



MathConceptition

2021

P6

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。

For questions 1 to 10, the answers must be expressed in integer or decimal.

由第 1 至 10 題，答案必須以整數或小數表示。

1) $195 \div 15 = ?$ [1%]

2) $3.7 + 9.63 = ?$ [1%]

3) $55 \times 0.4 = ?$ [1%]

4) $198 \div 6.6 = ?$ [1%]

5) $18.13 \div 0.37 = ?$ [1%]

6) $101.01 - 10.1 = ?$ [1%]

7) $5.05 \times 2.2 = ?$ [1%]

8) $23 \div 8 \times 56 = ?$ [1%]

9) $\frac{1}{8} \div 100\% = ?$ [1%]

10) $88.88 - 77.77 \div 11 = ?$ [1%]

For questions 11 to 15, the answers must be expressed in proper fraction, integer or mixed number.

由第 11 至 15 題，答案必須以真分數、整數或帶分數表示。

11) Evaluate $1 + \frac{3}{4} - \frac{1}{6}$. [1%]

計算 $1 + \frac{3}{4} - \frac{1}{6}$ 。

12) Evaluate $0.5 - 5\% + \frac{1}{5}$. [1%]

計算 $0.5 - 5\% + \frac{1}{5}$ 。

13) Evaluate $1 - \frac{1}{3} - \frac{1}{9} - \frac{1}{27} - \frac{1}{81}$. [1%]

計算 $1 - \frac{1}{3} - \frac{1}{9} - \frac{1}{27} - \frac{1}{81}$ 。

14) Evaluate $\frac{2}{5} \div \frac{6}{35} \div \frac{5}{12} \div \frac{1}{2}$. [1%]

計算 $\frac{2}{5} \div \frac{6}{35} \div \frac{5}{12} \div \frac{1}{2}$ 。

15) Evaluate $100\% \div \left(\frac{14}{15} - \frac{5}{6} \right)$. [1%]

計算 $100\% \div \left(\frac{14}{15} - \frac{5}{6} \right)$ 。

- 16) A ribbon is 141.3 cm long. Tommy cuts it into 9 pieces equally. How long is each piece of ribbon in cm? (Leave your answer in decimal.) [2%]

小明需要將一條長 141.3 厘米的絲帶平均分成 9 段。
每段絲帶長多少厘米？（答案以小數表示。）

- 17) Each apple costs \$4.70. Mary has \$58.70. How many apples can she buy at most? [2.1%]

蘋果每個售 4.7 元，小美有 58.7 元，她最多可買蘋果多少個？

-
- 18) Each apple weighs 0.16 kg and each lemon weighs $\frac{2}{13}$ kg. [2.2%]

What is the total weight of 5 apples and 3 lemons in kg?

(Leave your answer in proper fraction, integer or mixed number.)

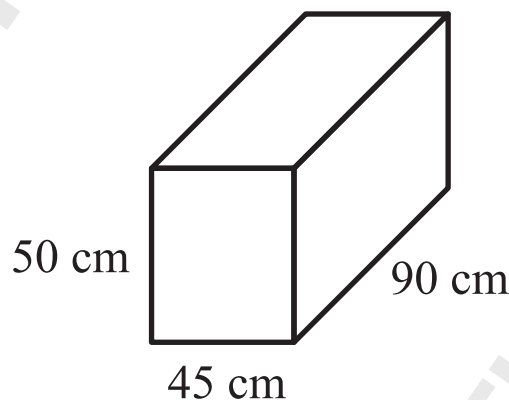
蘋果每個重 0.16 公斤，檸檬每個重 $\frac{2}{13}$ 公斤。5 個蘋果和 3 個檸檬共重多少公斤？（答案以真分數、整數或帶分數表示。）

- 19) A pizza weighed 3 kg. Andy ate $\frac{5}{8}$ kg, which was half of [2.3%]
 what Bernice ate. How many kilograms of pizza are left?
 (Leave your answer in proper fraction, integer or mixed
 number.)

一塊薄餅重 3 kg，小善吃了 $\frac{5}{8}$ kg，是小婷吃的一半。
 還餘薄餅多少 kg? (答案以真分數、整數或帶分數表示。)

- 20) When the cuboid below is cut into a net, what is the area [2.4%]
 of the net in cm^2 ?

把下圖的長方體剪成一個摺紙圖樣後，該摺紙圖樣
 的面積是多少平方厘米?

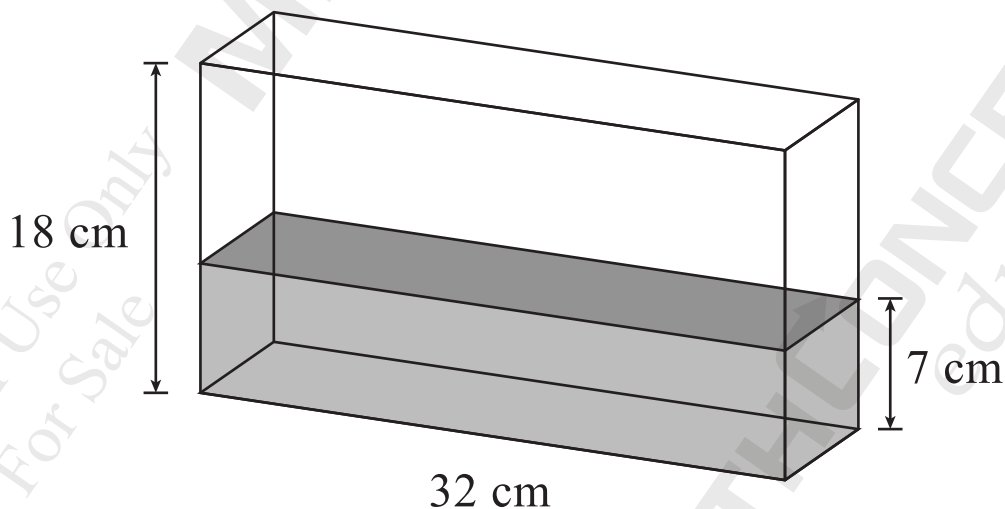


- 21) The area of a trapezium is 72.5 cm^2 . If its lower base is 6.8 cm and its height is 12.5 cm, what is the length of the upper base of the trapezium in cm? (Leave your answer in decimal.) [2.5%]

梯形的面積是 72.5 平方厘米。它的下底是 6.8 厘米，高是 12.5 厘米。這個梯形的上底是多少厘米？（答案以小數表示。）

- 22) When 1.2 L of water is poured into the tank, the water level will rise by 7.5 cm. Find the width of the tank in cm. [2.6%]

把 1.2 升的水倒入水族箱後，水位上升了 7.5 厘米。水族箱的闊度是多少厘米？



- 23) The average of 4 numbers, a , b , c , and d is x . If each number is multiplied by 2 and then added by a , what is the average of the 4 new numbers? [2.7%]

四個數據 a 、 b 、 c 和 d 的平均數是 x 。把每個數據先乘以 2 後再加上 a ，現在新的四個數據的平均數是什麼？

-
- 24) An n -gonal pyramid has A vertices, B faces and C edges. Find $A + B - C$. [2.8%]

一個 n 角錐體有 A 個頂、 B 個面和 C 條棱。求 $A + B - C$ 。

- 25) There were a total of 260 dolls and toy cars in a toy shop. [2.9%]
25% of the toys were dolls. After selling 40% of the toy cars, how many toy cars are left?

玩偶和玩具車原本合共有 260 件，玩偶佔全部的 25%。
在賣出玩具車的 40% 後，還餘下玩具車多少件？

-
- 26) A rectangular water tank is 25 cm long, 20 cm wide, and [3%]
23 cm tall. The depth of water in the tank is 17 cm. After
putting 12 cubes of side length 5 cm into the tank, what is
the new water level of the tank in cm?

長方體水箱長 25 厘米，闊 20 厘米，高 23 厘米，裡面
裝有 17 厘米深的水。若把 12 粒邊長 5 厘米的正方體
放入箱內，水位會上升至多少厘米？

- 27) There is some water in a tank which is 10 cm long, 14 cm wide, and 16 cm tall. When a 1200 cm^3 toy car is placed into the tank, 500 mL of water will overflow. What is the original depth of water in cm? [3.1%]

一個長 10 cm，闊 14 cm，高 16 cm 的水族箱內裝有一些水，把一架 1200 cm^3 的玩具車放進水族箱後，溢出了水 500 mL。水位原本高多少厘米？

-
- 28) A cuboid is 14 cm tall and 13 cm wide. Its length is 2 times the sum of its height and its width. What is the volume of the cuboid in cm^3 ? [3.2%]

一個長方體高 14 厘米，闊 13 厘米，長是高和闊之和的 2 倍。這個長方體的體積是多少立方厘米？

- 29) May weighed 40 kg last year, she weighs 5% more this year. Kate weighed 48 kg last year, she weighs 5% less this year. What is the difference between their weights in kg now? (Leave your answer in decimal.) [3.3%]

玲玲上年的體重是 40 公斤，今年增加了 5%。琪琪上年的體重是 48 公斤，今年減少了 5%。她們現在的體重相差多少公斤？（答案以小數表示。）

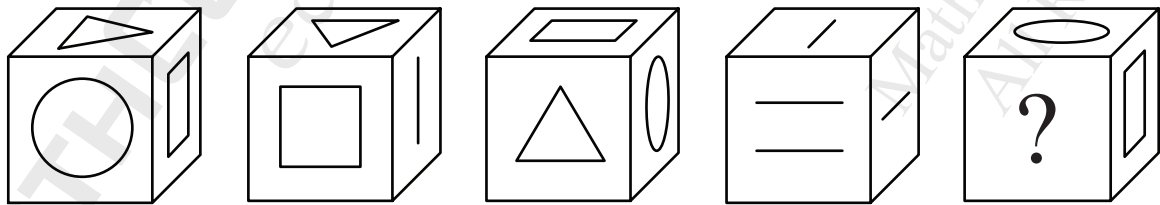
-
- 30) Solve the equation for x . [3.4%]

求 x 的值。

$$\frac{1-x}{x} = 10$$

- 31) The five cubes below are identical. Draw the missing shape. [4%]

以下是五個相同的正方體，畫出缺掉的圖案。



- 32) Find the units digit of $204^{2019} + 202^{2020} + 203^{2021}$. [4.1%]

$204^{2019} + 202^{2020} + 203^{2021}$ 的個位數是多少？

33) $2 + 8 + 14 + 20 + \dots + 224 + 230 = ?$ [4.2%]

34) If $\frac{\frac{1}{\frac{2}{\frac{3}{x} - 1} - 1} - 1}{\frac{8}{9}}$, find the value of x . (Leave [4.3%]

your answer in proper fraction, integer or mixed number.)

已知 $\frac{\frac{1}{\frac{2}{\frac{3}{x} - 1} - 1} - 1}{\frac{8}{9}}$ ，求 x 的值。(答案以真

分數、整數或帶分數表示。)

- 35) Among the 150 integers from 1 to 150, at least how many numbers must be picked so that there must be two numbers whose product is 864? [4.4%]

在 1 至 150 這 150 個整數中，最少任意挑出多少個數，才必定有其中兩個數之積是 864？

36) $\frac{1090}{3337} - \frac{1115}{3337} + \frac{2226}{3337} = ?$ [4.5%]

37) $1 - 2^2 + 3^2 - 4^2 + \dots + 2019^2 - 2020^2 + 2021^2 = ?$ [4.6%]

- 38) In a field, each cow consumes the grass at a constant rate while the grass grows at a constant rate every day. If 36 cows consume the whole field in 3 days and 15 cows consume the whole field in 9 days, how many days would be needed for 8 cows to consume the whole field? [4.7%]

牧場上有一片草地，每隻牛每天吃一定份量的草，草每天生長一定的份量。36 隻牛吃 3 天便吃完草，15 隻牛吃 9 天便吃完草。問 8 隻牛吃多少天才會吃完草？

- 39) In a project, if A works alone for 5 days and then works with B for 8 days, $\frac{1}{5}$ of the entire project will be completed. The ratio of work efficiency of A and B is 4:3. If the project is started by B alone for 12 days, and then the remaining project is completed by A alone, how many days does it take for A to complete? [4.8%]

一項工程，若甲先單獨做 5 天，接著與乙一起做 8 天，能完成全項工程的 $\frac{1}{5}$ 。甲和乙的工作效率的比是 4:3。若這項工程先由乙單獨做 12 天，接著由甲單獨完成了餘下工程，甲需要多少天才能完成？

-
- 40) $1 \times 4 \times 7 + 2 \times 5 \times 8 + 3 \times 6 \times 9 + \dots + 35 \times 38 \times 41 + 36 \times 39 \times 42 = ?$ [4.9%]



REG NO			P6
NAME			
GROUP			
SEAT			

ANSWER SHEET

ANSWER		ANSWER		ANSWER		ANSWER	
1 13	<input type="radio"/>	11 $1\frac{7}{12}$	<input type="radio"/>	21 4.8	<input type="radio"/>	31 =	<input type="radio"/>
2 13.33	<input type="radio"/>	12 $\frac{13}{20}$	<input type="radio"/>	22 5	<input type="radio"/>	32 3	<input type="radio"/>
3 22	<input type="radio"/>	13 $\frac{41}{81}$	<input type="radio"/>	23 $2x + a$	<input type="radio"/>	33 4524	<input type="radio"/>
4 30	<input type="radio"/>	14 $11\frac{1}{5}$	<input type="radio"/>	24 2	<input type="radio"/>	34 $1\frac{3}{10}$	<input type="radio"/>
5 49	<input type="radio"/>	15 10	<input type="radio"/>	25 117	<input type="radio"/>	35 143	<input type="radio"/>
6 90.91	<input type="radio"/>	16 15.7	<input type="radio"/>	26 20	<input type="radio"/>	36 $\frac{31}{47}$	<input type="radio"/>
7 11.11	<input type="radio"/>	17 12	<input type="radio"/>	27 11	<input type="radio"/>	37 2043231	<input type="radio"/>
8 161	<input type="radio"/>	18 $1\frac{17}{65}$	<input type="radio"/>	28 9828	<input type="radio"/>	38 27	<input type="radio"/>
9 0.125	<input type="radio"/>	19 $1\frac{1}{8}$	<input type="radio"/>	29 3.6	<input type="radio"/>	39 86	<input type="radio"/>
10 81.81	<input type="radio"/>	20 21600	<input type="radio"/>	30 $\frac{1}{11}$	<input type="radio"/>	40 601398	<input type="radio"/>