} + \dots + \frac{1}{2030 \times 2031}$ 。  
(7 分)

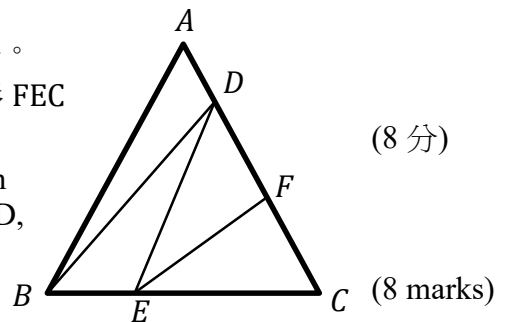
Evaluate  $\frac{1}{10 \times 11} + \frac{1}{11 \times 12} + \frac{1}{12 \times 13} + \dots + \frac{1}{2030 \times 2031}$ .  
(7 marks)

20. 已知  $\frac{\frac{1}{\frac{2}{\frac{3}{\frac{4}{x} + 30} + 20} + 10}}{\frac{1849}{18674}} = \frac{1849}{18674}$ ，求  $x$  的值。  
(7 分)

Given that  $\frac{\frac{1}{\frac{2}{\frac{3}{\frac{4}{x} + 30} + 20} + 10}}{\frac{1849}{18674}} = \frac{1849}{18674}$ , find the value of  $x$ .  
(7 marks)

21. 右圖中，三角形 ABC 是邊長 192 厘米的等邊三角形。若三角形 ABD，三角形 DBE，三角形 DEF 及 三角形 FEC 的面積相等，求 EC+FC。

In the following figure, the length of triangle ABC is an equilateral triangle is 192 cm. If the area of triangle ABD, triangle DBE, triangle DEF and triangle FEC is equal, find EC+FC.



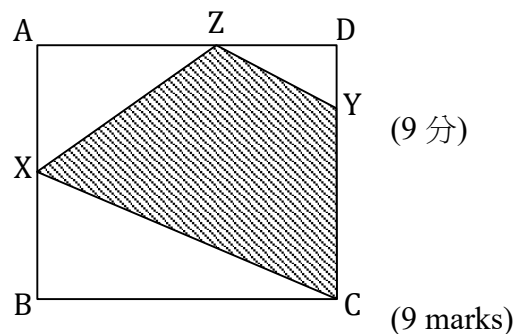
(8 分)

(8 marks)

22. 已知長方形 ABCD 的面積是 720，其中 X 是 AB 的中點。Y 是 CD 上的點使  $CD = 4DY$ ，Z 是 AD 上的點使  $AZ = \frac{3}{5}AD$ 。求陰影部份的面積。

The area of rectangle ABCD is 720. X is the mid-point of AB, Y is a point of CD such that  $CD = 4DY$ , Z is a point of AD such that

$AZ = \frac{3}{5}AD$ . Find the area of the shaded region.



(9 分)

(9 marks)

試卷完 END OF PAPER