

第七屆全港小學數學挑戰賽(2020-2021)
The 7th Hong Kong Primary Mathematics Challenge (2020-2021)

決賽（二零二零年十二月五日）
Final (5th December, 2020)

小六組 個人項目 試卷
Primary 6 Individual Event Question Paper

參賽者須知 Instructions to Contestants

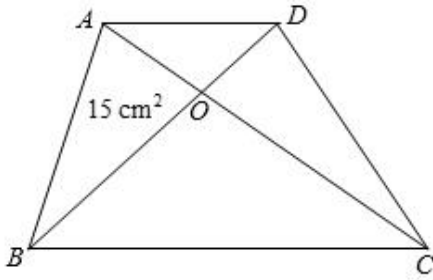
1. 在比賽過程中，參賽者必須將准考證放在桌上。
You should place your Admission Form on your desk for the whole session.
2. 於比賽期間必須關掉所有手提電話、通訊工具及其他響鬧裝置。
During the competition, you should switch off your mobile phone and any other electronic or communication devices that can emit sound.
3. 本項目以筆試形式舉行，須於限時 45 分鐘內完成所有題目。
Contestants 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、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. 25 個連續偶數的和為 10000。求這 25 個連續偶數中最大的數。
The sum of 25 consecutive even integers is 10000. What is the largest number of these 25 consecutive even integers? (2 分)
(2 marks)
2. 求 $100 - 99 + 98 - 97 + 96 - 95 + \dots + 4 - 3 + 2 - 1$ 的值。
Find the value of $100 - 99 + 98 - 97 + 96 - 95 + \dots + 4 - 3 + 2 - 1$. (2 分)
(2 marks)
3. 若 x 及 y 為正整數及 $x - y = 5$ ，求 $x^2 - y^2 + 2019$ 的最小值。
If x and y are positive integers and $x - y = 5$, find the least value of $x^2 - y^2 + 2019$. (3 分)
(3 marks)
4. 求 1223334444555556666677777788888899999999 除以 9 的餘數。
Find the remainder when 1223334444555556666677777788888899999999 is divided by 9. (3 分)
(3 marks)
5. 一個三角形三條邊長的比是 8 : 10 : 11，若最長與最短的邊相差 27cm，求該三角形的周界。
The ratio of the sides of a triangle is 8 : 10 : 11. If the difference between the longest and the shortest sides is 27 cm, what is the perimeter of this triangle? (3 分)
(3 marks)
6. 求 120×119 除以 11 的餘數。
Find the remainder when 120×119 is divided by 11. (4 分)
(4 marks)
7. 10 個連續奇數，若該 10 個數之和是最小的數的 16 倍，求該 10 個數中最大的數。
There are 10 consecutive odd numbers. The sum of these 10 numbers is 16 times of the smallest number. Find the value of the largest number. (4 分)
(4 marks)
8. 安娜與比利在 400m 運動場內以同向均速步行。比利在安娜之後，若比利在 3 分鐘後與安娜相遇，5 分鐘後再次相遇，求開始時兩人之間的距離。
Anna and Billy are walking around a 400m-track in the same direction with constant speed. Billy started behind Anna and caught up with Anna 3 minutes later. Billy caught up with Anna for the second time again after 5 minutes. Find the distance between Anna and Billy at the beginning. (4 分)
(4 marks)
9. 有三個連續正整數 a 、 b 、 c 。如果 $b \times c$ 與 $a \times b$ 相差 114，求 a 、 b 及 c 中最大的數。
 a , b and c are three consecutive positive integers. If the difference between $b \times c$ and $a \times b$ is 114, find the largest number among a , b and c . (4 分)
(4 marks)

10. 如圖所示，梯形 $ABCD$ 的對角線 AC 和 BD 的交點是 O 。已知 OB 的長度是 OD 的 3 倍，及 $\triangle AOB$ 的面積是 15 cm^2 。求梯形 $ABCD$ 的面積。 (5 分)



As shown in the figure, the diagonals AC and BD of the trapezium $ABCD$ intersect at O . Given that the length of OB is 3 times the length of OD and the area of $\triangle AOB$ is 15 cm^2 , find the area of the trapezium $ABCD$. (5 marks)

11. 如果整數 m 、 n 滿足等式 $\frac{mn}{m+n} = 10$ ，求 m 的最大值。 (5 分)

If m, n are integers satisfying the equation $\frac{mn}{m+n} = 10$, find the largest possible value of m . (5 marks)

12. 如果 5 個裝修工人為 10 間屋油漆需要 3 天，那麼 3 個裝修工人為 30 間屋油漆需要多少天？ (5 分)

If 5 painters can paint 10 houses in 3 days, how many days do 3 painters need to paint 30 houses? (5 marks)

13. 珍妮要摺 2019 隻紙鶴，第一天摺了 5 隻，第二天摺了 9 隻，第三天摺了 13 隻，依此類推，每天都比前一天多摺 4 隻紙鶴。直至第三十天摺了紙鶴後，尚欠多少隻？ (5 分)

Jenny needs to fold 2019 paper cranes. She made 5 paper cranes on the first day, 9 on the second day, 13 on the third day, etc. Basically, every day she would make 4 more paper cranes than the previous day. After she had done folding all the paper cranes on the 30th day, how many more paper cranes does she need to fold to meet her target? (5 marks)

14. 求 $\frac{1}{1 \times 2 \times 3} + \frac{1}{2 \times 3 \times 4} + \dots + \frac{1}{9 \times 10 \times 11}$ 的值。 (5 分)

Find the value of $\frac{1}{1 \times 2 \times 3} + \frac{1}{2 \times 3 \times 4} + \dots + \frac{1}{9 \times 10 \times 11}$. (5 marks)

15. 兩個三位數的積是 346385，而它們的最大公因數是 73，求該兩個數的差。 (6 分)

If the product of two 3-digit numbers is 346385, and their H.C.F is 73. Find the difference between these two numbers. (6 marks)

16. 若 $2 \times a + 5 \times b + 7 \times c = 100$ ，其中 a, b 與 c 為正整數，求 $a + b + c$ 的最小值。 (6 分)
 If $2 \times a + 5 \times b + 7 \times c = 100$, where a, b and c are positive integers, find the least value of $a + b + c$. (6 marks)

17. 兩地相距 900 米，甲、乙二人同時從起點出發，甲每分鐘走 80 米，乙每分鐘走 100 米，當乙到達終點後，立即折返，從折返計，他們經過多少時間會相遇？ (7 分)
 Two places are by 900 meters apart. Both A and B start to walk at the starting point. A goes at 80 meters per minute and B goes at 100 meters per minute. When B arrives at the destination, he immediately returns. After how much time will they meet from the point of return? (7 marks)

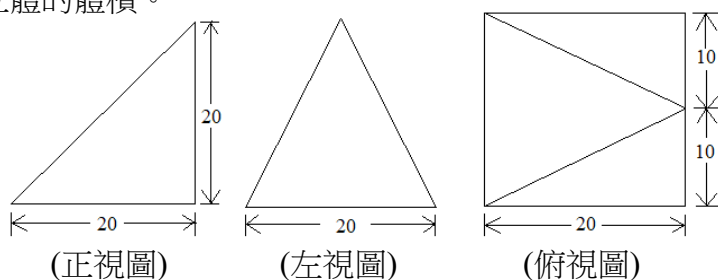
18. 當一個桶注水至五分之一時，其總重量是 1000 克。當它注水至二分之一時，其總重量為 1450 克。問水桶的重量是多少？ (7 分)
 When a bucket is one-fifth filled with water, its total weight is 1000 g. When it is half filled with water, its total weight is 1450 g. Find the weight of the bucket. (7 marks)

19. 圖中 A, B, C, D, E, F 及 G 分別代表不同數字，求 $A - B + C \times D + E - F$ 的值。 (9 分)

$$\begin{array}{r} \text{A B C D E F} \\ \times 7 \\ \hline \text{G G G G G G} \end{array}$$

In the figure, A, B, C, D, E, F and G represent different numbers. Find the value $A - B + C \times D + E - F$. (9 marks)

20. 下圖所示是某個立體的三視圖，根據圖中標示的尺寸（單位：cm），求這個立體的體積。 (11 分)



The following figure shows the front view, left side view and the top view of a solid. According to the lengths as shown in the figure (unit: cm), find the volume of the solid. (11 marks)

