



奧冠教育中心

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香港國際數學競賽初賽 2019 (香港賽區)

HONG KONG INTERNATIONAL
MATHEMATICAL OLYMPIAD
HEAT ROUND 2019 (HONG KONG REGION)

小學三年級 Primary 3

時限：90 分鐘

Time allowed: 90 minutes

模擬試題

Mock Paper

考生須知：

Instructions to Contestants:

1. 本卷包括 試題 乙份，試題紙不可取走。

Each contestant should have ONE Question-Answer Book which CANNOT be taken away.

2. 本卷共 5 個範疇，每範疇有 5 題，共 25 題，每題 4 分，總分 100 分，答錯不扣分。

There are 5 exam areas and 5 questions in each exam area. There are a total of 25 questions in this Question-Answer Book. Each carries 4 marks. Total score is 100 marks. No points are deducted for incorrect answers.

3. 請將答案寫在 答題紙 上。

All answers should be written on ANSWER SHEET.

4. 比賽期間，不得使用計算工具。

NO calculators can be used during the contest.

5. 本卷中所有圖形不一定依比例繪成。

All figures in the paper are not necessarily drawn to scale.

6. 比賽完畢時，本試題會被收回。

This Question-Answer Book will be collected at the end of the contest.

請以最簡形式填寫答案，若計算結果是分數，請確保為真分數或帶分數，或將計算結果寫成小數。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. Marks will NOT be given for incorrect unit.

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All answers should be written on the ANSWER SHEET.

本試題不可取走。

THIS Question-Answer Book 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-Answer Book without approval of the examiner.

Otherwise, contestant may be DISQUALIFIED.

填空題 (第 1 至 25 題) (每題 4 分，答錯及空題不扣分)

Open-Ended Questions (1st ~25th) (4 points for correct answer, no penalty point for wrong answer)

Logical Thinking

邏輯思維

1. What is the value of the number to represent “?” in the following table?

求在下表中 ? 代表的值。

1	1	2
2	3	8
3	5	18
4	7	?
5	9	50

2. According to the pattern shown below, how many triangle(s) is / are there from the 1st to the 99th symbol counting from the left?

按以下規律，由左數起第 1 至第 99 個符號中共有多少個三角形？



3. The age of Samuel 9 years ago is equal to the age of Joseph 2 years later. How much Samuel is older than Joseph when Joseph is 25 years old?

森姆 9 年前的年齡與約瑟夫 2 年後的年齡相等。當約瑟夫 25 歲時，森姆 比他大多少歲？

4. A tree is planted every 15m in a street from one end. The street is 255m long. How many trees are there in the street?

一條街由一端起每隔 15 米便種一棵樹。這條街長 255 米，那麼街上共有多少棵樹？

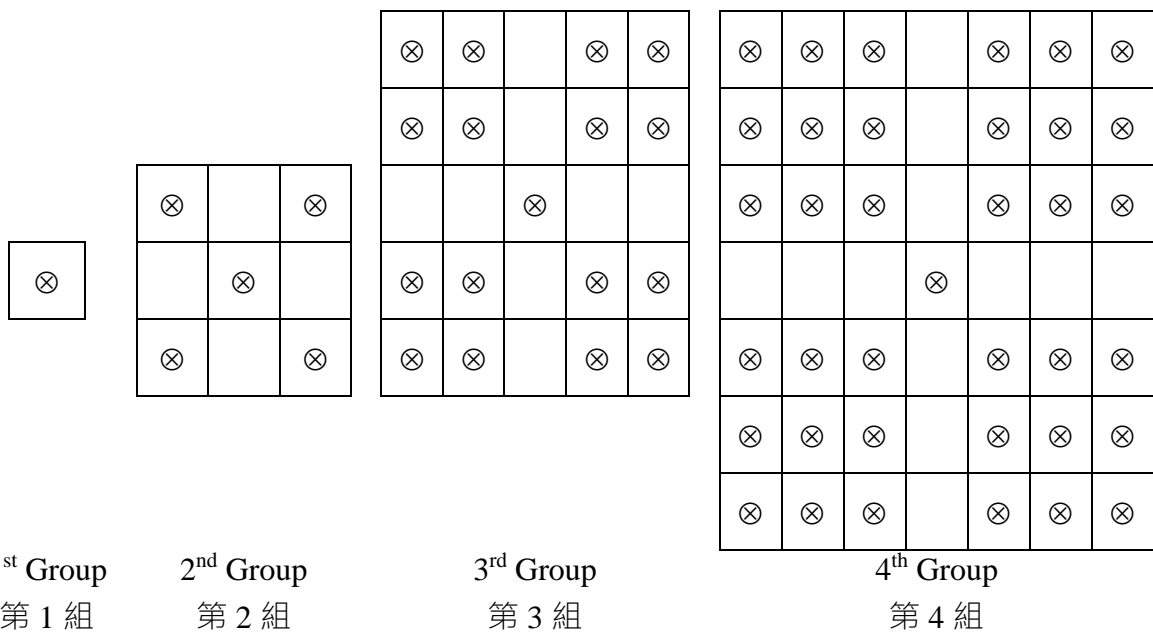
請以最簡形式填寫答案，若計算結果是分數，請確保為真分數或帶分數，或將計算結果寫成小數。錯誤單位將不給予任何分數。

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5. According to the pattern shown below, how many \otimes is / are there in the 10th group?
按以下規律，問第 10 組有多少個 \otimes ?



Question 5
第 5 題

Arithmetic
算術

6. Find the value of $2+4+6+8+10+12+14+16+18$.
求 $2+4+6+8+10+12+14+16+18$ 的值。
7. Find the value of $81 \times 16 + 27 \times 52$.
求 $81 \times 16 + 27 \times 52$ 的值。
8. Find the value of $16 \times 625 \times 4 \div 25$.
求 $16 \times 625 \times 4 \div 25$ 的值。
9. Find the value of $2018 - 2017 + 2016 - 2015 + 2014 - \dots + 2002 - 2001 + 2000$.

請以最簡形式填寫答案，若計算結果是分數，請確保為真分數或帶分數，或將計算結果寫成小數。錯誤單位將不給予任何分數。
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All answers should be written on the ANSWER SHEET.

求 $2018 - 2017 + 2016 - 2015 + 2014 - \dots + 2002 - 2001 + 2000$ 的值。

10. Find the value of $1258 + 369 + 742 + 641$.

求 $1258 + 369 + 742 + 641$ 的值。

Number Theory

數論

11. Define the operation symbol $a \oplus b = b \times a - a - b$, find the value of $(16 \oplus 9)$.

定義運算 $a \oplus b = b \times a - a - b$ ，求 $(16 \oplus 9)$ 的值。

12. The sum of A and B is 2018. The difference between A and B is 902. Given A is larger than B , find the value of A .

A 、 B 兩數之和是 2018， A 、 B 兩數之差是 902。已知 A 比 B 大，求 A 的值。

13. The numbers below follow the arithmetic sequence, what is the sum of the 9th term and the 14th term?
根據以下的等差數列，求第 9 項及第 14 項之和。

12、15、18、21、24、...

14. A three digit number has remainder 5 when divided by 9. What is such number that is closest to 400?
一個三位數除以 9 餘 5，這個三位數最接近 400 的會是多少？

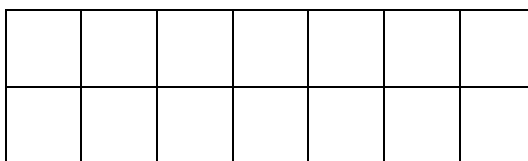
15. The sum of 3 consecutive odd numbers is 69. Find the smallest of the odd numbers.
三個連續奇數之和是 69，求這三個奇數中最小的數。

Geometry

幾何

16. How many square(s) is / are there in the figure below?

請問下圖有多少個正方形？

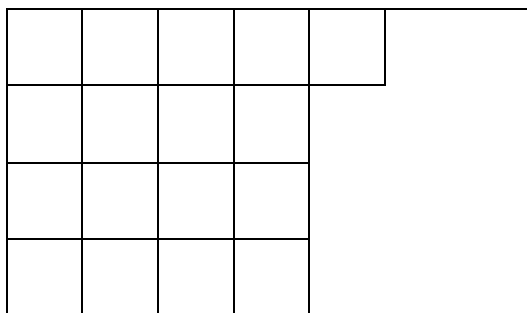


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Write down the answer in the simplest form. If the calculation result is a fraction, please write down the answer as a proper or mixed fraction, decimal figure is also accepted. Marks will NOT be given for incorrect unit.

請將答案寫在 **答題紙** 上。

All answers should be written on the ANSWER SHEET.



Question 16

第 16 題

17. A pyramid has 2018 edges, how many face(s) does this pyramid have?

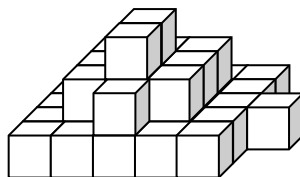
有一個錐體有 2018 條邊，問這個錐體有多少個面？

18. 9 squares which perimeters are 48cm form a larger square. What is the perimeter of the larger square?

9 個周界為 48 厘米的正方形組成了一個大正方形，求大正方形的周界。

19. At least how many square(s) can be seen if observing the figure below from the top?

如果從上面觀察下圖的立體，最少可以看見多少個正方形？



Question 19

第 19 題

20. At most how many intersection point(s) are there by drawing 5 straight lines on a plane?

在平面上畫 5 條直線，最多可組成多少個交點？

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All answers should be written on the ANSWER SHEET.

Combinatorics

組合數學

21. After Amy gives 10 apples to Andy and 7 apples to Johnny, they will have equal number of apples. How many apple(s) did Johnny have less than Amy originally?
當艾美把 10 個蘋果送給安迪及把 7 個蘋果送給強尼後，他們擁有的蘋果數目便一樣。問原本強尼比艾美少多少個蘋果？
22. Choose 3 digits from 1, 3, 4, 5, 9 to form 3-digit numbers. How many number(s) that can be divisible by 5 is / are there? (repetitions of digits are allowed)
從 1、3、4、5、9 中選數位組成三位數。請問當中有多少個是 5 的倍數？(數位可以重覆)
23. Numbers are drawn from the 27 integers 1 to 27. At least how many number(s) is / are drawn at random to ensure that there are two numbers whose difference is divisible by 4?
在 1 至 27 這 27 個整數中最少任意選出多少個數，才必定有兩個數之差能被 4 整除？
24. At least how many of 37 children that was/were born in the same month?
37 個小孩之中最少有多少個是在同一個月份出生？
25. If Andy goes from point A to point B , each step can only move up or move right. How many way(s) is / are there?
如果安迪從 A 點走到 B 點，每步只能向上或向右走，共有多少種走法？

B

請以最簡形式填寫答案，若計算結果是分數，請確保為真分數或帶分數，或將計算結果寫成小數。錯誤單位將不給予任何分數。
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All answers should be written on the ANSWER SHEET.

A \longrightarrow

Question 25

第 25 題

~ 全卷完 ~

~ End of Paper ~

請以最簡形式填寫答案，若計算結果是分數，請確保為真分數或帶分數，或將計算結果寫成小數。錯誤單位將不給予任何分數。
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