

**第一屆全港小學數學挑戰賽(2014-2015)**  
**The 1<sup>st</sup> Hong Kong Primary Mathematics Challenge (2014-2015)**

**初賽 (二零一四年十二月六日)**  
**Semi-Final (6<sup>th</sup> December, 2014)**

<b>小六組</b>	<b>組別項目</b>	<b>試卷</b>
<b>Primary 6</b>	<b>Group Event</b>	<b>Question Paper</b>

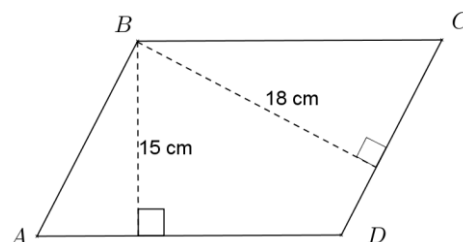
**參賽者須知 Instructions to Contestants**

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.

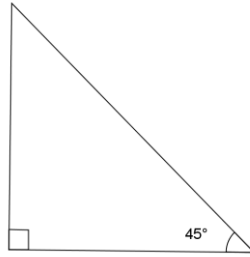
時限：四十五分鐘  
Time allowed: 45 minutes

總分：400  
Total marks: 400

1. 下列各數中，哪些是質數？ (20 分)  
Which of the following is/are prime numbers? (20 marks)  
667、767、766、677、777、676
2. 有一條七級樓梯。小明每次只向上行一級或兩級，問他共有多少個不同方法行完該樓梯。 (30 分)  
There is a stairway with seven steps. Sam will walk upstairs either one step or two steps each time.  
How many different ways are there for Sam to walk up the stairway? (30 marks)
3. 計算  $\frac{(1-\frac{1}{2})(1-\frac{1}{4})\dots(1-\frac{1}{2014})}{(1+\frac{1}{2})(1+\frac{1}{4})\dots(1+\frac{1}{2014})}$ 。 (30 分)  
Find the value of  $\frac{(1-\frac{1}{2})(1-\frac{1}{4})\dots(1-\frac{1}{2014})}{(1+\frac{1}{2})(1+\frac{1}{4})\dots(1+\frac{1}{2014})}$ . (30 marks)
4. 若  $a \otimes b = a \div b - b \div a$ ，求  $(3 \otimes 2) \otimes \frac{5}{6}$  的值。 (20 分)  
If  $a \otimes b = a \div b - b \div a$ ，find the value of  $(3 \otimes 2) \otimes \frac{5}{6}$ . (20 marks)
5. 求  $1307^{2015}$  的個位及十位數。 (30 分)  
Find the units digit and tens digit of  $1307^{2015}$ . (30 marks)
6. 平行四邊形  $ABCD$  的周界是 88cm，由  $B$  到  $AD$  及  $DC$  的高分別為 15 cm 及 18 cm。求平行四邊形的面積。 (30 分)  
The perimeter of parallelogram  $ABCD$  is 88 cm. The height from  $B$  to  $AD$  and  $DC$  are 15 cm and 18 cm respectively. Find the area of the parallelogram. (30 marks)



7. 一塊 45 度的三角板，最長的邊是 10 cm，它的面積是多少？ (25 分)  
 The longest side of a 45 degree set square is 10 cm. Find its area. (25 marks)



8. 在以下算式中， $A$ 、 $B$ 、 $C$  及  $D$  分別代表 1、2、3、4 之間不同的整數。  
 In the following expression,  $A$ ,  $B$ ,  $C$  and  $D$  represent 4 different integers among 1, 2, 3 and 4 respectively.

$$\begin{array}{r} A \ A \ A \ A \\ \times \phantom{A \ A \ A \ A} \phantom{A} \ B \\ \hline C \ B \ B \ B \ D \end{array}$$

- 求  $A$ ,  $B$ ,  $C$  及  $D$ 。 (25 分)  
 Find  $A$ ,  $B$ ,  $C$  and  $D$ . (25 marks)

9. 四名游泳選手  $A$ 、 $B$ 、 $C$  及  $D$  於比賽前預測比賽成績：

- $A$  說：我肯定得第一。  
 $B$  說：我絕對不會是最尾的一個。  
 $C$  說：我不能得第一，但我也不是最尾的一個。  
 $D$  說：那我是最後的一名吧！

比賽完畢後，發現他們之中只有一位預測錯誤，已知他們無並列名次，請問哪一位選手預測錯誤？ (25 分)

Four athletes  $A$ ,  $B$ ,  $C$  and  $D$  join a swimming competition. They predict the result before the game.

- $A$  said, 'I will be the champion.'  
 $B$  said, 'I will not be the last one.'  
 $C$  said, 'I won't be the first, nor the last one.'  
 $D$  said, 'I will be the last.'

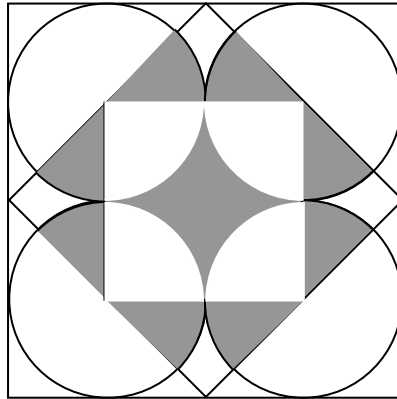
After the competition, exactly one of them makes the wrong prediction. Who is he/she? (25 marks)

10. 一項工程，甲獨自工作需要 12 天完成，若甲獨自工作 8 天，餘下部份乙需要 2 天完成。若甲獨自工作 2 天，餘下工作乙需要多少天才能完成？ (25 分)  
 Albert needs 12 days to complete a task by himself. If Albert works alone for 8 days, Billy needs 2 more days to complete Albert's remaining task. If Albert works alone for 2 days, how many extra days do Billy need to complete Albert's remaining task? (25 marks)

11. 求  $1 + 2\frac{1}{6} + 3\frac{1}{12} + 4\frac{1}{20} + 5\frac{1}{30} + 6\frac{1}{42} + 7\frac{1}{56} + 8\frac{1}{72} + 9\frac{1}{90}$  的值。 (30 分)

Find the value of  $1 + 2\frac{1}{6} + 3\frac{1}{12} + 4\frac{1}{20} + 5\frac{1}{30} + 6\frac{1}{42} + 7\frac{1}{56} + 8\frac{1}{72} + 9\frac{1}{90}$ . (30 marks)

12. 1、2、3、4、5、6、7、8、9 九個數字由小至大排列，在其中插入三個運算符號（只能使用 + 或 -）。請找出值等於 56 的算式。 (25 分)  
 1, 2, 3, 4, 5, 6, 7, 8, 9 are arranged in the ascending order. Find an expression of which the value is 56 by adding 3 arithmetic operators (only '+' or '-') among the numbers. (25 marks)
13. 設最外圍正方形的邊長為 2 cm，求所有陰影部份的總面積？ (25 分)  
 If each side of the outer square is 2 cm, find the area of the shaded part. (25 marks)



14. 第一行 First row :  $\frac{1}{1}$   
 第二行 Second row :  $\frac{2}{1}, \frac{1}{2}$   
 第三行 Third row :  $\frac{3}{1}, \frac{2}{2}, \frac{1}{3}$   
 第四行 Fourth row :  $\frac{4}{1}, \frac{3}{2}, \frac{2}{3}, \frac{1}{4}$   
 ...  
 $\frac{99}{100}$  應排第幾行？ (30 分)  
 Which row does  $\frac{99}{100}$  belong to? (30 marks)
15. 從 1, 2, 3, ..., 30 中任意抽出兩個不同的數。已知兩數之和少於 30，共有多少種不同的取法？ (30 分)  
 Two different numbers are randomly selected from 1 to 30 inclusively. In how many different ways can the sum of these two numbers be less than 30? (30 marks)

試卷完 END OF PAPER