

第二屆全港小學數學挑戰賽(2015-2016)
The 2nd Hong Kong Primary Mathematics Challenge (2015-2016)

初賽 (二零一五年十二月五日)
Semi-Final (5th December, 2015)

小六組 個人項目 試卷
Primary 6 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. 下列三個分數中，哪一個是最大？哪一個是最小？ (2 分)
Among the following fractions, which is the greatest and which is the least? (2 marks)
$$\frac{543}{654}, \frac{654}{765}, \frac{432}{543}$$

2. 將 24 分 36 秒化為小時。 (2 分)
Express 24 minutes and 36 seconds in hour(s). (2 marks)

3. 已知 2015 年 12 月 5 日是星期六，那麼 2016 年 12 月 5 日是星期幾？ (3 分)
Given that 5th December 2015 is Saturday, then what is the weekday of 5th December 2016? (3 marks)

4. 用 0, 1, 2, 3, 4, 5 六個數字，可組多少個沒有數位重覆且數值大於 34000 的五位數？ (3 分)
By arranging six digits 0, 1, 2, 3, 4 and 5, how many 5-digit numbers with no repeated and the value of these number is greater than 34000 can be formed? (3 marks)

5. 求最少要擲骰子多少次才可保證得到最少 10 次相同的結果。 (4 分)
In order to obtain the same result at least 10 times, what is the minimum number of times a die should be thrown? (4 marks)

6. 求 $14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14$ 的個位數字。 (4 分)
Find the unit digit of $14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14 \times 14$. (4 marks)

7. 把以下 8 個數分成兩組，每組有 4 個數，且每組的積相等。 (3 分)
Divide the following eight numbers into 2 groups. So that each group has 4 numbers and their product are equal. (3 marks)
26, 51, 55, 57, 76, 85, 91, 154

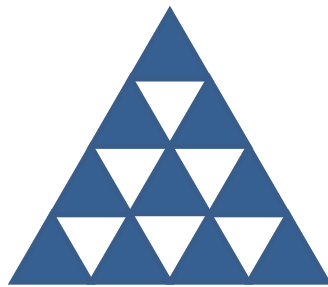
8. 在 1 至 2015 之間，有多少個數分別被 4、5、7 除時，所得餘數均為 3？ (4 分)
 How many numbers are there from 1 to 2015 that give a remainder of 3 when they are divided by 4, 5 and 7 individually? (4 marks)

9. 定義 $a \oplus b = a \times b - a + b$ ，求 $2 \oplus 5$ 的值。 (4 分)
 Define $a \oplus b = a \times b - a + b$ ，find the value of $2 \oplus 5$. (4 marks)

10. 計算 $\frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \dots + \frac{1}{1+2+3+\dots+2015}$ 。 (5 分)
 Find the value of $\frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \dots + \frac{1}{1+2+3+\dots+2015}$. (5 marks)

11. 計算 $\frac{1}{5} + \frac{2}{5} + \frac{3}{5} + \frac{4}{5} + \dots + \frac{100}{5}$ 。 (5 分)
 Find the value of $\frac{1}{5} + \frac{2}{5} + \frac{3}{5} + \frac{4}{5} + \dots + \frac{100}{5}$. (5 marks)

12. 求圖中陰影部分佔整個圖形的面積的百分之幾？ (5 分)
 In the figure, find the percentage of the area of the shaded region to that of the figure? (5 marks)



13. 去年舞蹈學會共有 36 名會員，其中女生佔 $\frac{7}{9}$ 。今年只有多了 N 名女生加入，使女生人數佔所有會員的 $\frac{4}{5}$ 。求 N 是多少？ (6 分)

There were 36 members in Dancing Club last year. Among them, $\frac{7}{9}$ were female. This year,

N girls join the Dancing Club, so that $\frac{4}{5}$ are female. Find the value of N . (6 marks)

14. 有一個特別的分數：當分子加上 2，可化簡為 $\frac{4}{5}$ ；當分母減去 1，可化簡為 $\frac{3}{4}$ 。
求這個特別的分數。 (6 分)

There is a special fraction. When 2 is added to the numerator, it can be simplified to $\frac{4}{5}$.

When 1 is subtracted from the denominator, it can be simplified to $\frac{3}{4}$.

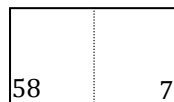
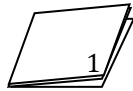
Find this special fraction. (6 marks)

15. 在一袋糖果中，士多啤梨糖佔 20%，橙糖佔 55%，其餘是檸檬糖；已知士多啤梨糖及檸檬糖合共有 36 顆，問該袋糖果共有多少顆？ (6 分)

In a pack of candies of mixed tastes, 20 % of the candies are strawberry. 55% of the candies are orange and the remaining candies are lemon. It is known that there are 36 candies of strawberry and lemon in the pack. Find the total number of candies in the pack. (6 marks)

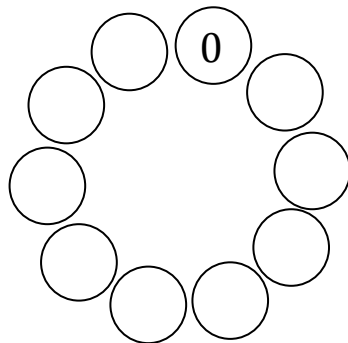
16. 小明用一些 A4 紙對摺並釘裝成了一本書，每張 A4 紙可構成書中的四頁。書面為頁 1，若其中一張紙上一面的編號是 58 和 7，問這本書共有多少頁？ (7 分)

John folded some A4 papers and stapled them together to form a book. Each sheet of A4 paper contributes 4 pages of the book. Note that the cover page is p.1, while p.58 and p.7 appears on one side of a sheet of paper, how many pages does this book consist of? (7 marks)



17. 把 1 至 9 這九個數，分別填入圖中的空格內，使相鄰兩數之積加 1 後皆為平方數。 (7 分)

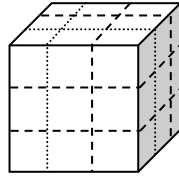
In the figure, fill in the circles by using integers from 1 to 9, such that when 1 is added to the product of any two neighbouring numbers, a square number is formed. (7 marks)



18. 將一立方體的表面油上漆油，然後如圖沿著虛線切成小立方體。有多少個小立方體是
 (i) 一面有漆油 (ii) 兩面有漆油 (iii) 三面有漆油？ (7 分)

A cube is painted and then cut it into small cubes along the dotted lines as shown in the figure.
 How many small cubes have paint

- (i) on one face, (ii) on two faces, (iii) on three faces? (7 marks)

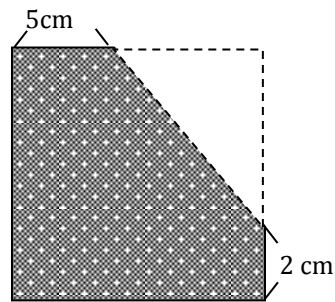


19. 貝貝將邊長 10 cm 的正方形紙剪了一角變成以下圖形，問圖形面積是多少？ (8 分)

Betty cuts a corner off from a square paper with side 10 cm as shown in the following figure.

What is the area of this figure?

(8 marks)

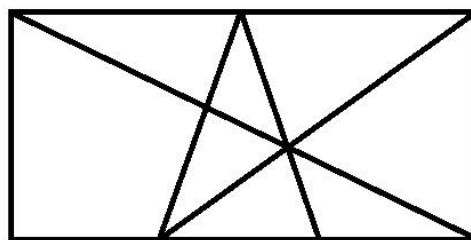


20. 問圖中共有多少個三角形？

(9 分)

How many triangles are there in the figure?

(9 marks)



試卷完 END OF PAPER