MathConceptition
2024

P4

Question Booklet

問題簿

Time: 50 Minutes
Calculators are NOT permitted.

Instructions:

1. **DO NOT OPEN THIS QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.**
2. **If the information printed on your answer sheet is not correct, please inform the invigilator immediately.**
3. **Please use a pencil and write your answers neatly ONLY on the answer sheet provided. DO NOT write or draw in the circle next to each answer box. No mark will be given if you failed to follow this instruction.**
4. **Unless otherwise specified, all answers must be in exact value and in its simplest form. Writing the units for the answers is NOT necessary.**
5. **Rough-work sheets provided will be collected at the end of the contest but they will not be marked.**
6. **Diagrams in this question booklet are not necessarily drawn to scale.**

限時：**50** 分鐘
不允許使用計算機。

比賽須知：

1. 未宣布開始前，切勿翻閱此問題簿。

2. 請核對答題紙上列出的資料是否與你相符。如有問題，請舉手。

3. 所有答案必須寫在答題紙內，並須用鉛筆作答。請勿填寫或畫花題號後方的圓圈，否則該題答案將會作廢。

4. 除非題目特別表明，所有答案均不需填寫單位，但必須以準確數值及最簡方式表示。

5. 比賽完結時監考員會收回桌上的草稿紙，但草稿紙上所書寫的任何文字或圖表將不獲評閱。

6. 此問題簿的附圖不一定依比例繪成。

1) $41 \times 12 = ?$ [1%]

2) $72 \div 18 = ?$ [1%]

3) $117 \times 23 = ?$ [1%]

4) $338 \div 26 = ?$ [1%]

5) $25 \times 23 \times 16 = ?$ [1%]

6) $608 \div 19 \div 8 = ?$ [1%]

7) $627 \times 53 + 53 \times 373 = ?$ [1%]

8) $203 \div 7 \times 18 = ?$ [1%]

9) $340 + 350 \div 14 + 16 = ?$ [1%]

10) $966 - 920 \div 46 \times 11 = ?$ [1%]

11) $618 - (21 \times 35 - 332) = ?$ [1%]

12) $112 + 408 \div (102 - 94) = ?$ [1%]

For question 13 to 15, the answers must be expressed in proper fraction, integer or mixed number.

由第 **13** 至 **15** 題，答案必須以真分數、整數或帶分數表示。

13) Evaluate $\dfrac{13}{19} + \dfrac{16}{19} + \dfrac{11}{19}$. [1%]

計算 $\dfrac{13}{19} + \dfrac{16}{19} + \dfrac{11}{19}$。

14) Evaluate $4\dfrac{4}{11} - 2\dfrac{7}{11} - \dfrac{3}{11}$. [1%]

計算 $4\dfrac{4}{11} - 2\dfrac{7}{11} - \dfrac{3}{11}$。

15) Evaluate $7 - \left(1\dfrac{5}{7} + 3\dfrac{3}{7}\right)$. [1%]

計算 $7 - \left(1\dfrac{5}{7} + 3\dfrac{3}{7}\right)$。

16) Both 91 and 119 are divisible by a number. What is the largest [2%] possible value of the number?

91 和 119 都可以被某數整除，該數最大的可能值是多少？

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17) There are 280 chairs in a hall. If the chairs are arranged in rows of [2.1%] 15, at least how many chairs should be added such that the remaining chairs can be arranged as a row?

禮堂有 280 張椅子。如果把椅子每 15 張排成一行，最少要增加椅子多少張才能使餘下的椅子排成一行？

18) The daily salary of Kelvin is $415. He had 9 days off in April. How much did Kelvin earn in April in dollars? [2.2%]

文漢的日薪是 415 元，他在四月有 9 天假期。文漢在四月共賺取多少元？

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19) Bella has a can of biscuits. The biscuits can be distributed to 15 or 21 people equally without any leftover. At least how many biscuits are there in the can? [2.3%]

小欣有一罐餅乾，把餅乾平均分給 15 人或 21 人，都沒有剩餘。罐內最少有餅乾多少塊？

20) The finishing times of a marathon for Louis and Tony are $4\frac{5}{9}$ hours [2.4%] and $\frac{46}{9}$ hours respectively. If Kenny finishes the race $\frac{7}{9}$ hours faster than Tony, what is the difference between the finishing times of Louis and Kenny in hours?

家俊和家輝完成馬拉松比賽的時間分別是 $4\frac{5}{9}$ 小時和 $\frac{46}{9}$ 小時。如果嘉華比家輝快 $\frac{7}{9}$ 小時完成比賽，家俊和嘉華完成比賽的時間相差多少小時？

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21) If the 5-digit number $\overline{ABBBC}$ is divisible by 3 and 5, and the sum of [2.5%] A, B and C is 20, what is the number?

如果五位數 $\overline{ABBBC}$ 可以被 3 和 5 整除，而 A、B 和 C 之和是 20，該數是多少？

22) Which of the following shapes can be formed by 3 isosceles right-angled triangles of the same size and shape? Choose all correct answers.

[2.6%]

3 個形狀和大小相同的等腰直角三角形可以組成以下哪些形狀？選出所有正確答案。

A) Triangle 三角形

B) Parallelogram 平行四邊形

C) Trapezium 梯形

D) Pentagon 五邊形

E) Hexagon 六邊形

F) Octagon 八邊形

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23) Find the sum of all the common factors of 126 and 162.

[2.7%]

求 126 和 162 的所有公因數之和。

24) Find the perimeter of the figure below in cm. [2.8%]

以下圖形的周界是多少厘米？
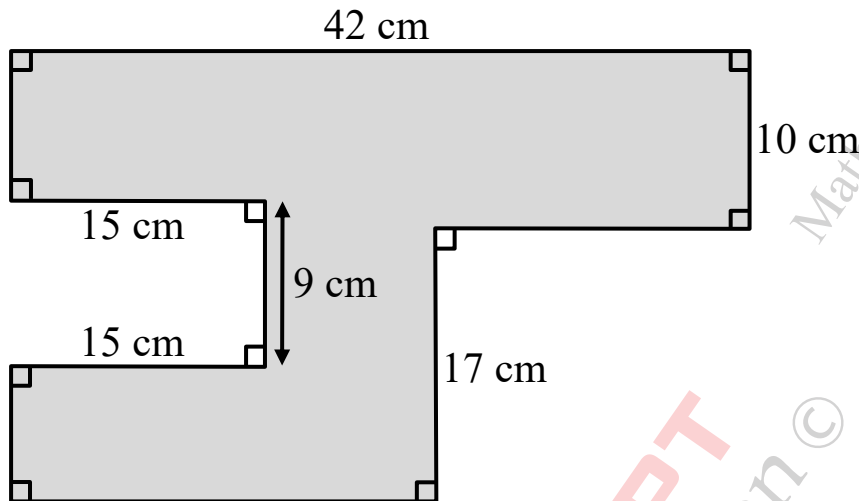
25) Making 360 mL of coffee needs 24 g of coffee beans and 85 mL of milk. There are 1.08 kg of coffee beans and 3.74 L of milk in the cafe. At most how many millilitres of coffee can be made? [2.9%]

沖泡 360 毫升的咖啡需要用 24 克的咖啡豆和 85 毫升的牛奶。咖啡廳內有 1.08 公斤的咖啡豆和 3.74 升的牛奶，最多可以沖泡咖啡多少毫升？

26)   *N* is a prime number. If $4\dfrac{3}{7} < \dfrac{N}{7} < 5\dfrac{5}{7}$, find *N*.   [3%]

N 是一個質數。如果 $4\dfrac{3}{7} < \dfrac{N}{7} < 5\dfrac{5}{7}$，求 *N*。

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27)   Convert $\dfrac{141}{40}$ to a decimal.   [3.1%]

把 $\dfrac{141}{40}$ 化為小數。

28) A rectangle can be cut into 5 identical squares, each of perimeter 64 m. What is the area of the rectangle in m²?

一個長方形可以分割成 5 個周界各為 64 米的正方形。長方形的面積是多少平方米？

[3.2%]

29) The post office is 300 m to the north-west of the cinema, while the park is 200 m to the south of the post office. Flora starts at the cinema. She first walks 100 m to the south-east and then 400 m to the south-west. The park is to the __?__ of Flora.

郵局在戲院的西北方，相距 300 米；公園在郵局的南方，相距 200 米。小芳由戲院出發，先向東南方行 100 米，再向西南方行 400 米，那麼公園在小芳的__?__。

[3.3%]

A) east 東方	**B)** north-east 東北方	**C)** south 南方	**D)** south-east 東南方
E) west 西方	**F)** south-west 西南方	**G)** north 北方	**H)** north-west 西北方

30) Below are some chests numbered from 1 to 28. Only one of them contains treasures. Find the number on the chest that contains the treasures according to the following clues: [3.4%]

- The number on the chest is a product of 3 prime numbers.
- The chest is located at the row with a chest whose number has 8 factors.

以下是編號為 1 至 28 的寶箱，只有其中一個藏有寶物。根據以下線索，找出藏有寶物的寶箱的編號。

- 該寶箱的編號是 3 個質數之積。
- 該寶箱所在的橫行有 1 個寶箱的編號有 8 個因數。
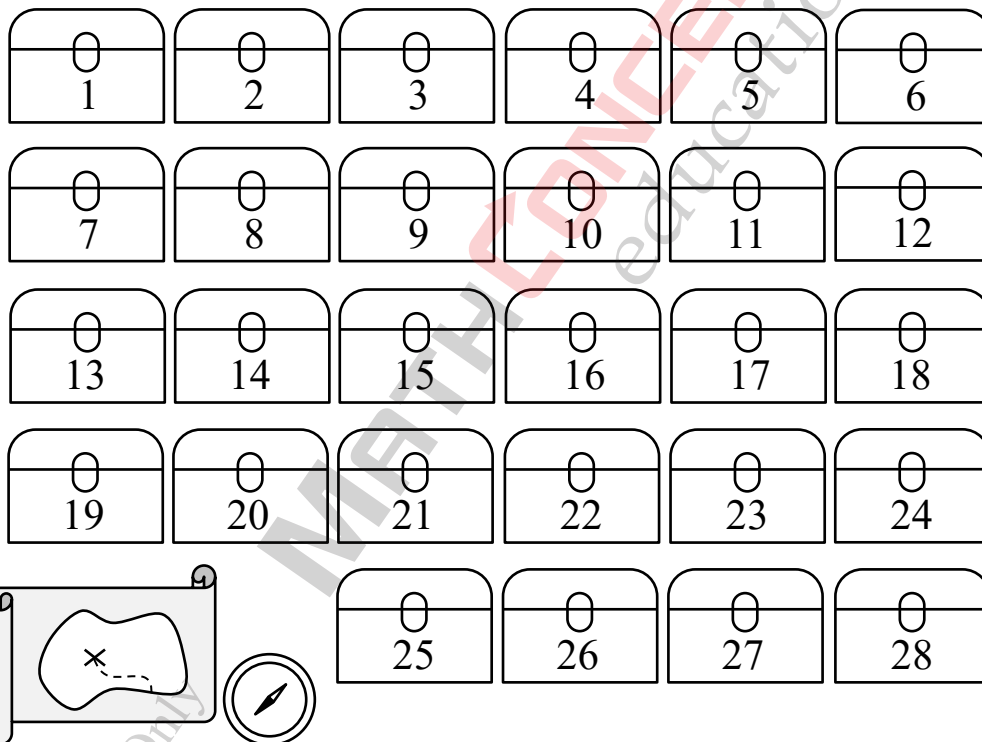
31) The figure below is formed by overlapping 6 identical rectangles. The perimeter of the figure is 416 cm. What is the area of the unshaded part of the figure in cm^2? [4%]

以下圖案是由 6 個大小相同的長方形重疊而成。圖案的周界是 416 厘米。圖案空白部分的面積是多少平方厘米？

84 cm

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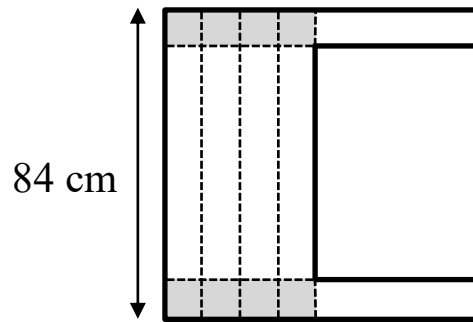
32) Find the sum of all 3-digit odd numbers which are not multiples of 5. [4.1%]

求所有不是 5 的倍數的三位奇數的總和。

33) Below shows a pinboard with 16 pins. How many rhombuses can be made using rubber bands? [4.2%]

下圖是一塊 16 釘板，用橡皮圈共可圍成多少個菱形？

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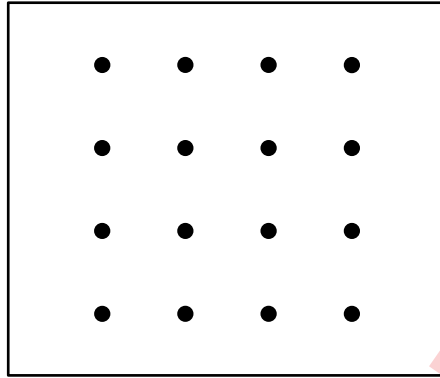
34) A rectangle with perimeter 2 m can be cut into 24 identical squares. What is the difference between the largest and smallest possible areas of the rectangle in cm^2? [4.3%]

一個周界是 2 米的長方形可以分割成 24 個大小相同的正方形。長方形的最大和最小可能面積相差多少平方厘米？

35) Find the value of the 8th term of the following sequence. [4.4%]

求以下數列第 8 項的值。

$$10, 21, 55, 91, 187, \ldots$$

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36) From 414 to 2024 (including 414 and 2024), find the units digit of [4.5%]
the product of all even numbers except the multiples of 10.

由 414 至 2024（包括 414 和 2024），求除了 10 的倍數之外所
有偶數之積的個位值。

37) The figure below shows the floor plan of a maze. When visitors enter the maze, the entrance closes. They must pass through all doors for the 'Exit' button to be appeared in the last room. However, each door locks once it has been passed. Which of the followings could be the last room? List all possible answers. [4.6%]

下圖是一個迷宮的平面圖。當遊客進入迷宮後，入口將關閉。他們必須通過所有門，「離開」按鈕才會出現在最後一個房間，但每道門一旦通過就會鎖上。哪一間是最後房間？列出所有可能答案。

Legend 圖例
▬ Door 門

Entrance 入口
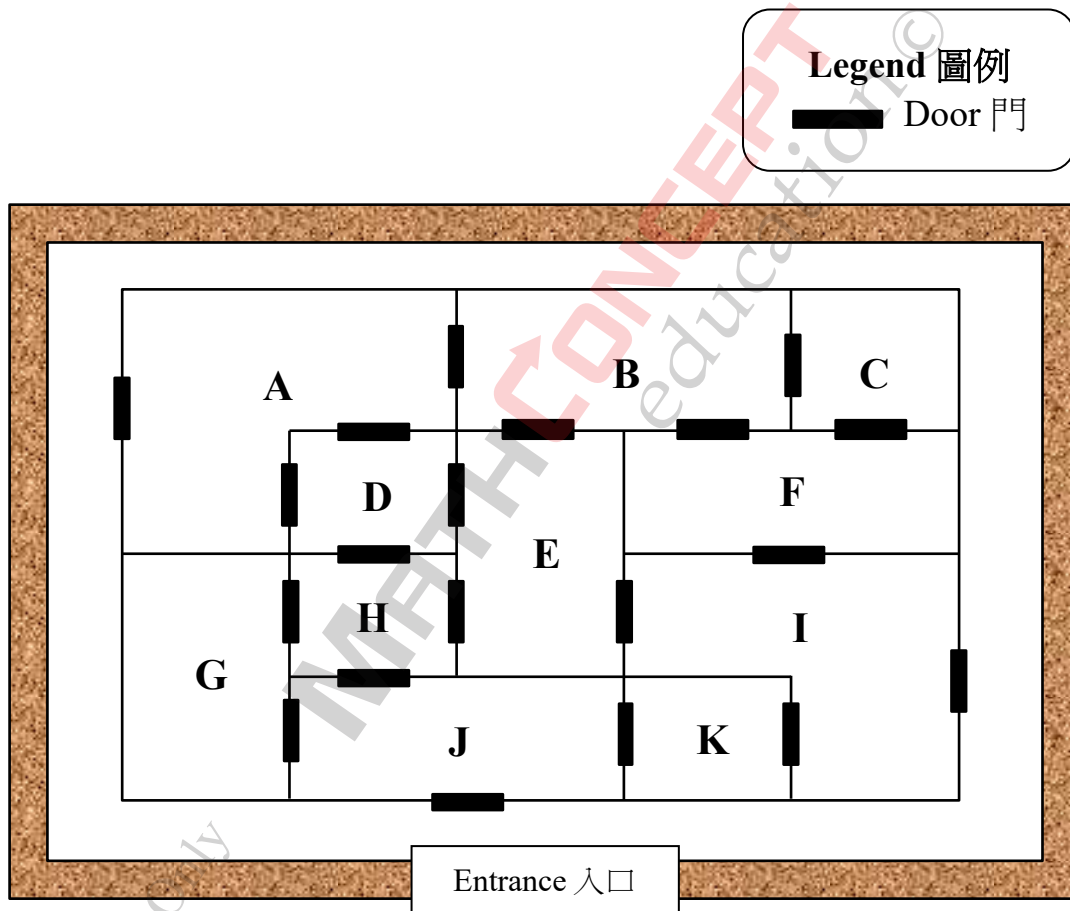
38) Find the value of the following expression. [4.7%]

求以下算式的值。

$$\frac{2\times(1\times1+2\times2+3\times3+...+50\times50)+1+2+3+...+50}{4\times6+8\times10+12\times14+...+200\times202}$$

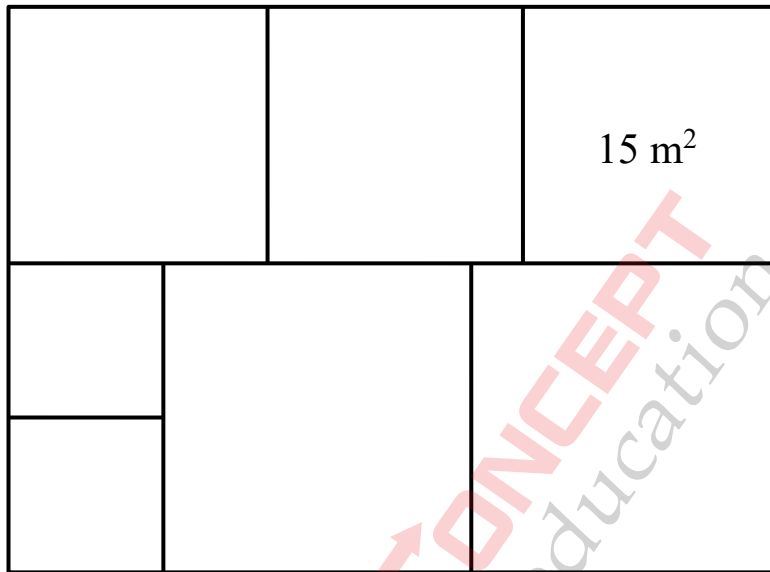**39)** Find the missing number. [4.8%]

找出缺掉的數字。
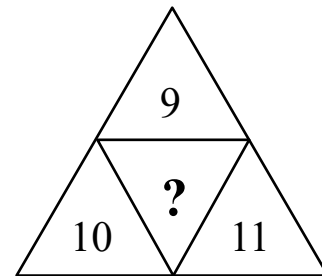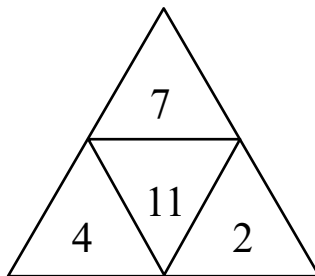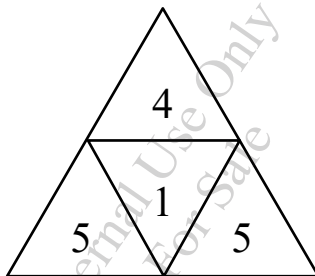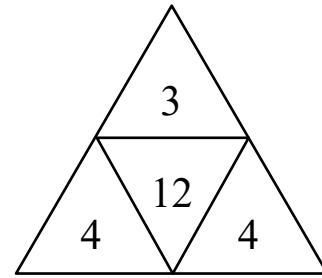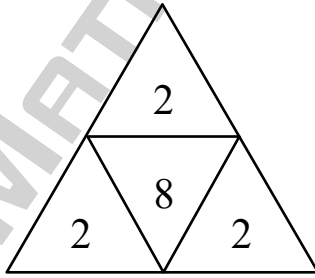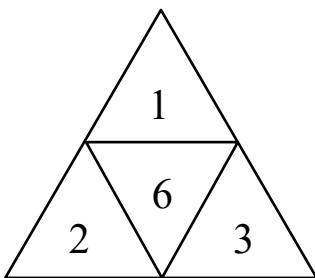
40) The figure below is formed by three types of squares with different [4.9%] sizes. The area of one of the squares is given. What is the area of the whole rectangle in m^2?

下圖是由三種不同大小的正方形所組成，已知其中一個正方形的面積。整個長方形的面積是多少平方米？

15 m²

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MATH 數學·思維大激鬥 CONCEPTITION

P4

REG NO	
NAME	
GRADE	
SEAT	

ANSWER SHEET

○ IDCHECK   ○ ABSENT

	ANSWER			ANSWER			ANSWER			ANSWER	
1	492	○	11	215	○	21	78885	○	31	3608	○
2	4	○	12	163	○	22	C, D, E, F	○	32	198 000	○
3	2691	○	13	$2\frac{2}{19}$	○	23	39	○	33	22	○
4	13	○	14	$1\frac{5}{11}$	○	24	168	○	34	2016	○
5	9200	○	15	$1\frac{6}{7}$	○	25	15840	○	35	551	○
6	4	○	16	7	○	26	37	○	36	6	○
7	53000	○	17	5	○	27	3.525	○	37	F	○
8	522	○	18	8715	○	28	1280	○	38	$\frac{1}{8}$	○
9	381	○	19	105	○	29	G)North 北方	○	39	18	○
10	746	○	20	$\frac{2}{9}$	○	30	20	○	40	99	○

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