

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

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

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. 2014²⁰¹⁵的個位數字是甚麼？ (20 分)
What is the unit digit of 2014²⁰¹⁵? (20 marks)

2. 將一個大正方形分割成 9 個大小相同的小正方形，它們周界的總和是大正方形的多少倍？ (20 分)
A square is divided into 9 small identical squares. How many times is the sum of the perimeters from these 9 small squares greater than the perimeter of the large square? (20 marks)

3. 由 301 至 600 的所有正整數中，既不是 5 的倍數、又不是 6 的倍數的數有多少個？ (30 分)
How many positive integers are there from 301 to 600 that are neither a multiple of 5 nor a multiple of 6? (30 marks)

4. 求首 200 個 13 的倍數的和除以 3 的餘數。 (30 分)
Find the remainder when the sum of the first 200 multiples of 13 is divided by 3. (30 marks)

5. 將 14、21、22、26、33、35、39、55、65 九個數分成 3 組，每組 3 個數，並使各組的積相等。 (30 分)
Divide 14, 21, 22, 26, 33, 35, 39, 55, 65 into 3 groups. Each group should comprise 3 numbers and have the same product. (30 marks)

6. 一幅長方形的牆，闊 663cm、高 391cm，用相同大小的正方形瓷磚鋪滿，每片正方形瓷磚的邊長最大值是多少？ (25 分)
A rectangular wall of length 663cm and height 391cm is covered with square tiles of the same size. What could be the greatest length of each square tile? (25 marks)

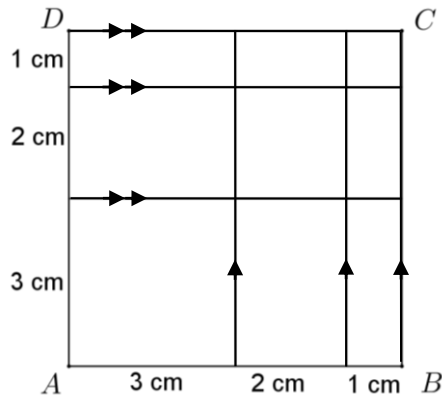
7. 某班有學生 N 人。若將學生分為每 4 人一組，有 1 人餘下；若將學生分為每 5 人一組，有 1 人餘下；若將學生分為每 7 人一組，有 1 人餘下。如 N 的數值大於 1，求 N 的最小值。 (30 分)
There are N pupils in a class. When they are divided into groups of 4, 1 pupil is left behind. When they are divided into groups of 5, 1 pupil is left behind. When they are divided into groups of 7, 1 pupil is left behind. If N is greater than 1, find the least value of N. (30 marks)

8. 下面的算式中，不同的英文字母代表不同的數字。求 A、B、C 及 D 的值。 (25 分)
In the following expression, different letters represent different numbers. Find the values of A, B, C and D. (25 marks)

$$\begin{array}{r}
 \text{A} \quad 0 \quad 3 \\
 \times \qquad \qquad \text{B} \\
 \hline
 \text{D} \quad \text{B} \quad \text{C} \quad \text{D}
 \end{array}$$

9. 如圖所示， $ABCD$ 是一個正方形，線段 AB 被分成三段，長度分別為 1 cm, 2 cm 及 3 cm。同樣，線段 AD 亦分成三段，長度分別為 1 cm, 2 cm 及 3 cm。問圖中共有多少個正方形？ (30 分)

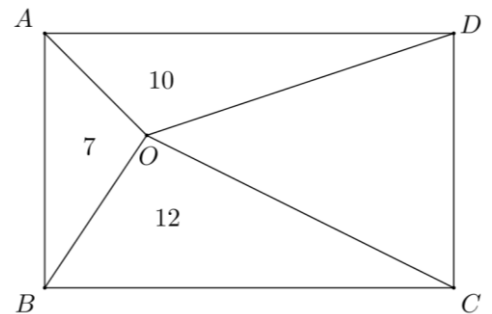
The figure, $ABCD$ is a square. Segment AB is divided into 3 parts, with lengths 1 cm, 2 cm and 3 cm respectively. Segment AD is also divided into 3 parts, with lengths 1 cm, 2 cm and 3 cm respectively. How many squares are there in the following figure? (30 marks)



10. 已知 $【9】 = 9$ ， $【26】 = 2 + 6 = 8$ ， $【137】 = 1 + 3 + 7 = 11$ ， $【6842】 = 6 + 8 + 4 + 2 = 20$
 求 $【16】 + 【【288】】 \times 【【【5184】】】$ 。 (30 分)
 Given that : $【9】 = 9$ ， $【26】 = 2 + 6 = 8$ ， $【137】 = 1 + 3 + 7 = 11$ ， $【6842】 = 6 + 8 + 4 + 2 = 20$
 Find $【16】 + 【【288】】 \times 【【【5184】】】$. (30 marks)

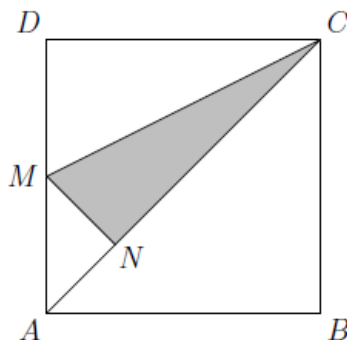
11. 在圖中， $ABCD$ 是一個長方形。若三角形 $\triangle ABO$ 、 $\triangle ADO$ 及 $\triangle BCO$ 的面積分別是 7、10 及 12 平方單位，求 $\triangle CDO$ 的面積。
 (25 分)

The figure, $ABCD$ is a rectangle. If the areas of $\triangle ABO$, $\triangle ADO$ and $\triangle BCO$ are 7, 10 and 12 square units respectively, find the area of $\triangle CDO$. (25 marks)



12. 下圖為一個正方形 $ABCD$ ， M 為 AD 的中點及 MN 垂直於對角線 AC ，三角形 MNC 的面積是正方形 $ABCD$ 的面積的幾分之幾？
 (25 分)

In the figure, $ABCD$ is a square. M is the mid-point of AD and MN is perpendicular to the diagonal AC . What fraction is the area of triangle MNC of the area of square $ABCD$? (25 marks)



13. 已知 $1 \div 11 = 0.\dot{0}\dot{9}$, $2 \div 11 = 0.\dot{1}\dot{8}$, $3 \div 11 = 0.\dot{2}\dot{7}$, $4 \div 11 = 0.\dot{3}\dot{6}$... 及
 $1 \div 9 = 0.\dot{1}$, $2 \div 9 = 0.\dot{2}$, $3 \div 9 = 0.\dot{3}$... 。化 $0.\dot{4}\dot{9}$ 為分數。 (30分)
 Given that $1 \div 11 = 0.\dot{0}\dot{9}$, $2 \div 11 = 0.\dot{1}\dot{8}$, $3 \div 11 = 0.\dot{2}\dot{7}$, $4 \div 11 = 0.\dot{3}\dot{6}$... and
 $1 \div 9 = 0.\dot{1}$, $2 \div 9 = 0.\dot{2}$, $3 \div 9 = 0.\dot{3}$ Convert $0.\dot{4}\dot{9}$ to fraction. (30 marks)

14. 某校小五有 A、B、C、D、E 五個班級，考試後，五名導師預測五個班級的排名情況如下表：
 Five teachers predict the order of ranking of five classes A, B, C, D and E in an examination as follows:

	第一名 First	第二名 Second	第三名 Third	第四名 Fourth	第五名 Fifth
導師 1 Teacher 1	A	B	C	D	E
導師 2 Teacher 2	E	D	A	B	C
導師 3 Teacher 3	E	B	C	D	A
導師 4 Teacher 4	C	E	D	A	B
導師 5 Teacher 5	E	B	C	A	D

成績公佈後，這五個班級的平均分都不相同，其中只有兩位導師各猜中兩個班級的排名，其餘三名導師全部猜錯這五個班級的排名，求這五個班級正確的排名？ (30分)

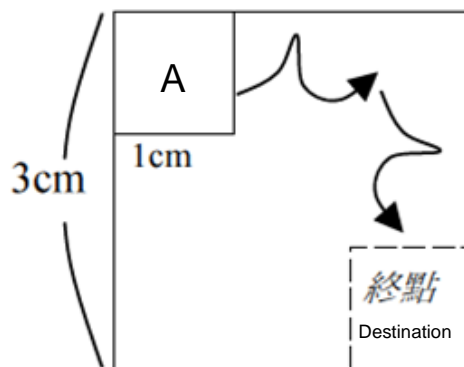
After the examination, which produces no ties between classes, it turns out that two teachers guess correctly the ranks of two of the classes but are wrong about the ranks of the other three. The other three teachers are wrong about the ranks of every class. Find the order of ranking of the classes.

(30 marks)

15. 如下圖，大正方形的左上角有一個邊長 1 cm 的小正方形。小正方形沿著邊長 3 cm 的大正方形滾動，每次滾動 90°至大正方形右下角。若小正方形滾動至終點時，試繪畫出小正方形於終點時的圖像。 (20分)

In the figure, a small square with each side of 1cm is found at the top left corner of a larger square of each side of 3 cm. The small square is rolled along the side of the large square. It rotated through 90° each time to the bottom right corner. Draw the image of the small square at the destination.

(20 marks)



試卷完 END OF PAPER