

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

決賽 (二零一七年四月一日)
Final (1st April, 2017)

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

1. 求 $2017\frac{1}{4} + 4\frac{1}{8} + 1\frac{1}{25} + \frac{1}{125}$ 的值。 (2 分)
Find the value of $2017\frac{1}{4} + 4\frac{1}{8} + 1\frac{1}{25} + \frac{1}{125}$. (2 marks)

2. 已知兩個正整數之和為 20，它們的最大公因數與最小公倍數之積是 75，求這兩個數。 (2 分)
The sum of two positive integers is known to be 20, and the product of their H.C.F. and L.C.M. is 75. Find these two numbers. (2 marks)

3. 五年前，彼得的年齡是湯姆的 5 倍；從現在起的十六年後，彼得的年齡是湯姆的 2 倍，求現在彼得及湯姆分別的年齡。 (3 分)
Five years ago, Peter's age is five times of Tom; from now on sixteen years later, Peter's age is two times of Tom, find the age of Tom and Peter now respectively. (3 marks)

4. 觀察下列數列，求該數列的第 2017 項。 (3 分)
According to the following sequence, find term 2017 in that series. (3 marks)

5, 9, 13, 17, 21, 25, 29, 33...

5. 2017 隻雞放入 6 個籠中，盛載數量最多雞的籠中至少有多少隻雞？ (4 分)
Put 2017 chickens into 6 cages, at least how many chickens are in the cage which holds the largest number of chickens? (4 marks)

6. 把 25 個橙和 60 隻香蕉平均分給小朋友，分完後橙尚欠 3 個，香蕉卻剩餘 4 隻，一共最多有多少個小朋友？ (4 分)
25 oranges and 60 bananas are evenly distributed to children. After that, they lack 3 oranges but 4 bananas are left. How many children are there at most? (4 marks)

7. 某餐廳的晚飯套餐可自由選擇一份主菜、一份沙律及一杯飲品。已知今天該餐廳共有五款主菜、三款沙律及六款飲品選擇，那麼可配搭出多少種不同的晚餐套餐？ (5 分)
A dinner set in a restaurant is free to choose a main course, a salad and a drink. Today, the restaurant offers five main courses, three salads, and six drinks for customers to choose. How many different dinner sets can be matched? (5 marks)

8. 若四位數 A22A 能被 68 整除，則 A 代表的數字是多少？ (5 分)
 If the four-digit A22A can be divisible by 68, find A. (5 marks)

9. 已知某鐵路隧道長 900 米，一列火車要通過此隧道，火車速度每秒 30 米，車長 210 米，求火車從開始進入隧道到完全離開隧道需用多少秒。 (5 分)

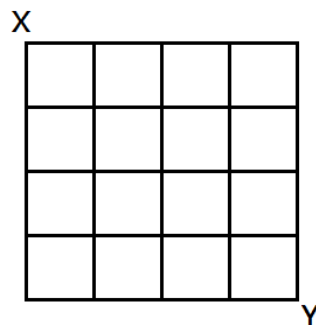
It is known that a railway tunnel is 900 meters. A train passes through the tunnel at a speed of 30 meters per second and the train's length is 210 meters. Find the time the train takes in seconds from entering the tunnel until it leaves the tunnel completely. (5 marks)

10. 某地區舉行足球比賽，共有 10 隊參加。若每隊都要與其他球隊比賽一場，求
 (a) 每個球隊要比賽多少場？
 (b) 整個足球比賽一共有多少場比賽？ (6 分)

A city holds a football match, 10 teams participate. If each team has to compete with other teams once,

- (a) how many games will each team play?
 (b) how many games does the entire football match have? (6 marks)

11. 如圖，從 X 點到 Y 點的最近路線有多少條？ (6 分)
 As shown in the figure, how many shortest routes are there from point X to point Y? (6 marks)



12. 歷史博物館成人門票每張 10 元，兩名成人可免費帶一名兒童進場，兒童票每張 8 元，如果買 6 人一組的團體票，每人只需 7 元，現有 10 名老師和 90 名小學生來參觀，最少要花多少元買門票？ (6 分)

The ticket of History Museum for an adult is \$10, for children is \$8, and a child can be admitted free of charge with two adults. If you buy a 6 people group ticket, each person costs \$7 only. There are 10 teachers and 90 primary students going to visit the History Museum, at least how much money they need to spend on tickets? (6 marks)

13. 一個四位小數四捨五入至千分位後為 2.017，原來的四位小數有多少個可能性？ (7 分)

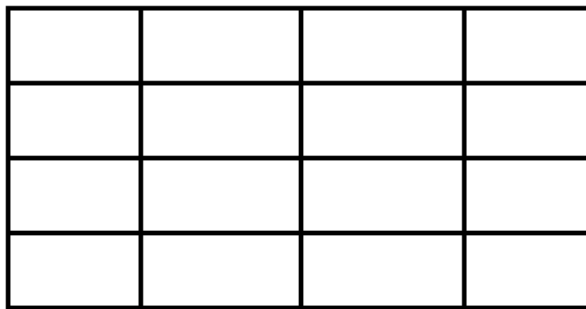
After rounded to the thousandth, one four decimal places equals to 2.017. How many possible solutions of the original four decimal places could be? (7 marks)

14. 設 X 、 Y 是任意的自然數， K 是常數，定義運算 $X \odot Y = K(X + Y) + K(X - Y) + K(XY) + K\left(\frac{X}{Y}\right)$ 。
 已知 $2 \odot 1 = 8$ ，求
 (a) 常數 K 的值，
 (b) $20 \odot (3 \odot 1)$ 的值。 (7 分)

Let X, Y be any natural number, K be a constant, the operation

$X \odot Y = K(X + Y) + K(X - Y) + K(XY) + K\left(\frac{X}{Y}\right)$ is defined. It is known that $2 \odot 1 = 8$, find

- (a) the value of the constant K ,
 (b) the value of $20 \odot (3 \odot 1)$. (7 marks)
15. 下圖中共有多少個長方形？ (8 分)
 How many rectangles are shown in the following figure? (8 marks)



16. 從 101 到 200 的這 100 個自然數的乘積的末尾有多少個連續的 0？ (8 分)
 How many consecutive 0 at the end of the product of the 100 natural numbers from 101 to 200? (8 marks)
17. 湯姆有 15 條鑰匙開 15 個上鎖了的抽屜，但他不知道哪條鑰匙開哪個抽屜，請問他在不重複的情況下最多開多少次，才能把所有抽屜都打開？ (9 分)
 Tom has 15 keys to open 15 locked drawers, but he did not know which key to open which drawer. He will put aside the key once it open the relevant drawer, maximally, how many times does he need trying to open all the drawers? (9 marks)
18. 某小學的五年級共有 120 人，其中 75 人喜歡打籃球，83 人喜歡游泳，95 人喜歡跑步，請問五年級中至少有多少人同時喜歡這三項活動？ (10 分)
 A primary school has a total of 120 primary five students, of which 75 students like playing basketball, 83 students like swimming, and 95 students like running. At least how many primary five students like all these three activities? (10 marks)

試卷完 END OF PAPER