Junior Mathematical Olympiad(JMO) 2026

Question Paper

Examination Details

Exam Date : Sunday, 24 May 2026

Time : 10:00 AM – 12:30 PM

Name	
Gender	
Class	
Roll Number	

Instructions

1. Write your name in **BLOCK LETTERS**.
2. Use only **BLUE** or **BLACK** ballpoint pen.
3. Calculators, mobile phones and electronic gadgets are prohibited.
4. The question paper consists of three sections:
   - **Section A** – 2 marks each
   - **Section B** – 3 marks each
   - **Section C** – 5 marks each

   Each section contains 10 questions. Every question has only one correct answer.
5. Write the final answer inside the answer box provided.

Student Signature

Invigilator Signature

Section A — 2 Marks Each

1. A square and a rectangle have the same perimeter. The square has side 16 cm. The rectangle has length 20 cm. Find its breadth.

Answer

12 cm

Rough Work

2. In a class, 60% are boys. In an exam 40% of boys and 30% of girls passed. What percentage of students passed?

Answer

36%

Rough Work

3. A clock loses 5 minutes every hour. It is set right at 6:00 am. What time will it show when the actual time is 6:00 pm?

Answer

5.00 PM

Rough Work

4. Six seats are vacant on a straight bench. In how many ways can three students A,B and C occupy them so that A and B do not sit together?

Answer

80

Rough Work

5. Remember that the symbol "!" (called factorial) means you multiply all the whole numbers from 1 up to that number. For example, $4! = 1 \times 2 \times 3 \times 4 = 24$.
Now find, $3! \times \left[\frac{1}{2!} - \frac{1}{3!}\right] \times 4!\left[\frac{1}{3!} - \frac{1}{4!}\right]$.

Answer

6

Rough Work

6. Consider an isosceles triangle $\triangle$ABC with AB = AC, with base BC = 12. If the area of this triangle is 48 square units, what is the perimeter of $\triangle$ABC?

Answer

32

Rough Work

7. A man is 4 times as old as his sister. After 10 years, he will be twice as old as his sister. What is the age of the sister?

Answer

5 years

Rough Work

8. A train 120 m long passes a bridge in 15 seconds at 54 km/h. Find the length of the bridge.

Answer

105 m

Rough Work

9. A bag contains ₹480 in coins of ₹5, ₹2, and ₹1. The number of ₹2 coins is twice the number of ₹5 coins, and the number of ₹1 coins is thrice the number of ₹5 coins. Find the number of ₹5 coins.

Answer

40

Rough Work

10. A 4-digit number is formed using the digits 0, 1, 2, 3, 4, 5 without repetition. How many such numbers can be formed?

Answer

300

Rough Work

Section B — 3 Marks Each

11. In rectangle ABCD, AB is 36 cm long, and BC is 24 cm long. P is the midpoint of AB, and Q is the midpoint of BC. What is the area of triangle DPQ?

Answer

$324\ cm^2$

Rough Work

12. In $\triangle ABC$, D is on the side BC in such a way that AD is perpendicular to BC. Also, the lengths AB = 13 cm, AC = 15 cm, and CD = 9 cm. What is the value of BD?

Answer

5 cm

Rough Work

13. If $(a^2+b^2)^3 = (a^3+b^3)^2$ then find $3 \times (\frac{a}{b} + \frac{b}{a})$.

Answer

2

Rough Work

14. How many zeros are at the end of the following product $1 \times 2 \times 3 \times \cdots \times 99 \times 100$.

Answer

24

Rough Work

15. Consider a right-angled triangle ABC that has its right angle at C, also side AC = 9 cm, and side BC = 12 cm. Points D and E are on AC so that AD = DE = EC. Similarly, points F and G are on AB so that AF = FG = GB. What is the area of trapezoid DFGE?

Answer

$18\ cm^2$

Rough Work

16. If one purchases 5 lemons for Rs. 4.00 and sells 4 lemons for Rs.5. Determine the percentage of profit.

Answer

56.25%

Rough Work

17. Find the number of digits in $2^{50} \times 5^{45}$.

Answer

47

Rough Work

18. A large square has a side length of 10 cm. Four identical small squares, each with a side length of 3 cm, are removed from the corners to form a shaded cross-shaped figure. What is the area of the shaded cross?

Answer

64 cm^2

Rough Work

19. The sum of three consecutive odd numbers is 99. Find the product of those numbers.

Answer

35805

Rough Work

20. Suppose triangle ABC is right-angled at A. The circle with centre A and radius AB cuts BC and AC internally at D and E, respectively. If BD = 20 cm and DC = 16 cm. Find the length of AC^2.

Answer

936 cm^2

Rough Work

Section C — 5 Marks Each

21. Find the value of the following alternating sum of squares:

$$100^2 - 99^2 + 98^2 - 97^2 \cdots + 2^2 - 1^2$$

Answer

5050

Rough Work

22. How many numbers are there between 10 and 100 such that the digit 5 occurs at least once?

Answer

18

Rough Work

23. What is the 2026^{th} term of the sequence of numbers greater than 1 and divisible by 3 or 5.

Answer

4341

Rough Work

24.A rectangular sheet of paper, ABCD, has AD = 1 and AB=$\frac{3}{2}$. The paper is folded along a line through A so that the edge AD falls onto the edge AB. Without unfolding, the paper is folded again along a line through B so that the edge CB also lies on AB. The result is a triangular piece of paper. A region of this triangle is four sheets thick. What is the reciprocal of the area of this region?

Answer

16

Rough Work

25. Evaluate the sum of the following series up to 50 terms:

$$\frac{1}{1\times 3}+\frac{1}{3\times 5}+\frac{1}{5\times 7}+\dots$$

Answer

$\frac{50}{101}$

Rough Work

26. A number a is added to 4 times a number b. The result is a multiple of 5. The same number a is added to 5 times the number b. The result is a multiple of 4. What is the smallest possible value of $a+b$ if both are positive whole numbers?

Answer

4

Rough Work

27. Find the maximum possible area of a square PQRS, placed inside an isosceles triangle $\triangle ABC$, whose area is 8 square units. P is on AB, Q is on AC, R, S are on BC with AB = AC.

Answer

4

Rough Work

28. Find the remainder of $29^{29^{29}}$ when divided by 9.

Answer

5

Rough Work

29. A three-digit number is equal to 8 times the sum of its digits and is equal to 9 times the product of its digits. Find the three-digit number.

Due to a typing error, this question has been cancelled. Under its current formulation, the correct answer is that such a three-digit number does not exist.

30. Consider BC is a diameter of the circle and A is a point outside the circle that forms a triangle ABC in which the line AB intersects the circle at D, and the line AC intersects the circle at E. If BC $= \sqrt{901}$, BD = 1, and DA = 16. What is the length of EC?

Answer

26

Rough Work

Rough Work