MathConception 2022

P4

Question Booklet

問題簿

Name:
姓名：

Reg. No.:
登記編號：

Time: 50 Minutes
Calculators are NOT permitted.

Instructions:

1. DO NOT OPEN THIS QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Write your name and registration number on the cover of this question booklet.
3. If the information printed on your answer sheet is not correct, please inform the invigilator immediately.
4. 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.
5. Unless otherwise specified, all answers must be in exact value and in its simplest form. Writing the units for the answers is NOT necessary.
6. Rough-work sheets provided will be collected at the end of the contest but they will not be marked.
7. 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. 請在此問題簿封面的適當位置寫上你的姓名及登記編號。
3. 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。
4. 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。
5. 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。
6. 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。
7. 此問題簿的附圖不一定依比例繪成。

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1) $75 \div 15 = ?$ [1%]

2) $16 \times 30 = ?$ [1%]

3) $337 \times 23 = ?$ [1%]

4) $756 \div 28 = ?$ [1%]

5) $(128 \times 23) + (23 \times 872) = ?$ [1%]

6) $36 \times 21 \times 25 = ?$ [1%]

7) $936 \div 12 \div 13 = ?$ [1%]

8) $296 + 666 \div 74 = ?$ [1%]

9) $990 - 774 \div 18 \times 17 = ?$ [1%]

10) $24 \times (512 \div 32 + 101) = ?$ [1%]

11) $(4132 - 3988) \times 34 \div 12 = ?$ [1%]

12) $516 - 126 \div (21 - 18) = ?$ [1%]

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For questions 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) $\frac{18}{25}+\frac{24}{25}-\frac{12}{25}=?$ [1%]

14) $6\frac{1}{7}-2\frac{3}{7}+1\frac{5}{7}=?$ [1%]

15) $8-\frac{5}{8}-2\frac{7}{8}=?$ [1%]

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16) Fill in the blank with '>', '<' or '='. [2%]

空格內填上「>」、「<」或「=」。

$$0.03 \quad \boxed{?} \quad \frac{1}{30}$$

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17) Find the Highest Common Factor of 36 and 48. [2.1%]

求 36 和 48 的最大公因數。

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18) Find the Least Common Multiple of 14, 21 and 30. [2.2%]

求 14、21 和 30 的最小公倍數。

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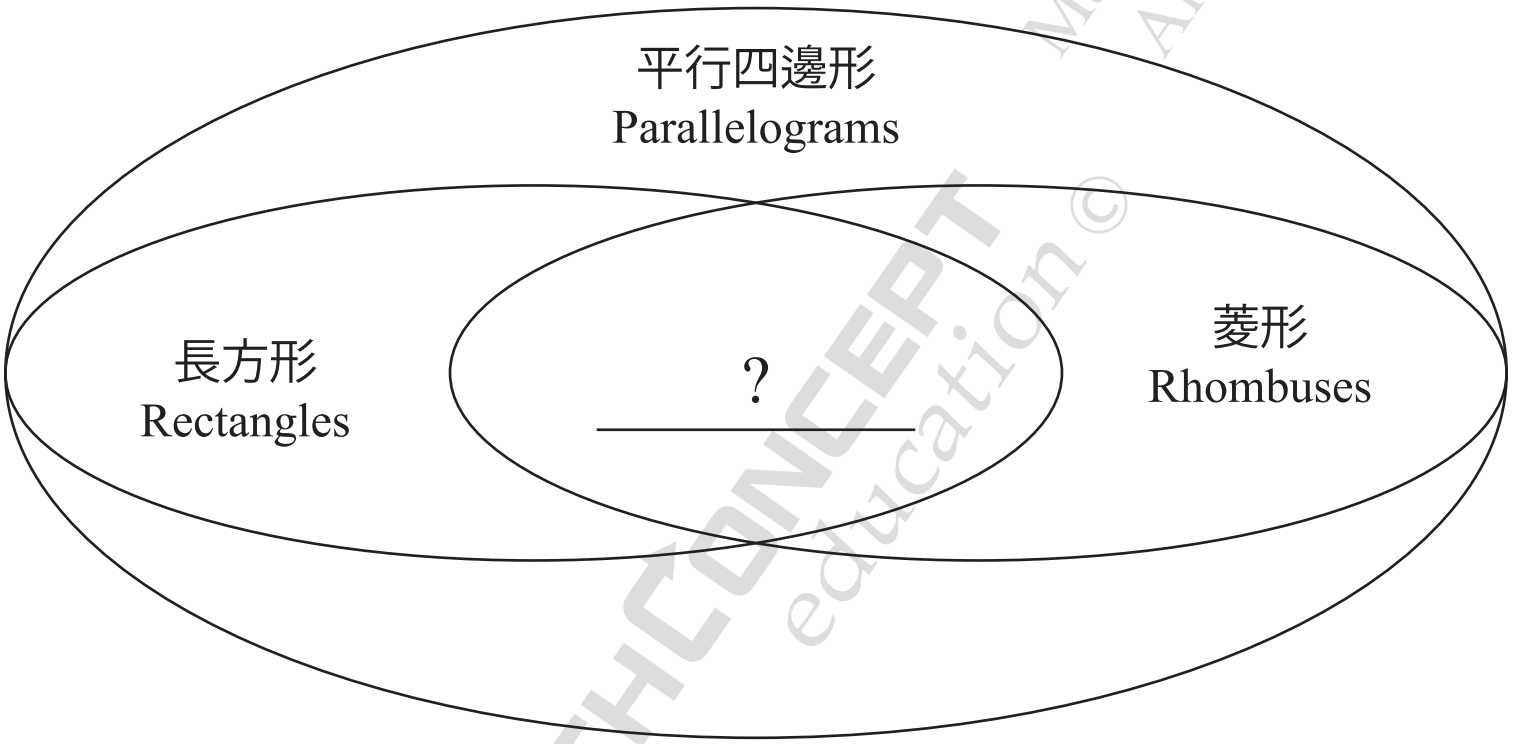
19) The figure below shows the relationships among the quadrilaterals. Fill in the blank. [2.3%]

下圖表示四邊形之間的關係。填上適合的答案。



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20) Each egg is sold at a price of $7. Each box has a dozen eggs. How much do 24 boxes of eggs cost in dollars? [2.4%]

每隻蛋的售價為 7 元。每盒有一打蛋。那麼 24 盒蛋的售價是多少元？

---

21) Reduce $\frac{91}{112}$ to its simplest form. [2.5%]

把 $\frac{91}{112}$ 約至最簡。

---

22) The capacities of a pot and a glass are 4 L and 280 mL respectively. If 4 full glasses of water are poured into the pot, how many more millilitres of water are needed to fill up the pot? [2.6%]

一個鍋和一個玻璃杯的容量分別是 4 升及 280 毫升。若把裝滿 4 杯玻璃杯的水倒入鍋中，還需要多少毫升的水才裝滿此鍋？

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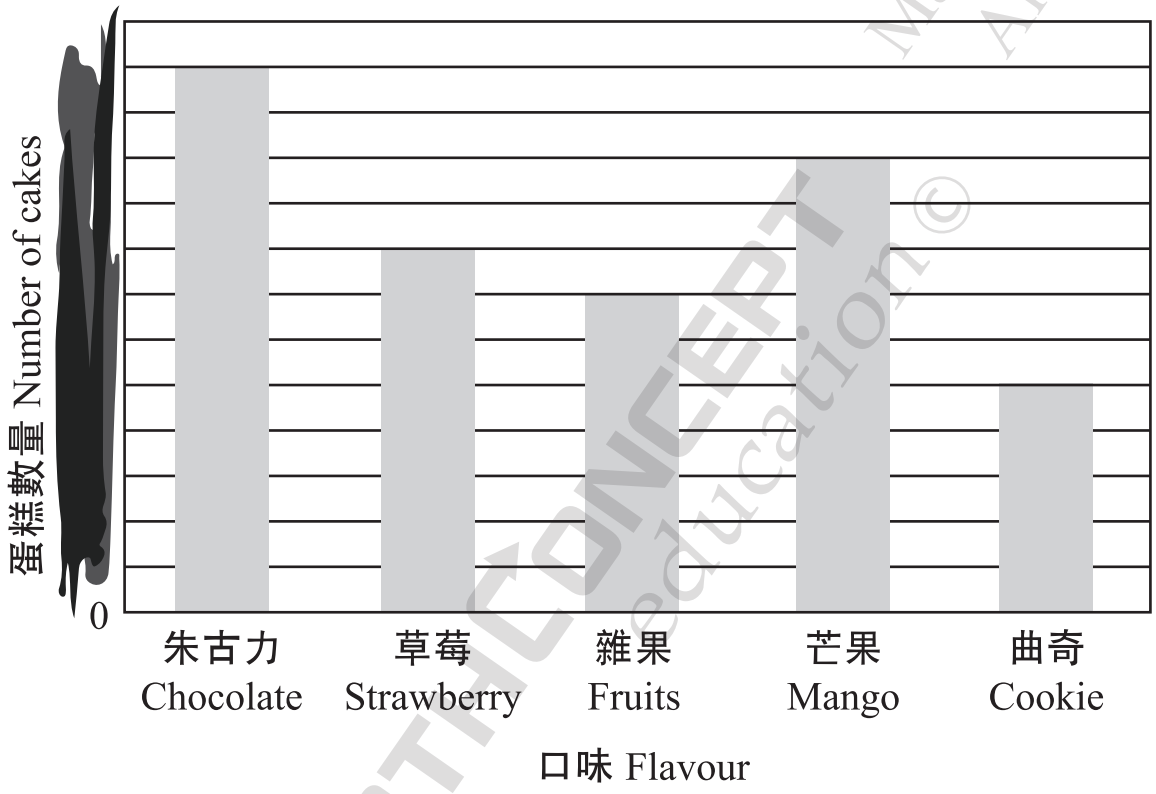
23) The bar chart below shows the number of cakes sold in a bakery in a year. [2.7%]

以下棒形圖顯示某麵包店一年售出的蛋糕數量。



Given that the number of chocolate cakes sold was 250 less than the total number of fruit cakes and mango cakes sold. Each unit of the vertical axis represents __?__ cakes.

已知朱古力蛋糕的銷售量比雜果蛋糕和芒果蛋糕的總銷售量少 250 個。這個棒形圖的每一格代表 __?__ 個蛋糕。

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24) If the 5-digit number 460A2 is divisible by 3 and its thousands digit is smaller than A, find the value of A. [2.8%]

如果五位數 460A2 可以被 3 整除，而其千位數比 A 小，求 A 的數值。

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25) Jason is facing north-west. Joanne and he are back facing each other. Jason first walks 20 m forwards, then turns left and walks 60 m forwards. Joanne walks 40 m forwards at the same time. Joanne is to the ___?___ of Jason. [2.9%]

小明面向西北方，小美與他背對著對方。小明先向前行 20 米，然後轉向他的左方再前行 60 米。同一時間小美向前行 40 米。小美在小明的 ___?___ 方。

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26) Alice has 163 candies. Bowie has 15 more candies than Alice. If each gift box can pack 12 candies, at least how many gift boxes are needed to pack all the candies of Alice and Bowie? [3.0%]

小艾有 163 顆糖果。寶兒比小艾多 15 顆糖果。若每個禮物盒可裝 12 顆糖果，最少需要多少個禮物盒才可裝起寶兒和小艾所有的糖果？

---

27) A teacher had 372 coloured pens and 652 pencils originally. She bought 132 pencils and 510 coloured pens more, and then gave all the pencils to 42 students evenly. Finally, there were 28 pencils left. How many pencils did each student receive? [3.1%]

老師原本有 372 枝顏色筆和 652 枝鉛筆。她多買了 132 枝鉛筆和 510 枝顏色筆，然後將全部鉛筆平均分給 42 位同學。最後剩下 28 枝鉛筆。那麼每位同學得到鉛筆多少枝？

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28) A rectangle can be cut into two squares with equal size. If the perimeter of the rectangle is 384 cm, the area of a square is ___?___ cm^2. [3.2%]

一個長方形可以切開成兩個大小相同的正方形。若長方形的周界是 384 厘米，一個正方形的面積為 ___?___ 平方厘米。

---

29) Raymond finished a puzzle in 3 days. If he finished $\frac{5}{18}$ of the puzzle on the first day and $\frac{7}{18}$ of it on the last day, what fraction of the puzzle did Raymond finish on the second day? Give the answer in its simplest form. [3.3%]

偉文用 3 日完成了一幅拼圖。若他在第一日完成拼圖的 $\frac{5}{18}$，而最後一日完成拼圖的 $\frac{7}{18}$，問偉文第二日完成拼圖的幾分之幾？答案必須約至最簡。

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30) N is a 3-digit number. It is divisible by 3, 5 and 7. How many possible values of N are there? [3.4%]

N 是一個三位數。它可以被 3、5 和 7 整除。N 的可能值有多少個？

---

31) Find the value of $17 \times 115 + 34 \times 25 + 68 \times 19 - 85 \times 48$. [4%]

求 $17 \times 115 + 34 \times 25 + 68 \times 19 - 85 \times 48$ 的值。

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32) Peter has 40 black bags and white bags in total. Each black bag has 6 marbles. Each white bag has 4 marbles. If Peter has 208 marbles in total, there are __?__ more black bags than white bags. [4.1%]

小德有黑色袋和白色袋共 40 個。每個黑色袋有 6 顆波子。每個白色袋有 4 顆波子。若小德合共有 208 顆波子，黑色袋比白色袋多 __?__ 個。

---

33) The letters A and B represent 2 different 1-digit numbers. Find the value of A + B. [4.2%]

如果英文字母 A 和 B 代表兩個不同的一位數，求 A + B 的數值。

$$\begin{array}{cccc} & B & 0 & A \\ \times & & B & A \\ \hline A & 1 & B & A \end{array}$$

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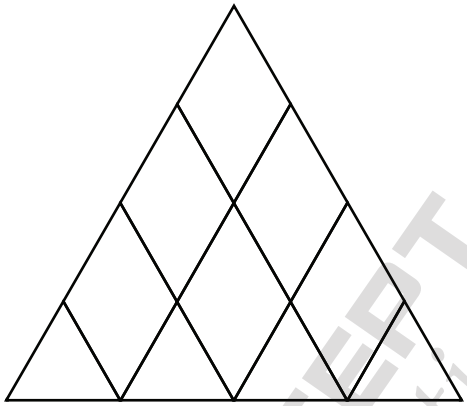
34) How many quadrilaterals are there in the figure below? [4.3%]

以下圖中共有多少個四邊形？



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35) A rhombus is formed by merging 8 identical equilateral triangles. If the sum of the perimeters of all triangles is 120 cm, what is the perimeter of the rhombus in cm? [4.4%]

一個菱形是由 8 個相等的等邊三角形所組成。如果所有三角形的周界總和為 120 厘米，菱形的周界是多少厘米？

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36) Find the value of the 10^{th} term of the following sequence. [4.5%]

求以下數列第 10 項的值。

100, 102, 105, 110, 117, 128, …

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37) There were several players playing with a deck of cards. If every player got 12 cards, there were 13 cards left in the deck. If every player got 15 cards, 5 more cards were needed. How many cards were there in the deck originally? [4.6%]

幾名玩家用一組卡牌玩遊戲。若分給每名玩家 12 張牌，牌組會剩下 13 張牌。若分給每名玩家 15 張牌，則需要多 5 張牌。牌組原本有多少張牌？

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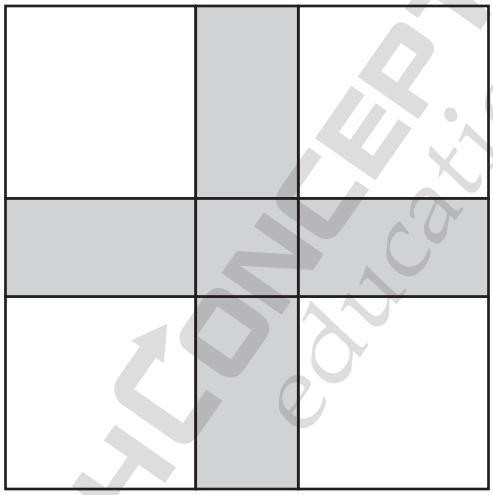
38) In the figure below, 4 squares with side length of 12 cm are overlapped to form a square. If the total area of the unshaded parts is 256 cm^2, what is perimeter of the shaded part in cm? [4.7%]

下圖中，4 個邊長為 12 厘米的正方形重疊在一起，而形成一個正方形。若空白部分的面積是 256 平方厘米，陰影部分的周界是多少厘米？



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39) N is a 3-digit integer. When N is divided by 2, 3, 4, 5 and 6, the remainders are 1, 2, 3, 4 and 5 respectively. What is the largest possible value of N? [4.8%]

N 是一個三位整數。當 N 除以 2、3、4、5和 6 時，餘數分別為 1、2、3、4 和 5。N 的最大可能值是多少？

---

40) David uses a string to make a rectangle. Its length is 4 times its width. If he uses the same string to make a square, the area will increase 81 cm^2. What is the area of the rectangle in the beginning? [4.9%]

小明用細繩做成一個長方形。它的長是闊的 4 倍。若小明用同一條細繩做成一個正方形，面積會增加 81 平方厘米。長方形的面積原本是多少平方厘米？

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End of paper
全卷完

MATH 數學·思維大激鬥 CONCEPTITION

REG NO			P4
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SEAT			

ANSWER SHEET

	ANSWER			ANSWER			ANSWER			ANSWER	
1	5	○	11	408	○	21	$\frac{13}{16}$	○	31	17	○
2	480	○	12	474	○	22	2880	○	32	8	○
3	7751	○	13	$1\frac{1}{5}$	○	23	50	○	33	7	○
4	27	○	14	$5\frac{3}{7}$	○	24	9	○	34	35	○
5	23000	○	15	$4\frac{1}{2}$	○	25	East / 東(方)	○	35	40	○
6	18900	○	16	<	○	26	29	○	36	200	○
7	6	○	17	12	○	27	18	○	37	85	○
8	305	○	18	210	○	28	4096	○	38	80	○
9	259	○	19	Squares / 正方形	○	29	$\frac{1}{3}$	○	39	959	○
10	2808	○	20	2016	○	30	9	○	40	144	○

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