MathConception
2017

G4

Question Booklet

問題簿

Name:
姓名：

Reg. No.:
考生編號：

Time: 1 hour
Calculators are NOT permitted.

Instructions:

1. DO NOT open the contest booklet until you are told to do so.
2. You may use pencil to write your answer and scrap papers for rough work.
3. All questions MUST BE answered on the answer sheet that comes with the question booklet. Any writing on the question booklet would not be accepted as answer.
4. Diagrams are not drawn to scale. They are intended as aids only.

限時：1小時
不允許使用計算機。

考生須知：

1. 在考官宣佈開始前，請勿翻閱問題簿。

2. 以鉛筆作答題目。如有需要，可要求算草紙。

3. 全部題目均須作答在答題紙上。在問題簿上的任何內容均不予評閱。

4. 試卷的附圖不一定依比例繪成。

1. $7000 - 789 = ?$ [**1%**]

2. $8 \times 9 = ?$ [**1%**]

3. $56 \times 8 = ?$ [**1%**]

4. $21 \times 67 = ?$ [**1%**]

5. $51 \div 3 = ?$ [**1%**]

6. $126 \div 7 = ?$ [**1%**]

7. $490 \div 14 = ?$ [**1%**]

8. $23 \times 7 - 80 \times 2 = ?$ [**1%**]

9. $306 \div (30 - 7 \times 3) = ?$ [**1%**]

10. $120 - 37 \div 12 \times 12 = ?$ [**1%**]

11. $750 \div (13 + 111 \div 3) = ?$ [**1%**]

12. Evaluate $\dfrac{4}{7} + \dfrac{5}{7} - \dfrac{3}{7}$. (Express the answer in mixed number in its simplest form.) **[1%]**

計算 $\dfrac{4}{7} + \dfrac{5}{7} - \dfrac{3}{7}$。（答案以最簡分數表示。）

13. Evaluate $\dfrac{5}{12} + \dfrac{9}{12}$. (Express the answer in mixed number in its simplest form.) **[1%]**

計算 $\dfrac{5}{12} + \dfrac{9}{12}$。（答案以最簡分數表示。）

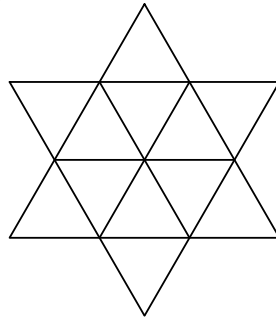14. Evaluate $4\dfrac{1}{13} - 3\dfrac{6}{13} + \dfrac{7}{13}$. (Express the answer in mixed number in its simplest form.) **[1%]**

計算 $4\dfrac{1}{13} - 3\dfrac{6}{13} + \dfrac{7}{13}$。（答案以最簡分數表示。）

15. Evaluate $6 - 2\dfrac{5}{6} + \dfrac{2}{6} - \dfrac{4}{6}$. (Express the answer in mixed number in its simplest form.) **[1%]**

計算 $6 - 2\dfrac{5}{6} + \dfrac{2}{6} - \dfrac{4}{6}$。（答案以最簡分數表示。）

16. How many line(s) of symmetry are there in the figure below?   **[2.0%]**

以下圖形有多少條對稱軸？

17. Amy bakes two dozen cookies every week. If there are 52 weeks in a year. How many   **[2.1%]** cookies does Amy bake in a year?

小美每星期造 2 打曲奇。如果一年有 52 個星期，那麼小美在一年裡能夠造多少件曲奇？

18. The volume of a bottle of lemon tea was $2\frac{5}{7}$ L. Jenny drank $1\frac{3}{7}$ L and then Alan   **[2.2%]** drank $\frac{4}{7}$ L. How many liters of lemon tea are left?

一支檸檬茶有 $2\frac{5}{7}$ 升，妹妹飲去了 $1\frac{3}{7}$ 升，弟弟又飲去了 $\frac{4}{7}$ 升。該支檸檬茶還有多少升？

19. The height of a pear tree is $4\frac{2}{5}$ m. The height of an apple tree is $3\frac{4}{5}$ m. The height   **[2.3%]** of a lamp post is $1\frac{3}{5}$ m shorter than the total height of the two trees. How tall in meters is the lamp post?

一棵梨樹高 $4\frac{2}{5}$ 米，一棵蘋果樹高 $3\frac{4}{5}$ 米，燈柱的高度比兩棵樹高度的總和還矮 $1\frac{3}{5}$ 米，燈柱的高度是多少米？

20. Adam has \$167. The amount of money Adam has is \$23 less than Lily. The amount **[2.4%]** Lily has is 5 times the money Nick has. How much does Nick have?

哥哥有 167 元零用錢。他的零用錢比妹妹少 23 元，而妹妹的零用錢是弟弟的 5 倍，弟弟有多少元零用錢？

21. If David earns \$905 every day, how much does he earn in August? **[2.5%]**

大衛每天賺 \$905，那麼他在八月共賺多少元？

22. If a 4-sided shape has four equal sides, then the shape must be a ＿＿＿? ＿＿＿. **[2.6%]**

如果一個四邊形的四條邊都相等，這個四邊形必定是＿＿＿?＿＿＿形。

23. The perimeter of a rectangle is 72 cm. If its length is half of its width, what is the **[2.7%]** length of the rectangle in centimeters?

一個長方形的周界是 72 厘米。如果它的長是闊的一半，那麼長方形的長是多少厘米？

24. A piece of paper is cut into 2 pieces along the dashed line as shown below and then **[2.8%]** rearrange the two pieces to form a triangle that has the largest perimeter. What is the perimeter of that triangle in centimeters?

在以下白紙沿虛線剪開，然後把兩個部份拼成一個周界是最長的三角形。這個三角形的周界是多少厘米？

3 cm

5 cm

4 cm
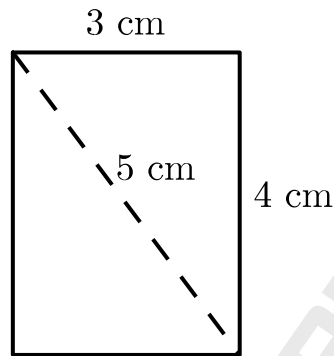
25. Amber ate $\frac{1}{7}$ of a cake. She ate $\frac{2}{7}$ of a cake less than Brandy. How much of the cake **[2.9%]** did the two girls eat in all?
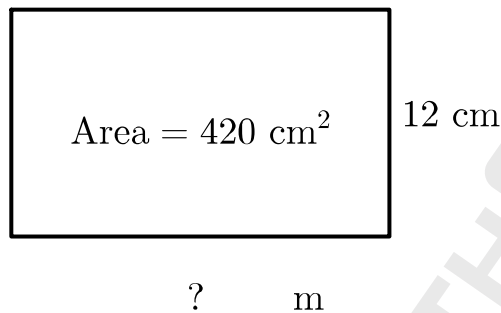
小美吃了 $\frac{1}{7}$ 個蛋糕，她比小琪少吃 $\frac{2}{7}$ 個蛋糕。她們共吃了多少個蛋糕？

26. Write $501\frac{51}{1000}$ as a decimal. **[3.0%]**

把 $501\frac{51}{1000}$ 寫成一個小數。

27. Find the length of the following rectangle in meters. **[3.1%]**

下圖長方形的長是多少米？

Area = 420 cm^2

12 cm

_____?_____ m

28. Find the Least Common Multiple of 72 and 84.   [**3.2%**]

    求 72 和 84 的最小公倍數。

29. If $P < Q < R$ and the factors of R are 1, P, Q, and R, then $P \times Q =$ ____?____.   [**3.3%**]

    如果 $P < Q < R$ 而 R 的因數是 1、P、Q 及 R，那麼 $P \times Q =$ ____?____。

30. The figure below is formed by three rectangles of the same size. Find its total area.   [**3.4%**]

    下圖是由三個相同的長方形組成，求它的總面積。

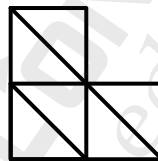111 cm
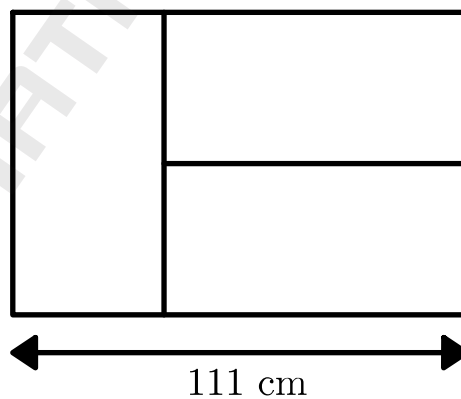
31. Find the missing number in the pattern. [**4.0%**]

根據規律，找出橫線上的數字。

$$2 \ , \ 1 \ , \ 3 \ , \ 4 \ , \ 7 \ , \ 11 \ , \ \underline{\quad ? \quad} \ , \ 29 \ , \ \ldots$$

32. Evaluate $125 \times 7 \times 44 \times 26$. [**4.1%**]

計算 $125 \times 7 \times 44 \times 26$。

33. How many quadrilaterals (4-sided shape) are there in the following figure? [**4.2%**]

圖中共有多少個四邊形？

34. Define $A \odot B = \dfrac{A+B}{A \times B} + \dfrac{A-B}{A \div B}$, then evaluate $6 \odot 3$. [**4.3%**]

定義新運算： $A \odot B = \dfrac{A+B}{A \times B} + \dfrac{A-B}{A \div B}$ ，計算 $6 \odot 3$。

35. Find the value of $27 \times 37 \times 999$. [**4.4%**]

求 $27 \times 37 \times 999$ 的值。

36. There are 25 questions in a math test. The student will receive 4 marks for each **[4.5%]** correct answer and 1 mark deducted for each incorrect answer. If Tommy answered all the questions and got 80 on the test, how many questions did he answer correctly?

一個數學測驗有 25 條題目。答對得 4 分，答錯扣 1 分。如果小明回答了所有題目，並且得到 80 分，他答對了多少條題目？

37. There are only chickens and pigs in a barn. A farmer has counted 101 heads and 382 **[4.6%]** legs. How many chickens are there in the barn?

農場裡有一些雞和一些豬，農夫數到有 101 個頭和 382 隻腳。問農場裡有多少隻雞？

38. From 1 to 2017, how many numbers are multiples of 20 but not multiples of 17? **[4.7%]**

由 1 至 2017，有多少個數字是 20 的倍數但不是 17 的倍數？

39. In the following diagram, different letters represent different digits. Which digit does **[4.8%]** ♡ represent?

以下算式中，每個英文字母都代表不同的數字。問「♡」代表哪一個數字？

$$
\begin{array}{ccccc}
 & M & A & T & H \\
\times & & & M & M \\
\hline
M & H & \heartsuit & M & H \\
\end{array}
$$

40. Kindaichi is investigating a murder case. Here are the claims from each suspect.   [**4.9%**]

    A said, "B is the murderer."

    B said, "A is the murderer."

    C said, "I am no murderer."

    D said, "A is a liar."

After further digging into the case, Kindaichi concludes that only one of them is lying and only one of them is the murderer. So, who is the murderer?

金田一正在調查一宗謀殺案，以下是四個疑兇的口供。

    甲說：「乙是殺人兇手。」

    乙說：「甲是殺人兇手。」

    丙說：「我不是兇手。」

    丁說：「甲在講大話。」

經過詳細的調查，金田一得出的結論是這些人當中只有一人講大話，以及殺人兇手只有一個。那麼誰是兇手呢？

End of paper

Name _____

Reg No ☐☐☐☐☐ – ☐☐ – ☐☐☐

ANSWER SHEET

1) **6211**	11) **15**	21) **$28055**	31) **18**
2) **72**	12) $\dfrac{6}{7}$	22) **Rhombus / 菱**	32) **1001000**
3) **448**	13) $1\dfrac{1}{6}$	23) **12**	33) **12**
4) **1407**	14) $1\dfrac{2}{13}$	24) **18**	34) **2**
5) **17**	15) $2\dfrac{5}{6}$	25) $\dfrac{4}{7}$	35) **998001**
6) **18**	16) **6**	26) **501.051**	36) **21**
7) **35**	17) **1248**	27) **0.35**	37) **11**
8) **1**	18) $\dfrac{5}{7}$	28) **504**	38) **95**
9) **34**	19) $6\dfrac{3}{5}$	29) **R**	39) **0**
10) **83**	20) **$38**	30) **8214 cm²**	40) **A**