MathConception
2021

P3

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。

1) $77 + 23 = ?$ [1%]

2) $289 + 314 = ?$ [1%]

3) $802 - 743 = ?$ [1%]

4) $144 - 82 = ?$ [1%]

5) $25 \times 8 = ?$ [1%]

6) $49 \times 9 = ?$ [1%]

7) $177 \div 3 = ?$ [1%]

8) $2020 \div 4 = ?$ [1%]

9) $20 \times 29 + 37 \times 20 + 20 \times 35 = ?$ [1%]

10) $24 \times 7 + 15 \times 8 + 12 \times 8 - 4 \times 36 = ?$ [1%]

11) $11 + 12 + 13 + \ldots + 18 + 19 + 20 = ?$ [1%]

12) $1 + 2 + \ldots + 9 + 10 + 9 + \ldots + 2 + 1 = ?$ [1%]

13) $35 \times 5 + 225 = ?$ [1%]

14) $451 + 145 + 514 = ?$ [1%]

15) $125 \times 32 \times 25 = ?$ [1%]

16) An egg tart costs $6. Tom pays for six egg tarts with $40, how much change should he receive? [2%]

一件蛋撻售 6 元。<u>小明</u>付 40 元購買六件蛋撻，應找回多少元？

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17) A bag of cookies costs $15. A box of chocolates costs $18. How much do 3 bags of cookies and 7 boxes of chocolates cost? [2.1%]

一包餅乾售 15 元，一盒巧克力售 18 元，問 3 包餅乾和 7 盒巧克力共售多少元？

18) Find the missing number. [2.2%]

找出橫線上的數字。

$$1 , 5 , 9 , 13, \underline{\ ?\ } , 21 , 25 , ...$$

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19) If some pencils were evenly distributed to seven kids, each kid can get 7 pencils. At most how many pencils are there? [2.3%]

有一些鉛筆，如果平均分給 7 位小朋友，每人可分得 7 支。問最多有鉛筆多少支？

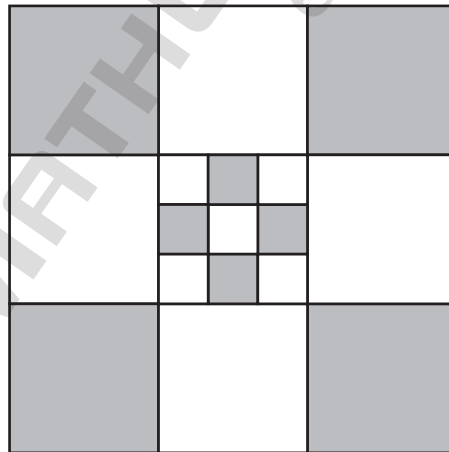20) What is $\frac{3}{5}$ of 75? [2.4%]

75 的 $\frac{3}{5}$ 是多少？

21) Tom has 16 apples. Peter has 8 apples. How many apples [2.5%] should Tom give Peter such that they will have the same number of apples?

小明有蘋果 16 個，小強有蘋果 8 個。問小明要給小強多少個蘋果，才可使二人的蘋果數目相同？

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22) What fraction is the shaded part of the whole figure? [2.6%]

圖中著色部分佔全圖的幾分之幾？

23) A has $15 more than B. B has $12 less than C. If C has $25, how much do A, B and C have altogether? [2.7%]

   甲比乙多 15 元，乙比丙少 12 元。如果丙有 25 元，三人共有多少元？

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24) The three sides of a triangle are equal in length. It is a/an _____? triangle. [2.8%]

   一個三角形的三條邊長度相同。這是一個 _____? 三角形。

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25) If the sum of all digits of a 4-digit even number is 31, what is the smallest possible value of the number? [2.9%]

   一個四位雙數各個數字之和是 31，這個數最小是多少？

26) How many integers are there from 20 to 2021? [3%]

由 20 到 2021 有多少個整數？

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27) In order, we times 2, add 2, divide by 2 and then minus 2 [3.1%]
to a number, and the answer is 6. What is the number?

某數順序乘以 2，再加 2，再除以 2，再減 2，結果得出 6，問這個數是多少？

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28) When working on a subtraction problem, Tom mistakenly [3.2%]
wrote the units digit of the minuend as 5 instead of 8 and
the hundreds digit of the subtrahend as 4 instead of 2. The
resulted difference is 286. What is the correct answer?

小明在計算兩數相減的時候，把被減數的個位數由 8 寫成 5，把減數的百位數由 2 寫成 4，得出來的差是 286。正確的答案是多少？

29) Tom and Peter have 50 candies altogether. If Tom gives half of his candies to Peter, Peter will have 8 more candies than Tom. How many candies does Tom have originally? [3.3%]

小明和小強共有糖果 50 粒，小明把自己的糖果分一半給小強後，小強便比小明多 8 粒糖果，問小明原有糖果多少粒？

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30) A factory needs to manufacture 3200 components. 40 workers take 10 days to finish it. How many more workers are needed if they have to finish it two days earlier? [3.4%]

一間工廠要加工 3200 件零件，40 個工人需時 10 天便可完成。如果要比原定時間早兩天完成，需要增加多少個工人？

31) Define「⊕」: [4%]

定義「⊕」:

(a) $a \leq b, a \oplus b = (b - a) \times 2 \times a \times b$
(b) $a > b, a \oplus b = (a - b) \times (a + b)$

Find the value of $(3 \oplus 4) \oplus 10$.

求 $(3 \oplus 4) \oplus 10$ 的值。

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32) It is given that 1st February 2820 is Saturday. Which day of the week is 1st February 2823? [4.1%]

已知 2820 年的 2 月 1 日是星期六，問 2823 年的 2 月 1 日是星期幾？

33) Tom and Peter are lining up. Tom is in the 5th place of the queue. There are 5 people behind Peter in the queue. There are 3 people in between Tom and Peter. At least how many people are there in the queue? [4.2%]

小明和小強在排隊買珍珠奶茶，已知小明排在隊伍中的第五位，小強的後方有 5 名顧客，而小明和小強之間則有 3 名顧客。問隊伍中最少有多少人？

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34) $1-2-3+4+5-6-7+\ldots+2017-2018-2019+2020+2021=?$ [4.3%]

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35) If a 5-digit number 471AB is divisible by 13, what is the greatest value of $A+B$? [4.4%]

如果五位數 471AB 可以被 13 整除，求 $A+B$ 的最大值。

36) Two numbers are multiplied together. If one of the numbers is increased by 8 while the other number remains unchanged, the product will increase by 48. If both numbers are decreased by 5, the product will become 12. Find the original product. [4.5%]

兩數相乘，如果其中一個數增加 8，另一個數不變，所得出來的積增加了 48。如果兩個數同時減 5，所得出的積是 12。求原本兩數相乘得出的積。

37) 15 years ago, the age of Tom is 3 times that of Peter. This year, the age of Peter is half of that of Tom. After 15 years, what is the sum of their ages? [4.6%]

15 年前，小明的年齡是小強的 3 倍。今年小強的年齡是小明的一半。15 年後，二人的年齡合共是多少歲？

38) Tom drank half of a bottle of soft drink and then half of the remaining. Later, he refilled the bottle and drank half of it. If Tom has drunk 1 L of soft drink altogether, what is the capacity of the bottle in mL? [4.7%]
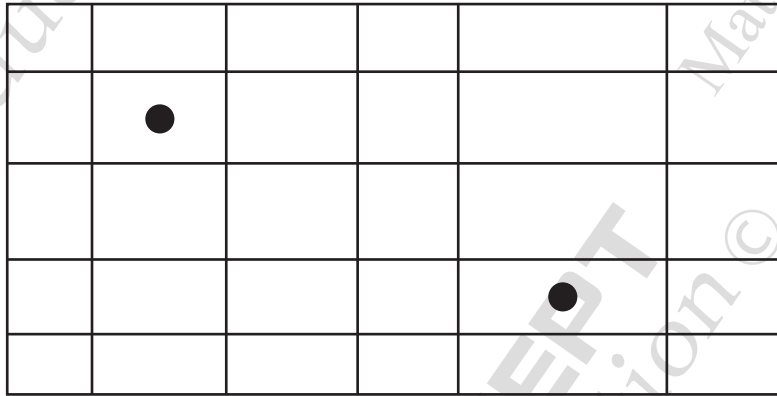
有一瓶汽水，小明先喝去了一半，再喝去餘下汽水的一半。然後，小明再把瓶子注滿汽水，再喝去一半汽水。如果小明一共喝了 1 升的汽水，問瓶子的容量是多少毫升？

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39) When a bag of candies is evenly distributed to 4, 5 or 6 people, there is always a candy left. At least how many candies are there? [4.8%]

有一包糖，平均分給 4 個人、5 個人、或 6 個人，都會餘下一粒糖果。問這包糖最少有多少粒？

40) How many rectangles below include exactly one [4.9%] black dot?

參考附圖，圖中有多少個長方形只包含一個黑點？

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Math Conception 數學·思維大激鬥

REG NO	
NAME	
GROUP	
SEAT	

P3

ANSWER SHEET

	ANSWER			ANSWER			ANSWER			ANSWER	
1	100	○	11	155	○	21	4	○	31	476	○
2	603	○	12	100	○	22	$\dfrac{40}{81}$	○	32	Wednesday 星期三	○
3	59	○	13	400	○	23	66	○	33	6	○
4	62	○	14	1110	○	24	Equilateral 等邊	○	34	2021	○
5	200	○	15	100000	○	25	5998	○	35	14	○
6	441	○	16	($) 4	○	26	2002	○	36	102	○
7	59	○	17	($) 171	○	27	7	○	37	120	○
8	505	○	18	17	○	28	489	○	38	800	○
9	2020	○	19	55	○	29	42	○	39	61	○
10	240	○	20	45	○	30	10	○	40	128	○

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