

學生姓名：_____ 班別：_____ 學號：_____ 聯絡電話：_____



香港數學奧林匹克學校
Hong Kong Mathematical Olympiad School

主辦

2025 第三十二屆香港小學數學奧林匹克比賽

- 注意事項：(1). 計算下列各題，用分數作答的必須約至最簡真分數，否則不給予分數。
 (2). 答案必須清楚寫在答案欄內(不用列式)；答案欄外或模糊不清的將不給予分數。
 (3). 全卷共 20 題，每題 1 分，全對才得分。

在下表中寫上 0 至 9，以便老師批改時核對你的字跡。

0	1	2	3	4	5	6	7	8	9

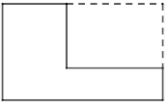
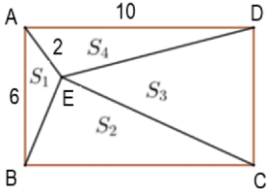
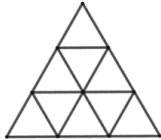
總分：

- $11 - 22 + 33 - 21 + 42 = ?$ 1. _____
- $1.25 \times 80 + 25 \times 0.4 + 62.5 \times 160 = ?$ 2. _____
- $(1 + \frac{1}{10} + \frac{1}{100} + \frac{1}{1000} + \frac{1}{10000}) \times 9 + 0.0001 = ?$ 3. _____
- $2222 \times 3333 + 7777 \times 9999 + 6666 \times 2222 = ?$ 4. _____
- 已知 $123^3 + \overline{12X}^X = 1875751$ ，其中 $\overline{12X}$ 是一個三位數，求 X 。 5. _____
- 規定 $A \# B = A \times (B + 1)$ ，例如 $2 \# 3 = 2 \times (3 + 1) = 8$ 。已知 $k \# k = 42$ ，其中 k 為正整數，求 k 。 6. _____
- $\frac{1+2+3+4}{1+2+3+4+5} \times \frac{1+2+3+\dots+6}{1+2+3+\dots+7} \times \frac{1+2+3+\dots+8}{1+2+3+\dots+9} = ?$ 7. _____
- $2 \times 2 + 4 \times 4 + 6 \times 6 + \dots + 20 \times 20 + 22 \times 18 + 24 \times 16 + \dots + 38 \times 2 = ?$ 8. _____
- 已知 $127 \times 139 \times 713 = 12586589$ ，求 $635 \times 695 \times 3565$ 最右方的三個數字。 9.

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- 右方的直式中，不同的漢字代表不同的數字，求五位數「願世界和平」。

		願	世	願	界
				世	界
		2	0	界	和
		和	願	平	世
		和	5	8	0
				5	界
- 已知積是乘數的 7 倍，被乘數，乘數與積三數之和為 127。求乘數。 11. _____

本頁分數：

12. 已知 $a^2 + b^2 = c^2 + d^2 = 221$ ，且 a 至 d 是四個不同的正整數。求 $a + b + c + d$ 的值。 12. _____
13. 已知一個八位數，萬位數字是 8，百位數字是 7，連續三個位的數字之和相等，那麼這個數最大是多少？ 13. _____
14. 麵粉師傅製作了一條長長的麵粉團，開始時切了 $\frac{1}{3}$ ，然後切了餘下的 $\frac{1}{4}$ ，之後再切了餘下的 $\frac{1}{5}$ ，最後餘下 40 厘米。那麼原本的麵粉團長多少厘米？ 14. _____ 厘米
15. 一個長是 20cm，周界為 60cm 的長方形被剪去其中一角（如右圖）。已知所有邊長為整數厘米，求餘下面積的最小值。 15. _____ cm^2
- 
16. 家明，志華和俊傑獨自完成一件工程，分別需要 4 天，5 天和 8 天。志華做了 3 天，開始時只跟家明合作，後來只跟俊傑合作，兩次合作時間相同。若整件工程工資為 15000 元，按工作量分配，俊傑分得多少元？ 16. _____ 元
17. 小明由家出發，向學校方向走，走了 800 米，他的哥哥小華發現他忘了今天是假期，不用上學，於是由家追上，速度是小明的兩倍。兩人相遇後，小明以相同的速度走回家，那麼自小華追上去的時刻起計，到小明回家，小明走了多少米？ 17. _____ 米
18. 如右圖所示，長方形 ABCD 內有一點 E，與各頂點連結成線段，其中 $AE = 2$ ，且 $AD = 10$ ， $AB = 6$ 。長方形被線段分成四個三角形，面積分別為 S_1 ， S_2 ， S_3 及 S_4 ，求 $(S_1 + S_3) \times (S_2 + S_4)$ 。 18. _____
- 
19. 酒樓裏的客人，都點了叉燒包，燒賣或蝦餃其中至少一款點心，人數分別佔 40%，52% 及 60%。點了叉燒包及燒賣的人佔 16%，燒賣及蝦餃的佔 22%，蝦餃及叉燒包的佔 20%。已知有 3 人點了全部三款，那麼共有客人多少位？ 19. _____ 位
20. 如圖所示，先用三枝相同的竹籤，拼成一個面積為 1 cm^2 的等邊三角形，為第一層。之後再用相同的竹籤，拼出第二層和第三層，總面積分別為 4 cm^2 和 9 cm^2 。若以這規律拼出各層，共用了竹籤 165 枝，面積是多少平方厘米？ 20. _____ cm^2
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本頁分數：

~全卷完~

Name: _____ Class: _____ Student No.: _____ Phone No.: _____



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主辦

2025 The 32nd Hong Kong Primary Mathematical Olympiad

Remarks:

- (1). 1 mark for each question, total 20 marks. Each mark is only given to exactly right answer.
- (2). Write the answers in the space provided, otherwise the answer will not be marked.
- (3). Calculate the following questions. Answers expressed in fraction should be expressed in simplest form, otherwise will not be marked.

Write down 0 to 9 in the following table, to help the marker know your handwriting.

0	1	2	3	4	5	6	7	8	9


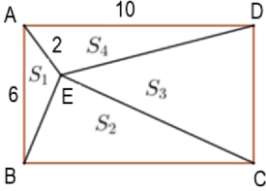
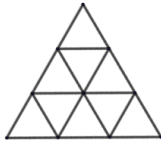
Marks:

1. $11 - 22 + 33 - 21 + 42 = ?$ 1. _____
2. $1.25 \times 80 + 25 \times 0.4 + 62.5 \times 160 = ?$ 2. _____
3. $(1 + \frac{1}{10} + \frac{1}{100} + \frac{1}{1000} + \frac{1}{10000}) \times 9 + 0.0001 = ?$ 3. _____
4. $2222 \times 3333 + 7777 \times 9999 + 6666 \times 2222 = ?$ 4. _____
5. Given that $123^3 + \overline{12X}^X = 1875751$, where $\overline{12X}$ is a 3-digits number. Find X. 5. _____
6. Define $A \# B = A \times (B + 1)$, for example $2 \# 3 = 2 \times (3 + 1) = 8$. Given that $k \# k = 42$, where k is a positive integer. Find k . 6. _____
7. $\frac{1+2+3+4}{1+2+3+4+5} \times \frac{1+2+3+\dots+6}{1+2+3+\dots+7} \times \frac{1+2+3+\dots+8}{1+2+3+\dots+9} = ?$ 7. _____
8. $2 \times 2 + 4 \times 4 + 6 \times 6 + \dots + 20 \times 20 + 22 \times 18 + 24 \times 16 + \dots + 38 \times 2 = ?$ 8. _____
9. Given that $127 \times 139 \times 713 = 12586589$, find the right most 3 digits for the expression $635 \times 695 \times 3565$. 9.

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10. In the right column form, different letters represent different digits. Find the 5-digit number ABCDE. 10.

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	A	B	A	C
×			B	C
<hr/>				
	2	0	C	D
	D	A	E	B
<hr/>				
	D	5	8	0
			5	C
11. Given that the product of a multiplication is 7 times its multiplier. The sum of multiplicand, multiplier and the product is 127. Find the multiplier. 11. _____
12. Given that $a^2 + b^2 = c^2 + d^2 = 221$. a, b, c and d are four different positive integers. Find the value of $a + b + c + d$. 12. _____

13. For a 8-digit number, it is known that the ten thousands digit is 8 and the hundreds digit is 7. The sum of any 3 consecutive digits is the same. What is the greatest value of this number? 13. _____
14. A baker makes a long flour dough. He starts to cut off $\frac{1}{3}$ of the flour dough, and then he cuts off $\frac{1}{4}$ of the remaining dough. Finally, he cuts off $\frac{1}{5}$ of the remaining dough and there is only 40cm left. How long is the original flour dough? 14. _____ cm
15. As indicated in the right figure, the length and the perimeter of the rectangle are 20cm and 60cm respectively. A corner of the rectangle is cut as shown. It is known that all side lengths are integers. Find the minimum value of the remaining area.  15. _____ cm²
16. John, Peter and David could complete a job individually in 4 days, 5 days and 8 days respectively. Peter worked for 3 days. At the beginning, he only worked with John, and later he only worked with David. Both work pairings were for the same amount of time. If the wages for the job were \$15000 and wages were allocated according to the workload completed, how much money could David get? 16. \$ _____
17. John departed from home in the direction to school. He had walked 800m and then his brother Peter discovered that John had forgotten there was no school due to the holiday. Peter tried to catch up with John from home and his speed was double John's speed. After they met, John returned home at the same speed. How far had John walked during the period between Peter left home and John returned home? 17. _____ m
18. As indicated in the right figure, point E inside the rectangle $ABCD$ joins lines at each vertex. Given that $AE = 2$, $AD = 10$ and $AB = 6$. The rectangle is partitioned by four triangles and their areas are S_1 , S_2 , S_3 and S_4 respectively. Find $(S_1 + S_3) \times (S_2 + S_4)$.  18. _____
19. Customers in a restaurant have ordered at least one kind of Dim Sum, including BBQ Pork Bun, Shumai and Shrimp Dumpling. The customer proportion of these 3 kinds of Dim Sum is 40%, 52% and 60% respectively. 16% of customers have ordered both BBQ Pork Bun and Shumai; 22% of customers have ordered both Shumai and Shrimp Dumpling and 20% of customers have ordered both Shrimp Dumpling and BBQ Pork Bun. It is known that 3 customers have ordered all 3 kinds. What is the total number of customers? 19. _____
20. As indicated in the figure, 3 identical bamboo sticks are used to form an equilateral triangle with an area of 1cm². We call this level 1. We then use those identical bamboo sticks to form level 2 and level 3 with total areas of 4cm² and 9cm² respectively. If we keep using this pattern to form other levels of triangles and we use a total of 165 identical bamboo sticks, what is the total area of all levels of triangles?  20. _____ cm²

~ End of paper ~