# ASMOPSS THAILAND 2026

**Asian Science & Mathematics Olympiad for Primary and Secondary Schools (Thailand)**

# Mathematics Secondary G.7

**Sunday, August 9, 2026**

**8:30 – 10:00 a.m. (90 minutes)**

$$\sum x^2$$

**B**

## Instructions

1. This exam includes 25 questions, with a total score of 100.
2. Fill out your name, grade, school, test center, room, seat number, and identification number either in pen or in pencil.
3. Use a 2B black pencil or darker one to fill in the circles corresponding to your answer written at the top.
4. Use a pen or a pencil to write your answer in the box at the top of the column.
5. If you want to change an answer that you have already marked, use a clean eraser to erase the incorrect answer and mark the new one.
6. It should be noted that figures in the exam are not drawn to scale.
7. Dictionaries, calculators, and electronic devices are not permitted in the test room.
8. Note taking can be done on the test paper only, with no extra sheet provided.
9. If the answer is a number that is more than 3-digit number or decimal number, please answer as the following pattern:
   - 9.1 If the answer is more than 3-digit number, then answer the last 3 digits.
   - 9.2 If the answer is more than two decimal places, then round the answer to the nearest hundredth.
10. Do not write anything or make any symbols in the black barcode area along the edge of the paper except the answers on the answer sheet. Make sure the answersheet is not crumpled.
11. Submit the answer sheet to the proctor when the time is up.
12. Cheating in the exam may cause serious consequences including disqualification from receiving any award or joining the second round of the test held by ASMOPSS THAILAND.

**Should any disagreement arise, the judgment of the panel is deemed final.**

**Announcement of the results via https://asmopssthailand.com on September 18, 2026**

**: ASMOPSS Thailand / Miraah Education**

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1. Find the integer value of $A$ such that the expression $\frac{1}{A-2}$ is mathematically undefined. (2.5 points)

2. Let $n$ be the smallest positive integer greater than 100 such that when $n$ is divided by 6, 8, and 10, it leaves a remainder of 3 in each case. What is the sum of the squares of the digits of $n$? (2.5 points)

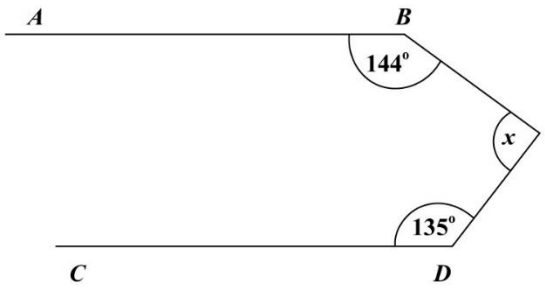
3. Determine the units digit of $7^{2026}-2^{2569}$. (2.5 points)

4. Given that $\frac{2}{x}=2-7a+2a^2$, find the value of $x^2+\frac{1}{x^2}$, where $a=3$. (2.5 points)



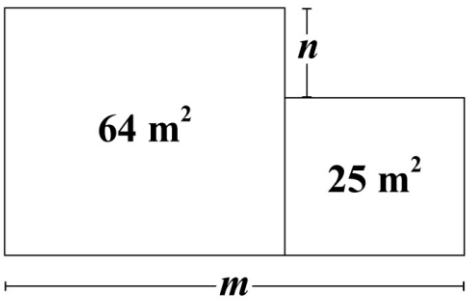
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5. From the figure, $\overline{AB} // \overline{CD}$, find the value of $x$. (2.5 points)




6. What is the lateral surface area in square centimeters of a square prism with a base side of 5 cm and a height of 10 cm? (2.5 points)

7. Two squares of different sizes are placed side by side as shown below. (2.5 points)




Find $m+n$.


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8. A right triangle has a hypotenuse of 17 cm and an area of 60 cm². If a leg is 8 cm long, find the perimeter of this triangle. (2.5 points)

9. Two positive integers differ by 8. If the sum of the smaller number and three times the larger number is greater than 76 but not exceeding 100, how many possible values are there for the larger numbers? (4.5 points)

10. Let $M$, $N$ be real numbers. The symbol $M \square N$ represents the number $\frac{M+N}{2}+1$ and the symbol $M * N$ represents the number $\frac{M-N}{3}$. Find the value of $(3*5)\square(7*2)$.
(4.5 points)

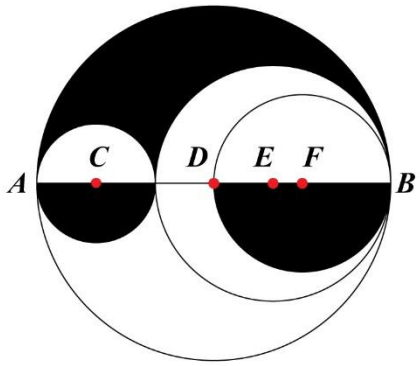
11. Let $A$ and $B$ be counting numbers such that $A \times B = 1,000$. If neither $A$ nor $B$ is divisible by 10, find the value of $A+B$. (4.5 points)


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12. If $a+b=7$ and $ab=10$, find the value of $a^4+b^4$. (4.5 points)

13. How many triangles have an interior angle sum equal to that of a regular nonagon? (4.5 points)

14. From the figure, the line segment $AB$ is 12 units long, and points $C$, $D$, $E$, and $F$ are the centers of various circles. If $EB=4$ units and $FB=3$ units, what is the area of the shaded region? (Given that $\pi=3.14$.) (4.5 points)





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15. Kewalin is a student at a school where she can get a 'Grade A' in Mathematics only if her average score from 6 quizzes is at least 80. Her average score from the first 5 quizzes is 78. What is the minimum score she needs on the 6th quiz to achieve a 'Grade A'? (4.5 points)

16. Natee wants to fill an empty swimming pool using two different water pipes. The time it takes for each pipe to fill the pool individually differs by 12 hours. If both pipes are opened simultaneously, the pool will be filled in 8 hours. How long would it take to fill the pool using only the small pipe? (6 points)

17. Bee owns a sporting goods store. She initially priced her badminton rackets with a 40% profit margin on the cost price. Later, this model of racket became outdated, so she announced a 10% discount on the marked price. Furthermore, store members received an additional 10% discount on top of the initial discount. What was Bee's final percentage profit from selling this racket to the store member? (6 points)


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18. The area of the triangle $ABC$ is 16 square centimeters, $A = 45^o$ and $C = 90^o$, find the length of the hypotenuse. (6 points)

19. A rectangle has a width of 14 centimeters and a length of 28 centimeters. Inside it, two adjacent circles, each with a radius of 7 centimeters, are enclosed. Find the area of the region that lies outside the two circles and inside the rectangle. (Given $\pi = \frac{22}{7}$.) (6 points)

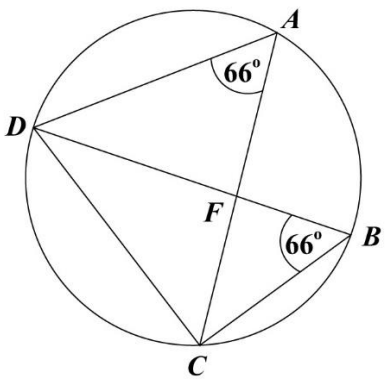
20. A set of data consists of 4 positive integers: $a, b, c, d$ in ascending order. If the arithmetic mean is 10, $\frac{b+c}{2} = 9$, and there is data equal to 8 more than 1, what is the value of $d - a$? (6 points)


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21. Abigail reads 2,040 words in 8 minutes and 30 seconds. If she reads for 1 minute, how many words will she be able to read? (2.5 points)

22. The ratio of James's current age to John's current age is $5:2$. Four years ago, the ratio of their ages was $4:1$. Find the sum of James and John's age in 8 years. (4.5 points)

23. From the figure, given that $AC$ and $BD$ intersect at point $F$, where $AD = AC$ and $DB$ bisects angle $A\hat{D}C$. Find the measure of angle $B\hat{C}A$. (2.5 points)





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24. A pizza shop wants to release a new square-shaped pizza using their existing packaging. The pizza box currently fits a circular pizza perfectly. What is the percentage increase in the surface area of the largest possible new square pizza compared to the original circular one? (Given that $\pi = \frac{22}{7}$.) (4.5 points)

25. How many 3-digit positive odd integers can be formed using the digits 0 to 7, such that each digit is unique? (4.5 points)


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# GRADE 7 ANSWER KEY

| No. | Answer | No. | Answer |
|---|---|---|---|
| **1** | 2 | **14** | 45.53 |
| **2** | 14 | **15** | 90 |
| **3** | 7 | **16** | 24 |
| **4** | 4.25 | **17** | 13.4 |
| **5** | 81 | **18** | 8 |
| **6** | 200 | **19** | 84 |
| **7** | 16 | **20** | 6 |
| **8** | 40 | **21** | 240 |
| **9** | 6 | **22** | 44 |
| **10** | 1.5 | **23** | 28.5 |
| **11** | 133 | **24** | 27.27 |
| **12** | 641 | **25** | 144 |
| **13** | 7 | | |


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