

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

決賽 (二零一六年四月二日)  
Final (2<sup>nd</sup> April, 2016)

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

1. 求  $333000444222 \div 999$  的值。 (12 分)  
Find the value of  $333000444222 \div 999$ . (12 marks)
  
2. 將 0.41 小時化為分及秒。 (12 分)  
Convert 0.41 hour into minutes and seconds. (12 marks)
  
3. 求  $2016^{2016}$  的個位及十位數。 (13 分)  
Find the unit and ten digit of  $2016^{2016}$ . (13 marks)
  
4. 小美的體重是媽媽的 80%。如果媽媽的體重是小美的  $x\%$ ，求  $x$  的值。 (16 分)  
Mary's weight is 80% of her mother's. If her mother's weight is  $x\%$  of Mary's, find the value of  $x$ . (16 marks)
  
5. 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 34 000 的五位數？ (20 分)  
How many 5-digit numbers with no repeated digit are formed by 0, 1, 2, 3, 4, 5 and the value of these number is greater than 34 000? (20 marks)
  
6. 將四個大於 3 的相異自然數填入下面的四個空格內，使得等式成立。  
 $\square + \square + \square + \square = 27$   
已知這四個數是按照由小至大的順序由左至右分別填入空格內。問滿足以上條件的填法共有多少種？ (22 分)  
Four different natural numbers, each larger than 3, are placed in the four boxes below to set the equation.  
 $\square + \square + \square + \square = 27$   
The four numbers are arranged from the smallest to the largest, starting from the left.  
How many different ways can we fill the four boxes? (22 marks)
  
7. 房間內有 12 人。若每人與其餘的人都各握手，求握手的總次數。 (23 分)  
There are 12 people in a room. If each of them shakes hands with the other, find the total number of times they shake hands. (23 marks)

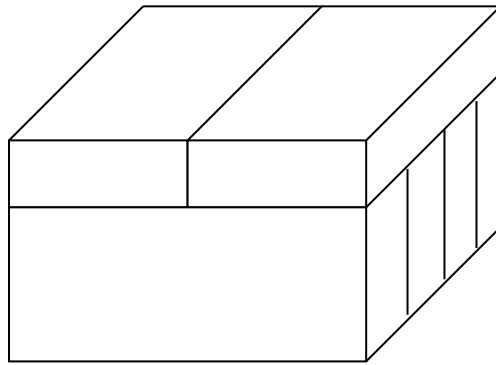
8. 已知有兩組數，第一組有 30 個數，平均值為 64 ；而第二組的平均值為 79 。  
若這所有數的平均為 70 ，問第二組數有多少個數？ (24 分)

There are two groups of data. The first group has 30 data and their mean is 64 .

The mean of the data in the second group is 79 . If the mean of all data is 70 ,  
find the number of data in the second group. (24 marks)

9. 下圖是由 6 個相同的長方體組合而成，已知它的體積是  $1296 \text{ cm}^3$  ，求它的表面積是多  
少。 (24 分)

The following figure is formed by 6 identical cuboids. Given that the volume of the figure  
is  $1296 \text{ cm}^3$  , find the surface area of the figure. (24 marks)



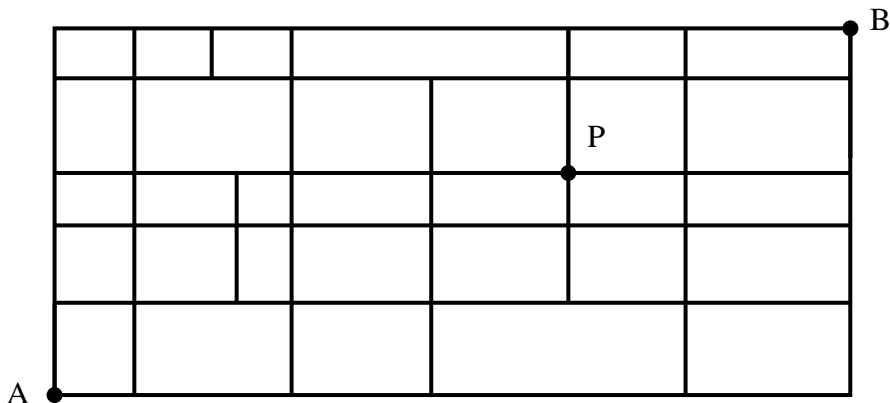
10. 有多少個三位數是 3 的倍數或 5 的倍數？ (27 分)

Find the number of all 3 digit numbers which are multiples of 3 or multiples of 5 .

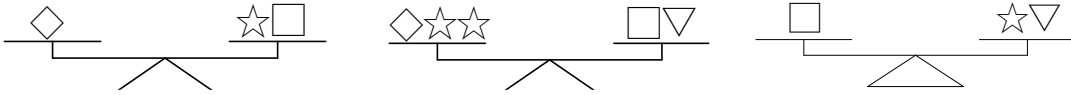
(27 marks)

11. 如圖所示，從 A 點出發到 B 點，每步只能向上或向右走，求其中必須 經過 P 點的  
共有多少種走法？ (29 分)

Refer to the following figure, if a person moves from point A to point B , he can move  
upwards or rightwards only. How many different ways are there that he must walk through  
point P ? (29 marks)



12.



根據上圖中天秤所示，求  $\diamond$ 、 $\star$ 、 $\square$  和  $\nabla$  之重量的關係。 (30 分)

Find the relationships between the weights of  $\diamond$ ,  $\star$ ,  $\square$  and  $\nabla$  based on the balances shown above. (30 marks)

(a)  $\nabla$  的重量 =  $\underline{\hspace{1cm}}$   $\times$   $\star$  的重量  
 Weight of  $\nabla$  =  $\underline{\hspace{1cm}}$   $\times$  Weight of  $\star$

(b)  $\diamond$  的重量 =  $\underline{\hspace{1cm}}$   $\times$   $\star$  的重量  
 Weight of  $\diamond$  =  $\underline{\hspace{1cm}}$   $\times$  Weight of  $\star$

(c)  $\square$  的重量 =  $\underline{\hspace{1cm}}$   $\times$   $\star$  的重量  
 Weight of  $\square$  =  $\underline{\hspace{1cm}}$   $\times$  Weight of  $\star$

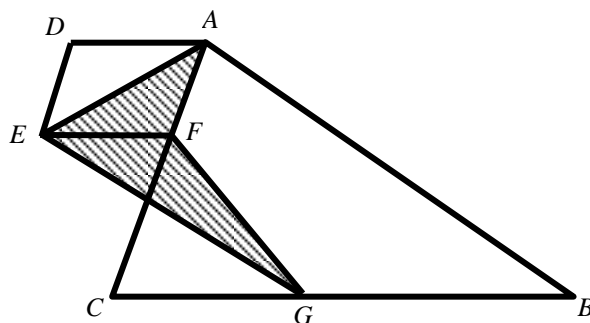
(d)  $\square$  的重量 =  $\underline{\hspace{1cm}}$   $\times$   $\diamond$  的重量  
 Weight of  $\square$  =  $\underline{\hspace{1cm}}$   $\times$  Weight of  $\diamond$

(e)  $\diamond$  的重量 =  $\underline{\hspace{1cm}}$   $\times$   $\nabla$  的重量  
 Weight of  $\diamond$  =  $\underline{\hspace{1cm}}$   $\times$  Weight of  $\nabla$

13. 下圖由 三角形  $ABC$  及菱形  $ADEF$  組成。已知三角形  $ABC$  的面積為  $162 \text{ cm}^2$ ， $AD$  平行  $BC$  及  $2AC = 6AF = BC$ 。求陰影部份面積。 (32 分)

The figure below is made of a triangle  $ABC$  and a rhombus  $ADEF$ . It is given that the area of the triangle  $ABC$  is  $162 \text{ cm}^2$ ,  $AD$  is parallel to  $BC$  and  $2AC = 6AF = BC$ .

Find the area of the shaded region. (32 marks)



14. 求數字 2016 在以下的排列中出現的次數。

(34 分)

Find the number of times of the number 2016 appear in the following pattern.

(34 marks)

1	2	3	4	...
2	4	6	8	...
3	6	9	12	...
4	8	12	16	...
5	10	15	20	...
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮

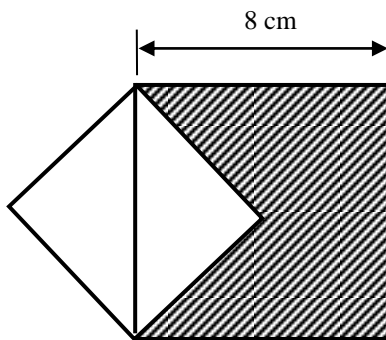
15. 下列圖形分別由兩個正方形組成，求陰影部份面積。

(40 分)

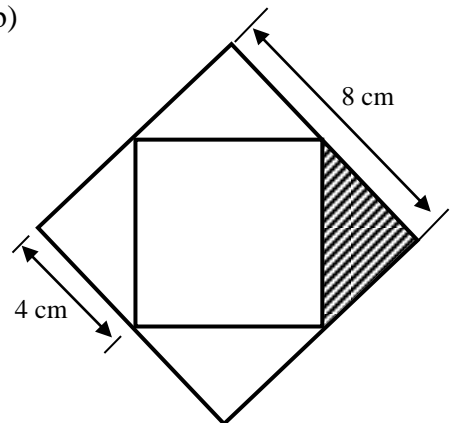
Each of the following figures is made of two squares. Find the areas of the shaded regions.

(40 marks)

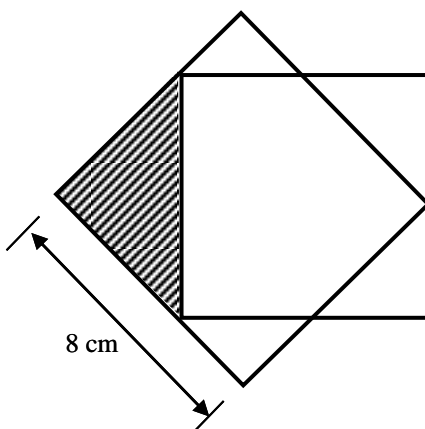
(a)



(b)



(c)



16. 有兩個三位數之積為 123 123，求這兩個三位數之和的所有可能值。 (42 分)  
The product of two 3-digit numbers is 123 123 . Find all the possible values of the sum of these two 3-digit numbers. (42 marks)

試卷完 END OF PAPER