

**亞洲國際數學奧林匹克聯合會**  
**ASIA INTERNATIONAL MATHEMATICAL OLYMPIAD UNION**



**亞洲國際數學奧林匹克公開賽初賽**  
**Asia International Mathematical Olympiad Open Trials**

**小五組 Grade 5**

時限：70 分鐘

Time allowed: 70 minutes

**樣本試題**  
**Sample Questions**

本試題不可取走。

THIS QUESTION PAPER CANNOT BE TAKEN AWAY.

未得監考官同意，切勿翻閱試題，否則參賽者將有可能被取消資格。

DO NOT turn over this Question Paper without approval of the examiner.

Otherwise, contestant may be DISQUALIFIED.

請將答案寫在 答題紙 上。

All answers should be written on the ANSWER SHEET.

甲部：每題 4 分

Section A – each question carries 4 marks

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- 1) 求  $3+6+9+\dots+24+27+30+27+24+\dots+9+6+3$  的值。

Find the value of  $3+6+9+\dots+24+27+30+27+24+\dots+9+6+3$ .

- 2) 求 2491 最小的兩位正因數。

Find the smallest positive 2-digit factor of 2491.

- 3) 求下列算式的值。

Find the value of the expression below.

$$\frac{1}{\left(\frac{3}{\left(\frac{5}{8}\right)}\right)} \times 24$$

- 4) 求  $1 \times 2 \times 3 \times 11 \times 12 \times 13 \times 21 \times 22 \times 23 \times 31 \times 32 \times 33 \times \dots \times 212$  的個位數。

Find the unit digit of  $1 \times 2 \times 3 \times 11 \times 12 \times 13 \times 21 \times 22 \times 23 \times 31 \times 32 \times 33 \times \dots \times 212$ .

5)

6)

7)

8)

~ 甲部完 ~

~ End of section A ~

請以最簡形式填寫答案。若計算結果是分數，請化至最簡，並確保為真分數或帶分數，或將計算結果寫成小數。

答案可以根式表示，唯該根式必須是最簡形式。除特別註明外，毋需填寫單位。錯誤單位將不給予任何分數。

Write down the answer in the simplest form. If the calculation result is a fraction, please write down the answer as a proper or mixed fraction, decimal figure is also accepted. You may use square root to represent the answer which is in the simplest form.

Unless otherwise stated, no need to write down any unit. Marks will NOT be given for incorrect unit.

請將答案寫在 答題紙 上。

All answers should be written on the ANSWER SHEET.

乙部：每題 5 分

Section B – each question carries 5 marks

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- 9) 1 至 2016 中 (包括 1 和 2016)，有多少個數字不可以被 7 或 13 整除？  
Among integers from 1 to 2016 (1 and 2016 inclusive), how many numbers are there cannot be divided by neither 7 nor 13?
- 10) 小花、小克兩人同時在泳池同一端開始，游向另一端，當到達另一端之後，立即轉身返回。小花的游泳速度是每秒 3 米，小克的游泳速度是每秒 2 米；已知游泳池長 90 米，那麼他們兩人第一次相遇時，距離他們的出發點多少米？  
Flora and Clark start swimming at the same time from the same side of a rectangular swimming pool. When they touches the edge of the other end of the swimming pool, they immediately swim back in the opposite direction. The speed of Flora is 3m/sec and that of Clark is 2m/s. It is also known that the length of the pool is 90m. What is the distance between their starting point and the point they first met?
- 11) 小克把 5 位數 83427 重覆寫 60 次變成一個 300 位數，問這 300 位數除以 6 的餘數是多少？  
Clark repeatedly wrote '83427' 60 times to form a 300-digit number. Find the remainder when the 300-digit number is divided by 6.
- 12) 0、1、2、6 和 7 可以組成多少個沒有重覆數字的三位數？  
How many different 3-digit number can be formed by using 0, 1, 2, 6 and 7 without repeating any digits?
- 13)
- 14)
- 15)
- 16)

~ 乙部完 ~  
~ End of section B ~

請將答案寫在 答題紙 上。

All answers should be written on the ANSWER SHEET.

丙部：每題 7 分

Section C – each question carries 7 marks

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- 17) 小花、小克兩人同時從甲地出發前往乙地，小花每小時比小克快 8 公里。小花出發後三小時到了乙地，然後出發返回甲地，在距離乙地 16 公里的路上遇到小克。問甲地和乙地之間的距離是多少公里？

Flora and Clark starts a journey at the same time from City A to City B. The speed of Flora is 8km faster than that of Clark per hour. Three hours later, Flora reaches City B and starts to return to City A. Flora meets Clark at 16km from City B. What is the distance between the two cities?

- 18) 如果下列方程中  $A$  的值。

Find the value of  $A$  in the equation below.

$$2 + \frac{1}{2 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{A}}}}} = \frac{88}{37}$$

19)

20)

~ 全卷完 ~  
~ End of Paper ~

請以最簡形式填寫答案。若計算結果是分數，請化至最簡，並確保為真分數或帶分數，或將計算結果寫成小數。

答案可以根式表示，唯該根式必須是最簡形式。除特別註明外，毋需填寫單位。錯誤單位將不給予任何分數。

Write down the answer in the simplest form. If the calculation result is a fraction, please write down the answer as a proper or mixed fraction, decimal figure is also accepted. You may use square root to represent the answer which is in the simplest form.

Unless otherwise stated, no need to write down any unit. Marks will NOT be given for incorrect unit.