

第一屆全港小學數學挑戰賽(2014-2015)
The First Annual Hong Kong Primary Mathematics Challenge (2014-2015)

決賽 (二零一五年三月廿八日)
Final (28th March, 2015)

小六組	個人項目	題目紙
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、比賽試場、座位編號。
Write your name, class, admission number, venue, 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 sheets 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 your working out.
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 in the form of fractions 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 risks 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. 計算 $4\frac{10}{17} \times 3\frac{6}{11} \times 3\frac{5}{13} \times 3\frac{7}{26}$ 。

(4 分)

Evaluate $4\frac{10}{17} \times 3\frac{6}{11} \times 3\frac{5}{13} \times 3\frac{7}{26}$.

(4 marks)

2. 計算 $20152015 \times 2016 - 20162016 \times 2015$ 。

(4 分)

Evaluate $20152015 \times 2016 - 20162016 \times 2015$.

(4 marks)

3. 解方程式 $23\left(50 - \frac{2x}{3}\right) - 13 = 79$ 。

(5 分)

Solve the equation $23\left(50 - \frac{2x}{3}\right) - 13 = 79$.

(5 marks)

4. 在一間售賣智能電話的店舖內，美國品牌佔 30%，韓國品牌佔 45%，其餘是中國品牌，已知美國品牌及韓國品牌合共有 456 部，問店舖內有多少個部智能電話？

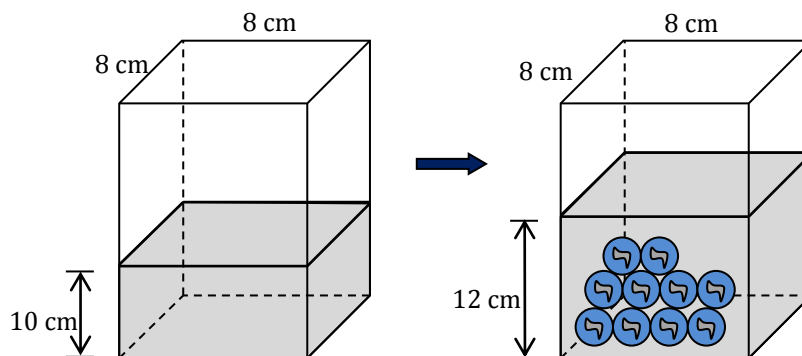
(5 分)

In a smart phone shop, 30 % of the smart phones are an American brand, 45% are a Korean brand, and the remaining are a Chinese brand. It is known that the total number of American brand and Korean brand smart phones in the shop is 456. Find the total number of smart phones in the shop. (5 marks)

5. 圖中，把 10 粒相同的波子放入水中後，水面高度由 10cm 升至 12cm。如果把 25 粒相同的波子放入水中，水面將升高多少？

(4 分)

When 10 marbles were put into the water tank shown in the figure, the water level rose from 10cm to 12cm. If 25 marbles are put into the tank, by how much will the water level be raised? (4 marks)



6. 正整數 n 除以 3 餘 2，除以 5 餘 4，若 n 可被 7 及 11 整除，求 n 的最小數值。

(6 分)

A positive integer n leaves a remainder 2 on division by 3 and leaves a remainder 4 on division by 5.

If n is divisible by 7 and 11, find the smallest value of n .

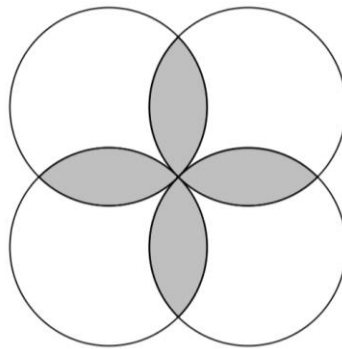
(6 marks)

7. 將下列五個分數由小至大排列，哪一個排第二、哪一個排第四？ (6分)
 If the following five fractions are arranged in ascending order, which one is the second and which one is the fourth? (6 marks)

$$\frac{5}{9}, \frac{16}{31}, \frac{7}{13}, \frac{11}{23}, \frac{8}{17}$$

8. 下圖由四個半徑為 16 cm 的圓形重疊所組成，求陰影部分的周界。 (取 $\pi = \frac{22}{7}$) (5分)

The following figure is formed by 4 circles with the same radius 16cm, find the perimeter of the shaded region. (take $\pi = \frac{22}{7}$) (5 marks)



9. 定義 $A \otimes B = A^2 \times B^3$ 。計算 $\frac{1}{8 \otimes \left(\frac{1}{8 \otimes \frac{1}{2}} \right)}$ 。 (5分)

Define $A \otimes B = A^2 \times B^3$. Find the value of $\frac{1}{8 \otimes \left(\frac{1}{8 \otimes \frac{1}{2}} \right)}$. (5 marks)

10. 三個連續質數的和是 1015，求這三個數。 (6分)
 The sum of three consecutive prime numbers is 1015. Find the three numbers. (6 marks)

11. 小芬在一次考試中考了中文、英文、數學和常識四科。她在中文科、英文科及常識科分別考獲 70 分、88 分及 75 分，但她忘記了數學科的分數，只知道她在這次考試中的平均分為 77 分，求她在數學科考獲的分數。 (5分)

Fanny had tests in Chinese Language, English Language, Mathematics and General Studies. She got 70 marks, 88 marks and 75 marks respectively in Chinese Language, English Language and General Studies. However, she forgot the marks in Mathematics. If she got an average of 77 marks in the 4 subjects, find her score in Mathematics. (5 marks)

12. 求 2813 及 3007 的最小公倍數。

(7 分)

Find the Least Common Multiple (L.C.M.) of 2813 and 3007.

(7 marks)

13. 若 x 及 y ($x < y$) 是正整數，並滿足以下算式 $\frac{1}{x} + \frac{1}{y} = \frac{1}{199}$ ，求 x 和 y 的值。

(6 分)

If x and y ($x < y$) are positive integers and satisfy the following equation $\frac{1}{x} + \frac{1}{y} = \frac{1}{199}$, find the values of x and y .

(6 marks)

14. 3 個連續正整數的積是 215940，求這三個數中的最小整數。

(6 分)

The product of 3 consecutive positive numbers is 215940. Find the least one of these 3 numbers.

(6 marks)

15. 已知 $\frac{1}{1 + \frac{1}{2 + \frac{1}{3 + \frac{1}{4 + \frac{1}{x}}}}} = \frac{67}{96}$ ，求 x 。

(6 分)

If $\frac{1}{1 + \frac{1}{2 + \frac{1}{3 + \frac{1}{4 + \frac{1}{x}}}}} = \frac{67}{96}$, find x .

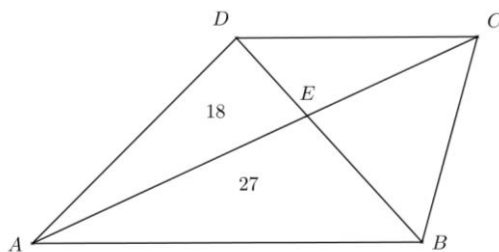
(6 marks)

16. 在圖中， $ABCD$ 是一梯形， $AB \parallel DC$ ，其中 $\triangle ABE$ 及 $\triangle ADE$ 的面積分別為 27 及 18 平方單位。求梯形 $ABCD$ 的面積。

(7 分)

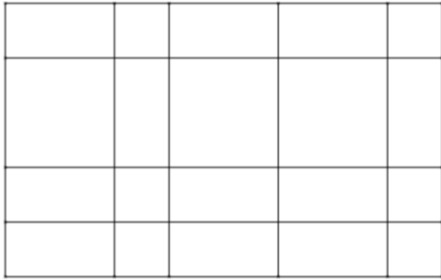
In the figure, $ABCD$ is a trapezium and $AB \parallel DC$. The areas of $\triangle ABE$ and $\triangle ADE$ are 27 and 18 square units respectively. Find the area of trapezium $ABCD$.

(7 marks)



17. 下圖由 5 條水平線及 6 條鉛垂線所組成，圖中有多少個不同的長方形？ (6 分)

The following figure contains 5 horizontal lines and 6 vertical lines. How many rectangles can be formed? (6 marks)



18. 小明和小福喜歡用暗號互傳訊息，小明傳給小福的暗號如下：

Johnny and David always transfer messages with a secret code. Johnny sent the following secret code to David :

uibv triq

但小福忘記了解開暗號的方法，只記得上一次小明傳給他的暗號是 pbghw lrmzn，這暗號是代表 watch movie。

David forgot the decoding method, but he remembers Johnny sent the secret code 'pbghw lrmzn' to him last time. The actual message is 'watch movie'.

這一次暗號代表的是甚麼？

(7 分)

What is the actual message this time?

(7 marks)

試卷完 END OF PAPER