

第四屆全港小學數學挑戰賽(2017-2018)
The 4th Hong Kong Primary Mathematics Challenge (2017-2018)

初賽 (二零一七年十二月二日)
 Semi-Final (2nd December, 2017)

小五組	組別項目	試卷
Primary 5	Group 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：400
Total marks: 400

- 一支樽裝汽水喝了一半後，汽水連樽的重量為 900 克。再將剩下的汽水喝一半後，餘下重量為 700 克。求空樽的重量。 (12 分)

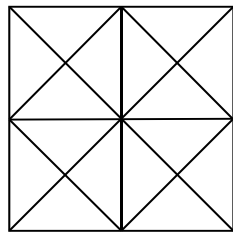
There is a bottle of softdrink. After drinking half of it, the weight of the softdrink together with the bottle is 900g. After further drinking half of the remaining, the weight becomes 700g. Find the weight of the empty bottle. (12 marks)
- 若 2017 年 12 月 2 日是星期六，那麼 2018 年 12 月 2 日是星期幾？ (14 分)

If 2nd December 2017 is Saturday, what is the day of 2nd December 2018? (14 marks)
- 彼得於保齡球館 A 打保齡球，須付 10 元鞋租，而每局收費為 15 元。西蒙於保齡球館 B 打保齡球，須付 20 元鞋租，而每局收費為 13 元。最後他們以相同費用，打了相同的局數，問他們分別打了多少局保齡球及付了多少費用？ (16 分)

Peter played bowling at Centre A. He paid \$10 for renting the shoes and \$15 for each game. Simon played at Centre B which charged \$20 for the shoes and \$13 for each game. Finally, they paid the same total amount for the same number of games. How many games did each of them play? How much did each of them spend? (16 marks)
- 有 120 個學生參加了學校旅行。其中 80 人帶了三文治，64 人帶了水果，12 人甚麼也沒有帶。請找出有多少人同時帶了三文治及水果？ (17 分)

There are 120 students in a school picnic. 80 of them bring sandwiches, 64 of them bring fruit and 12 of them do not bring anything. How many students bring both sandwiches and fruit? (17 marks)
- 求下圖中共有多少個三角形。 (19 分)

Find the number of triangles in the following diagram. (19 marks)



- 以下圖形是由竹簽組成，下圖中是數列的首四項竹簽的數量，若小美只有 800 支竹簽，她能組成最大的圖形為數列中的第幾項？ (21 分)

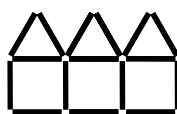
The following figures are formed by sticks. The numbers of sticks in the figures are the first four terms of a sequence. If May has 800 sticks, which term in the sequence would be the largest figure that she can form? (21 marks)



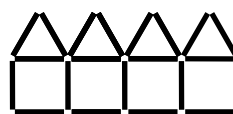
The 1st term
第一項



The 2nd term
第二項



The 3rd term
第三項



The 4th term
第四項



7. 甲和乙同時在同一地點出發前往 500 米外的商場。甲和乙的步速分別為 50 米/分鐘和 30 米/分鐘。當甲到達商場時，發現自己的錢包掉了，他立即沿路折返。甲、乙兩人應該在距離商場多遠處遇到？ (22 分)

Two men, A and B, start walking to a shopping mall at the same place and time. The shopping mall is 500m apart from the starting point. The walking speeds of A and B are 50 m/min and 30 m/min respectively. When A reached the shopping mall, he found that he had lost his wallet and returned along the same road immediately. How far from the shopping mall will A meet B? (22 marks)

8. 已知 $A + A + A + A + A = B + B + C$,
及 $B + B = A + C$,
及 $A + B + C = 450$
求 A 的值。 (23 分)

Given $A + A + A + A + A = B + B + C$,
and $B + B = A + C$,
and $A + B + C = 450$
Find the value of A. (23 marks)

9. 7^{2046} 的個位數是多少？ (24 分)
What is the units digit of 7^{2046} ? (24 marks)

10. 下圖中， a 、 b 、 c 、 d 、 e 、 f 和 g 均為正整數。
求 a 、 b 、 c 、 d 、 e 、 f 和 g 的值。 (28 分)

In the below figure, a, b, c, d, e, f and g are positive integers.
Find the values of a, b, c, d, e, f and g . (28 marks)

a	\div	b	$=$	b
-		\times		+
c	\times	d	$=$	e
$=$		$=$		$=$
f	+	g	$=$	11

11. 有五個不同的數。若將它們每兩個相加，所得的和如下：
4, 7, 8, 9, 10, 14, 13, 16, 19, 20
求這五個數。 (28 分)

There are five different numbers. When every two of them are added, the sums are as follows:
4, 7, 8, 9, 10, 14, 13, 16, 19, 20
Find these five numbers. (28 marks)

12. 如果英文字 'PRIMARY' 的數字密碼是 '61091251024'，請寫出英文字 'HAPPY' 的數字密碼。 (30 分)

If the word 'PRIMARY' can be represented by the code '61091251024', write down the code of the word 'HAPPY'. (30 marks)

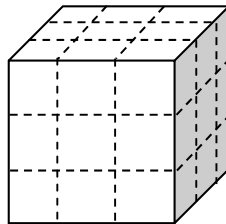
13. 在 1 至 280 中 (包括 1 和 280) , 有多少個數不能被 2、5 或 7 整除? (33 分)
 From 1 to 280 (including 1 and 280), how many numbers are not divisible by 2, 5 or 7? (33 marks)

14. 將 3 表示為一個或多個正整數之和, 例如: $3 = 3$, $3 = 1 + 2$, $3 = 2 + 1$, $3 = 1 + 1 + 1$, 共有四種不同的表示方法。若將 8 表示為一個或多個正整數之和, 共有多少種不同的方法? (35 分)
 There are four different ways to make 3 by adding up one or several positive integers, e.g., $3 = 3$, $3 = 1+2$, $3 = 2+1$, $3 = 1+1+1$. How many different ways are there to make 8 by adding up one or several positive integers? (35 marks)

15. 小明將一立方體的表面油上漆油, 然後沿著虛線切成若干個較小的立方體(如圖所示)。有多少個小立方體
 (i) 只有一面有漆油?
 (ii) 只有兩面有漆油?
 (iii) 只有三面有漆油? (38 分)

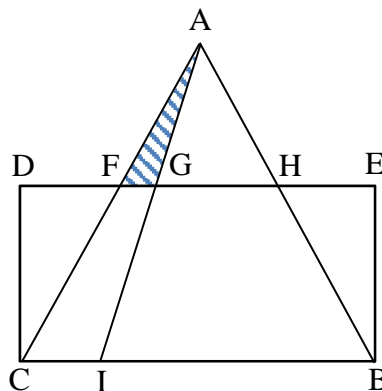
Ming painted the surface of a cube and then cut it into some smaller cubes (as shown in the figure). How many small cubes have paint

- (i) with only one face?
 (ii) with only two faces?
 (iii) with only three faces?



(38 marks)

16. 如下圖, $\triangle AFG$ 的面積為 6 cm^2 , 已知 $\triangle ABC$ 的面積比梯形 $FEBC$ 的面積大 3 cm^2 , CI 與 IB 的長度比為 $1:3$, 求 $\triangle EBH$ 的面積。 (40 分)
 In the figure, the area of $\triangle AFG$ is 6 cm^2 . The area of $\triangle ABC$ is 3 cm^2 greater than the area of trapezium $FEBC$ and the ratio of CI to IB is $1:3$. Find the area of $\triangle EBH$. (40 marks)



試卷完 END OF PAPER