

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

決賽 (二零一八年三月二十四日)
Final (24th March, 2018)

小五組 個人項目 試卷
Primary 5 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、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：100
Total marks: 100

1. 以下為三個循環小數的例子，

$$0.\dot{1} = 0.111111\dots, \quad 0.45\dot{2}\dot{3} = 0.45232323\dots, \quad 0.45\dot{2}7\dot{3} = 0.45273273273\dots$$

如在循環小數 $0.201856\dot{7}$ 上再添加一個循環符號 “ \cdot ”，使這個循環小數獲得最大值，應將符號加在哪個數字上？ (2 分)

The following numbers are the examples of three recurring decimals,

$$0.\dot{1} = 0.111111\dots, \quad 0.45\dot{2}\dot{3} = 0.45232323\dots, \quad 0.45\dot{2}7\dot{3} = 0.45273273273\dots$$

Add a recurring notation “ \cdot ” on the recurring decimal $0.201856\dot{7}$, such that the number can attain its maximum value. Which number should we put the recurring notation on? (2 marks)

2. 求 $117 \times 137 \times 157 \times 177 \times 197 \times 217 \times 237 \times \dots \times 597$ 的個位數。 (2 分)

Find the units digit of $117 \times 137 \times 157 \times 177 \times 197 \times 217 \times 237 \times \dots \times 597$. (2 marks)

3. 求 $(234567 + 345672 + 456723 + 567234 + 672345 + 723456) \div 3$ 的值。 (2 分)

Find the value of $(234567 + 345672 + 456723 + 567234 + 672345 + 723456) \div 3$. (2 marks)

4. 一個測驗有 15 題多項選擇題，答對可得 3 分，答錯扣 2 分，放棄扣 1 分。舒琪 答對了 9 題，若她最終得分是 17 分，問她答錯了多少題？ (3 分)

A test consists of 15 multiple choices questions, 3 marks will be awarded for each correct answer, 2 marks will be deducted for each wrong answer and 1 mark will be deducted for no response. Suki answered 9 questions correctly and she got 17 marks finally. How many questions did she answer incorrectly? (3 marks)

5. 史提芬 3 年前的歲數與 辛尼 2 年後的歲數相等，兩人去年的歲數合共為 39。求 史提芬 今年的歲數。 (3 分)

The age of Stephen three years ago is equal to the age of Sunny two years later. The sum of their ages last year is 39. Find the age of Stephen now. (3 marks)

6. 某班有 40 名學生。最多學生出生的月份至少有多少位學生？ (4 分)

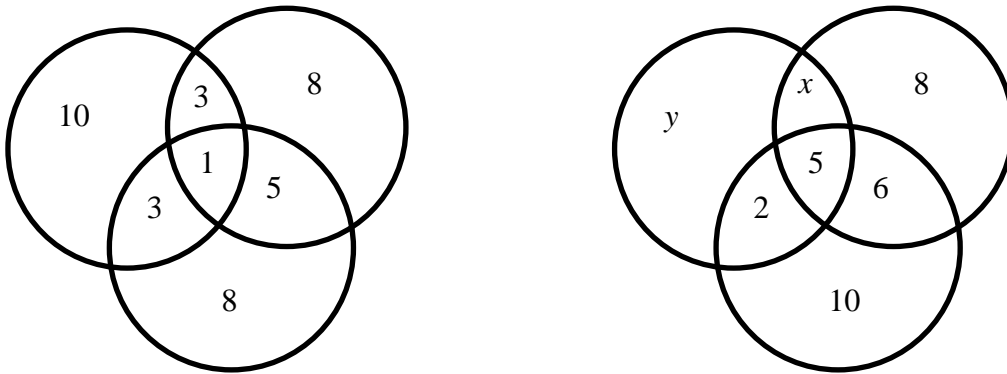
There are 40 students in a class. What is the least number of students born in a month with the most number of students? (4 marks)

7. 求圖中 x 及 y 的值。

(4 分)

In the following figure, find the values of x and y .

(4 marks)



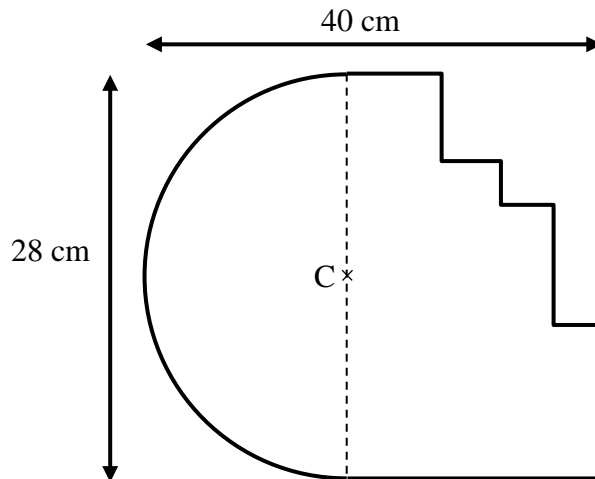
8. 圖中 C 是圓心。求下圖的周界 (取 $\pi = \frac{22}{7}$)。

(5 分)

In the figure, C is the centre of a circle. Find the perimeter of the following figure.

(Take $\pi = \frac{22}{7}$).

(5 marks)



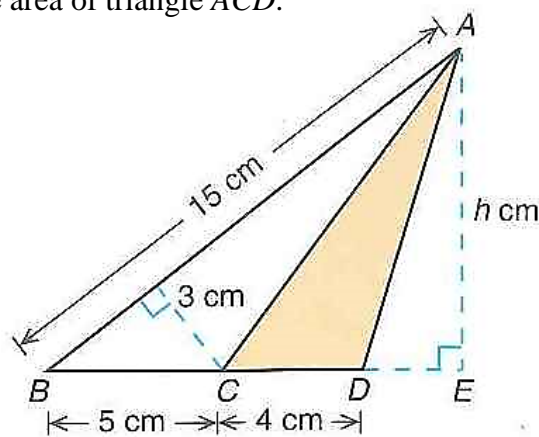
9. 圖中 BCD 是一條直線，而三角形 ABD 的高是 h cm。求 h 的值及三角形 ACD 的面積。

(5 分)

In the figure, BCD is a straight line and the height of triangle ABD is h cm.

Find the value of h and the area of triangle ACD .

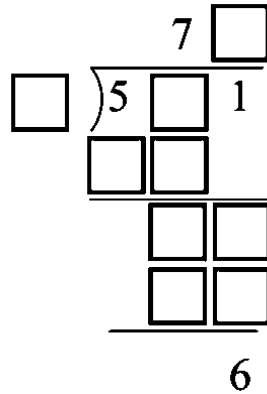
(5 marks)



10. 一列火車長 176 米，它的速度是每小時 72 公里。一位男孩以每秒 2 米的速度在月台與火車迎面而行。求全列火車從男孩身邊完全駛過所需的時間。(5 分)
The length of a train is 176 m and the speed of the train is 72km / hour. A boy is walking along with reverse direction of the train on the platform at a speed of 2m/s. Find the time needed for the train to pass the boy completely. (5 marks)

11. 已知某三位數被 3 除餘 0，被 4 除餘 1，被 5 除餘 4，求這三位數的最小值。(6 分)
There is a 3-digits number. When it is divided by 3, the remainder is 0; when it is divided by 4, the remainder is 1 and when it is divided by 5, the remainder is 4. Find the least possible value of this 3-digits number. (6 marks)

12. 在下圖各方格填上合適的數字，使算式成立。(6 分)
Fill the suitable numerals into each box in the figure, such that the long division is correct. (6 marks)



13. 求 $\underbrace{(14 \times 14 \times 14 \times \dots \times 14 + 1)}_{16 \text{ 個}} \div 49$ 的餘數。(6 分)

Find the remainder of $\underbrace{(14 \times 14 \times 14 \times \dots \times 14 + 1)}_{16 \text{ times}} \div 49$. (6 marks)

14. 由 1、2、3 及 4 組成的四位數共有 24 個。如將這 24 個四位數由小至大排列，求第 18 個四位數。(7 分)
A total of 24 possible 4-digits numbers can be formed by 1、2、3 and 4. If we arrange the numbers in ascending order, find the 18th 4-digits number. (7 marks)

15. 丹尼在紙上畫了 8 條非平行線。求這些非平行線最多可相交多少點？(7 分)
Denny draws 8 non-parallel straight lines on a piece of paper. Find the maximum number of intersection points that can be formed. (7 marks)

16. 糖果店進行回收糖紙行動，每 8 張糖紙可換一粒糖。小明 有 120 粒糖，問最多可換多少粒糖？ (7 分)

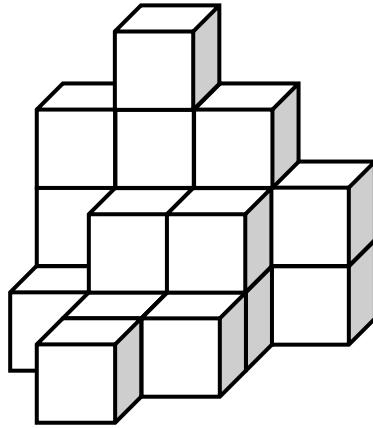
There is a “Recycling program of candy-packing” in a Candy Shop. Every eight candy-packing can exchange one candy. If Peter gets 120 candies, how many candies he can exchange at most? (7 marks)

17. 有 100 位學生，男生佔 30%。加入 N 個女生後，男生佔 25%。再加入 (N+10) 個女生後，男生佔百分之幾？ (8 分)

There are 100 students, 30% of them are boys. After joining N girls, there are 25% of boys. After further joining (N + 10) girls, what percentage of boys are there? (8 marks)

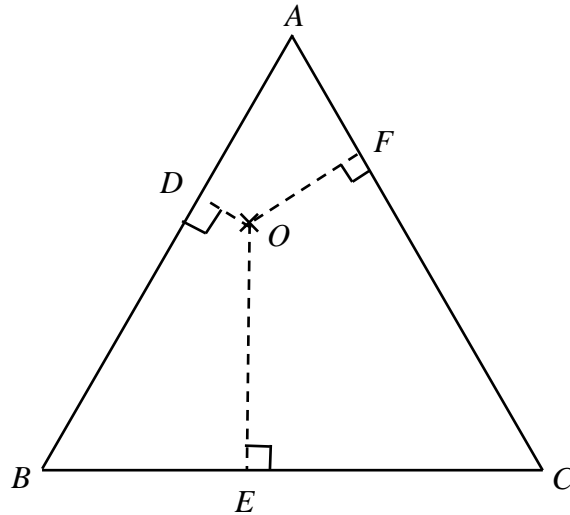
18. 圖中立體是由二十個相同的正方體組成。若該立體體積是 20cm^3 ，求立體的總表面面積。 (8 分)

The solid in the figure is composed of twenty identical cubes. If the volume of the solid is 20cm^3 , find the total surface area of the solid. (8 marks)



19. 圖中是一個等邊三角形 ABC ，點 D 、點 E 及點 F 分別在三角形的邊 AB 、邊 BC 及邊 AC 上。 O 點在三角形內以至 OD 垂直於 AB 、 OE 垂直於 BC 及 OF 垂直於 AC 。若 $\triangle ABC$ 的高是 5.6 cm 及 $OE = 2OF = 4OD$ ，求 OE 長度。 (10 分)

The figure shows an equilateral triangle ABC and D, E and F lies on the sides AB, BC and AC respectively. O is a point inside $\triangle ABC$ such that OD is perpendicular to AB , OE is perpendicular to BC and OF is perpendicular to AC . It is given that the height of $\triangle ABC = 5.6$ cm and $OE = 2OF = 4OD$, find the length of OE . (10 marks)



試卷完 END OF PAPER