ASMOPSS THAILAND 2026

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

Mathematics Secondary G.8

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

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1. Find the value of $\sqrt{144}+\sqrt[3]{-125}$. (2.5 points)

2. If $a=85.32$ and $b=108.95$, find the value of $25a^2-40ab+16b^2$. (2.5 points)

3. Let $y=-3x+4$, where (a,b) be y-intercept and (c,d) be x-intercept, respectively. Find the value of $5a^2+b^2+9c^2-10d^2$. (2.5 points)

4. The sum of three consecutive integers is 72. Find the largest of these three numbers. (2.5 points)

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5. A right triangle has legs of lengths x and $x+7$ units, and its area is 30 square units. If y represents the length of the hypotenuse, find the value of $-(2x-y)^3$. (2.5 points)

6. A rectangular aquarium measures 30 centimeters wide, 50 centimeters long, and 40 centimeters high on the inside. If 45 liters of water are poured in, how many centimeters will the water level be below the top edge? (2.5 points)

7. A cylinder has a radius of 4 units and a height of 14 units. What is its volume in cubic units? (Given $\pi = \frac{22}{7}$.) (2.5 points)

8. A right triangular prism has legs of length 5 units and 12 units. If the height of the prism is 10 units, what is its total surface area in square units? (2.5 points)

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9. If $2^{2-4x} + 2^{3-4x} + 2^{4-4x} = 7$, what is the value of 25^x? (4.5 points)

10. Find the value of x that satisfies the equation $\sqrt{x+5} - \sqrt{x-3} = 2$. (4.5 points)

11. A carpenter sells chairs at a 20% profit on their cost. If he makes a table, his cost increases by 10%, but he can sell it at a 40% profit on its cost. What percentage of the profit from selling the chair is the profit from selling the table? (4.5 points)

12. If the sum of two integers is 25 and their difference of squares is 175, what is the larger number? (4.5 points)

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13. Given points $A(-3,-1)$ and $B(2,1)$, point A is rotated 90° clockwise around point B to obtain point A'. Then, point A' is reflected across the line AB to obtain point $A''(m,n)$. Find the value of m^2+n^2. (4.5 points)

14. Let ΔABC be a triangle such that the line segment drawn from vertex B is perpendicular to side AC at point E, and D be a point on the line segment BE. If $AD=4$ units and $CD=7$ units, find the difference between the areas of the squares constructed on sides BC and AB. (4.5 points)

15. A dataset consists of three numbers. The difference between the maximum value and the minimum value is 29, the middle number is 55, and the arithmetic mean is 52. If k is the sum of the squares of the numbers in this dataset, find the sum of all digits of k. (4.5 points)

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16. Let n be a positive integer. The difference between n increased by 8% and n decreased by 6% is 378. Find 5% of the sum of all positive factors of n. (6 points)

17. Given that a and b are positive integers such that $b < a$, the product of a and b is equal to 2,520, and the least common multiple (LCM) of a and b is 420. How many possible ordered pairs of (a,b) are there? (6 points)

18. Let $\square ABCD$ be a quadrilateral where $\angle A$ and $\angle C$ are right angles. The length of side BC is 1 unit longer than half the length of side AB. Side DA is 1 unit shorter than side CD. The ratio of side AB to side CD is $2:3$. What is the perimeter of quadrilateral $ABCD$? (6 points)

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19. Let A and B be points where a line L_1 intersects the x-axis and y-axis, respectively, and C and D be points where line L_2 intersects the x-axis and y-axis, respectively. If line L_1 has a slope of 3 and intersects the y-axis at (0,4), and line L_2 is parallel to L_1 and intersects the x-axis at (-3,0), find the area of quadrilateral $ABDC$. (6 points)

20. A mathematics club has 10 members: 3 students from Grade 8, 2 from Grade 10, and 5 from Grade 12. If 4 representatives are randomly selected for an academic competition, how many ways can representatives be selected that all three grade levels are represented, with at least 2 students chosen from grade 12? (6 points)

21. Given that x and y are positive integers that satisfy the equation $x^2 - y^2 = 13$, find the value of $x^2 + y^2$. (2.5 points)

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22. If $4^x - 8 = 7 \cdot 2^x$, where x is a positive integer, find the value of x^3. (4.5 points)

23. A rectangle has a perimeter of 34 cm, and a diagonal length of 13 cm. Find the area of this rectangle. (2.5 points)

24. A cylindrical glass is full of water, with a height of 7 inches and an inner diameter of 6 inches. A square prism with sides of 3 inches and a height of 2 inches is placed inside the glass. Find the volume of water in the glass. (4.5 points)

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25. To travel from Phuket to Krabi, Anda can travel by land or by water. If Anda chooses to travel by land, she must take a bus to Phang Nga bus station, then a minibus from there to Krabi. Two minibuses depart at the same time, and each offers 3 different routes. If Anda chooses to travel by water, she must take a speedboat, which 4 different companies serve. How many total ways can Anda travel from Phuket to Krabi? (4.5 points)

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GRADE 8 ANSWER KEY

No.	Answer	No.	Answer
1	7	**14**	33
2	84.64	**15**	23
3	32	**16**	434
4	25	**17**	4
5	27	**18**	24
6	10	**19**	10.83
7	704	**20**	60
8	360	**21**	85
9	5	**22**	27
10	4	**23**	60
11	220	**24**	180
12	16	**25**	10
13	32		

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