



MathConceptition

2018

G6

Question Booklet

問題簿

Name:

姓名：

Reg. No.:

考生編號：

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Time: 1 hour

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. 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. If the information printed on your answer sheet is not correct, please inform the invigilator immediately.
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：1小時

不允許使用計算機。

考生須知：

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. 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. 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。
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) $225 \div 15 = ?$ [1%]

2) $5.99 + 7.15 = ?$ [1%]

3) $111.1 - 9.99 = ?$ [1%]

4) $5.75 \times 3.5 = ?$ [1%]

5) $5 \times 34.64 \times 0.2 = ?$ [1%]

6) $3.311 \div 7.7 = ?$ [1%]

7) $19 \div 7 \times 91 = ?$ [1%]

8) $221 \div 0.013 = ?$ [1%]

9) $55.5 - 44.4 \times 1.1 = ?$ [1%]

10) $62\% \div \frac{2}{3} = ?$ [1%]

11) Evaluate $\frac{4}{15} \times \frac{6}{35} \times \frac{5}{2} \times \frac{7}{12}$. [1%]

(Express the answer in its simplest form.)

計算 $\frac{4}{15} \times \frac{6}{35} \times \frac{5}{2} \times \frac{7}{12}$ 。 (答案以最簡分數表示。)

12) Evaluate $\frac{1}{3} + \frac{1}{6} + \frac{1}{12} + \frac{1}{24} + \frac{1}{48}$. [1%]

(Express the answer in its simplest form.)

計算 $\frac{1}{3} + \frac{1}{6} + \frac{1}{12} + \frac{1}{24} + \frac{1}{48}$ 。 (答案以最簡分數表示。)

13) Evaluate $4\frac{1}{4} \div 0.75\% \times 2\frac{1}{4}$. [1%]

(Express the answer in its simplest form.)

計算 $4\frac{1}{4} \div 0.75\% \times 2\frac{1}{4}$ 。 (答案以最簡分數表示。)

14) Evaluate $\left(\frac{1}{6} - \frac{1}{8}\right) \div 80\%$. [1%]

(Express the answer in its simplest form.)

計算 $\left(\frac{1}{6} - \frac{1}{8}\right) \div 80\%$ 。(答案以最簡分數表示。)

15) Evaluate $24\frac{4}{5}\% \times \left(7\frac{3}{4} - 4.5\right)$. [1%]

(Express the answer in its simplest form.)

計算 $24\frac{4}{5}\% \times \left(7\frac{3}{4} - 4.5\right)$ 。(答案以最簡分數表示。)

16) There are 50 pens. 24 of them are red pens. What percentage of the pens are red? [2.0%]

有 50 支原子筆，其中 24 支是紅色原子筆。紅色原子筆佔全部原子筆的百分之幾？

- 17) After eating 20% of a bag of candies, there are 60 candies left. How many candies were there in the bag originally? [2.1%]

一包糖果被吃去 20% 後，還剩下 60 粒，該包糖果原有多少粒？

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- 18) John can run 2.5 m in a second. How many minutes does he need to run 105 m? [2.2%]

小明 1 秒可以跑 2.5 米，他跑 105 米需要多少分鐘？

- 19) There are some 10¢ coins which worth \$129.40 in total. The money is used to buy 2 cups of ice cream which costs \$9.50 each. If the rest of the money is then shared among 8 people equally, how much does each person get? [2.3%]

有一些一角硬幣，它們共值 129.4 元。用這些錢買 2 杯價值 9.5 元的雪糕後，再把餘下的錢平均分給 8 個人，問每人可得多少元？

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- 20) There were 140 kg of vegetables. 18% of them were sold in the morning and 30% of them were sold in the afternoon. How many fewer kilograms were sold in the morning than in the afternoon? [2.4%]

有蔬菜 140 公斤，上午賣出全部的 18%，下午賣出全部的 30%。問上午比下午少賣蔬菜多少公斤？

- 21) A fish tank is 40 cm long and 25 cm wide. The depth of water in the tank is 30 cm. If the water in the tank is poured into glasses of 600 mL, at least how many glasses are needed to hold all the water? [2.5%]

一個魚缸長 40 厘米，闊 25 厘米，水位高 30 厘米。
若把魚缸裏的水倒入容量為 600 毫升的杯中，要盛載全部水最少需用杯多少隻？

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- 22) A rectangular water tank is 0.8 m long, 0.5 m wide, and 0.4 m tall. The depth of water in the tank is 16 cm. If 5 iron plates are put into the tank, the water level will rise 10 cm. What is the volume of each iron plate in cm^3 ? [2.6%]

長方體水箱長 0.8 米，闊 0.5 米，高 0.4 米，裡面裝有 16 厘米深的水。若放入 5 塊鐵片後，水位上升了 10 厘米，問每塊鐵片的體積是多少立方厘米？

- 23) There are 6 women and 3 men in a company. The average height of the women is 166.3 cm and the average height of the men is 170.2 cm. What is the average height, in cm, of all the people in this company? [2.7%]

某公司有 6 名女員工和 3 名男員工。已知女員工的平均身高是 166.3 厘米，而男員工的平均身高是 170.2 厘米。問公司所有人的平均身高是多少厘米？

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- 24) Solve the equation for x . [2.8%]

求 x 的值。

$$\frac{\left(\frac{1}{8} + 18\frac{1}{8}\%\right)}{x} = \frac{1}{100\%}$$

25) Simplify $\frac{2499}{4557}$. [2.9%]

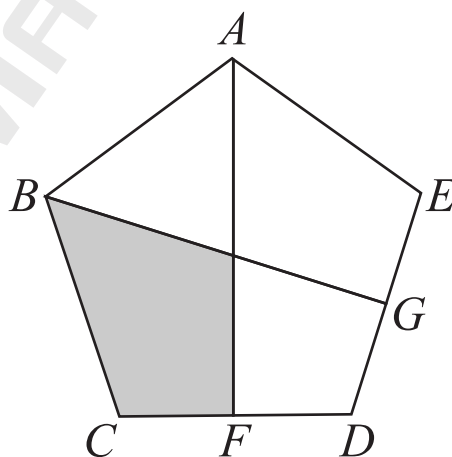
將 $\frac{2499}{4557}$ 約至最簡。

26) $0.444 \times 5.4 + 0.23 \times 8.88 = ?$ [3.0%]

27) $1 + 4 + 7 + 10 + \dots + 391 + 394 + 397 = ?$ [3.1%]

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- 28) In the figure, F and G are the mid-points of CD and DE respectively. What fraction of the regular pentagon is not shaded? [3.2%]

圖中 F 和 G 分別是 CD 和 DE 的中間點，沒有陰影的部分佔正五邊形的幾分之幾？



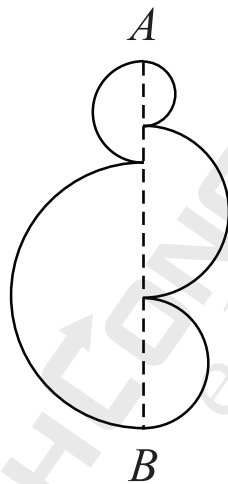
- 29) The figure is made of 5 semi-circles. $AB = 28$ cm. [3.3%]

Find the perimeter of the whole figure in centimetres.

$$(\pi = \frac{22}{7})$$

下圖是由 5 個半圓形拼成的， $AB = 28$ 厘米。圖形的周界是多少厘米？

$$(\pi = \frac{22}{7})$$



- 30) When 199, 297 and 395 are divided by the same divisor, their remainders are all equal. Find the largest possible divisor. [3.4%]

以某數除 199、297、395，餘數都是一樣，某數最大是多少？

31) If $\frac{1}{1 + \frac{1}{1 + \frac{1}{a + \frac{1}{3}}}} = \frac{22}{41}$, find the value of a . [4.0%]

已知 $\frac{1}{1 + \frac{1}{1 + \frac{1}{a + \frac{1}{3}}}} = \frac{22}{41}$, 求 a 的值。

32) Find the units digit of 8^{2018} . [4.1%]

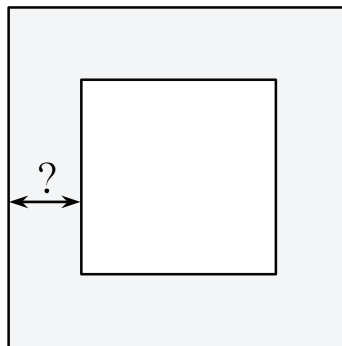
8^{2018} 的個位數是多少?

- 33) Using 4 different digits from 1 to 9, form the largest 4-digit number which is divisible by 4, 6, and 21. [4.2%]

從 1 至 9 中選出 4 個不同的整數組成一個四位數，可被 4、6、21 整除，這樣的四位數最大是多少？

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- 34) A square-shaped picture is placed in a frame of uniform width. The area of the frame is 149.76 cm^2 . The perimeter of the picture is 87.2 cm . Find the width of the frame in cm . [4.3%]

一張正方形相片置於一個闊度一致的畫框內，畫框的面積是 149.76 cm^2 ，相片的周界是 87.2 cm 。畫框的闊度是多少 cm ？



- 35) The product of $\frac{34}{99}$ and 0.12 is a repeating decimal. [4.4%]
What is the digit of the 2018th decimal place?

$\frac{34}{99}$ 和 0.12 的積是一個循環小數，積的小數點後第
2018 個位是甚麼數字？

[4.5%]

36) $\frac{2017 \times 2017}{2018} - \frac{2016 \times 2016}{2018} + \frac{2015 \times 2015}{2018} - \frac{2014 \times 2014}{2018} + \dots + \frac{3 \times 3}{2018} - \frac{2 \times 2}{2018} + \frac{1 \times 1}{2018} = ?$

- 37) n machines can produce x boxes of goods in m days. [4.6%]
How many days does it take for $(n + x)$ machines to produce x boxes of goods?

n 台機器用 m 天可以生產 x 箱貨品，那麼 $(n + x)$ 台機器需要多少天才能生產出 x 箱貨品呢？

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- 38) Peter used 4 different digits to form a largest 4-digit number and a smallest 4-digit number. The sum of the two 4-digit numbers formed is 11698. What is the largest 4-digit number formed? [4.7%]

有四個不同的數字，用它們組成最大的四位數和最小的四位數，這兩個四位數之和是11698，該最大的四位數是多少？

- 39) In a field, each cow consumes the grass at a constant rate while the grass grows at a constant rate every day. If 11 cows consume the whole field in 7 days and 21 cows consume the whole field in 3 days, how many cows would be needed to consume the whole field in 15 days? [4.8%]

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。11 隻牛吃 7 天便吃完草，21 隻牛吃 3 天便吃完草。問多少隻牛吃 15 天會吃完草？

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- 40) Bobby starts walking back and forth from A to B while Peter starts walking back and forth from B to A at the same time. The speed of Bobby is 1.25 times that of Peter. If their first meeting point and the second meeting point are 200 m apart, what is the distance, in metres, between A and B? [4.9%]

小明和大強兩人同時分別從 A、B 兩地出發，小明的速度是大強的 1.25 倍，到達對方出發點後立刻返回，如果二人的第一次相遇點和第二次相遇點相距 200 米，A、B 兩地相距多少米？



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|---------|--|
| NAME | |
| GROUP | |
| SEAT | |
| REG No. | |

| ANSWER | MUO | ANSWER | MUO | ANSWER | MUO | ANSWER | MUO |
|----------------------------------|---------|-------------------------------|---------|--------------------------|---------|---|---------|
| 1 15 ↓ | 1 ○ | 11 $\frac{1}{15}$ ↓ | 11 ○ | 21 50 ↓ | 21 ○ | 31 6 ↓ | 31 ○ |
| 2 13.14 ↓ | 2 ○ | 12 $\frac{31}{48}$ ↓ | 12 ○ | 22 8000 ↓ | 22 ○ | 32 4 ↓ | 32 ○ |
| 3 101.11 ↓ | 3 ○ | 13 1275 ↓ | 13 ○ | 23 167.6 ↓ | 23 ○ | 33 9576 ↓ | 33 ○ |
| 4 20.125 ↓ | 4 ○ | 14 $\frac{5}{96}$ ↓ | 14 ○ | 24 $\frac{49}{160}$ ↓ | 24 ○ | 34 1.6 ↓ | 34 ○ |
| 5 34.64 ↓ | 5 ○ | 15 $\frac{403}{500}$ ↓ | 15 ○ | 25 $\frac{17}{31}$ ↓ | 25 ○ | 35 2 ↓ | 35 ○ |
| 6 0.43 ↓ | 6 ○ | 16 48% ↓ | 16 ○ | 26 4.44 ↓ | 26 ○ | 36 $\frac{1008.5 \text{ OR } 2017}{2}$ ↓ | 36 ○ |
| 7 247 ↓ | 7 ○ | 17 75 ↓ | 17 ○ | 27 26467 ↓ | 27 ○ | 37 $\frac{nm}{n+x}$ ↓ | 37 ○ |
| 8 17000 ↓ | 8 ○ | 18 0.7 or $\frac{7}{10}$ ↓ | 18 ○ | 28 $\frac{7}{10}$ ↓ | 28 ○ | 38 8630 ↓ | 38 ○ |
| 9 6.66 ↓ | 9 ○ | 19 13.8 ↓ | 19 ○ | 29 88 ↓ | 29 ○ | 39 7 ↓ | 39 ○ |
| 10 0.93 or $\frac{93}{100}$ ↓ | 10 ○ | 20 16.8 ↓ | 20 ○ | 30 98 ↓ | 30 ○ | 40 900 ↓ | 40 ○ |