



Mindathon

MMO OLYMPIAD

WORKBOOK

MINDATHON MATHEMATICS OLYMPIAD

5

By

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PREFACE

Mathematics is not just a subject but a way of thinking, exploring, and solving problems that challenge our minds. The Mindathon Mathematics Olympiad epitomizes this intellectual pursuit, providing young mathematicians a platform to showcase their talents and expand their understanding.

Our curriculum aligns with the National Curriculum framework's vision, emphasizing holistic growth through critical thinking, hands-on experience, and the development of mathematical skills. We aim to empower learners to engage meaningfully in their educational journey.

This book is designed to offer a stimulating and enriching experience, strengthening mathematical concepts through diverse exercises and challenges. It aligns with curriculum standards and promotes higher-order thinking and problem-solving skills.

Our primary goal is to make learning mathematics enjoyable and rewarding. To eliminate math phobia, each chapter facilitates a progressive learning journey, starting with foundational concepts and advancing to more complex topics. We help students connect mathematics to their daily experiences and present them with challenges to sharpen their skills.

This book also aims to instill a love for mathematics and build confidence. It is designed for students passionate about math, whether preparing for competitive exams or seeking to deepen their knowledge.

Embark on this mathematical journey with an open mind and a spirit of exploration. The joy of mathematics lies not just in finding the right answers but in the thrill of the quest itself. We wish you all the best in your mathematical endeavors. Happy solving!

Key features of the book

- Aligned with the National Curriculum Framework.
- Child-oriented, simple, and effective.
- Concept map for each chapter, linking all the subject topics.
- Chapter-wise summary at the beginning of each chapter.
- Multiple choice questions (MCQs) for concept solving, ranging from easy to moderate and difficult levels.
- Focus on reasoning and aptitude.
- Application-based problems.
- Case studies.
- Mindathon's challenger's zone.
- Hints for difficult problems.
- Sample paper for practice.

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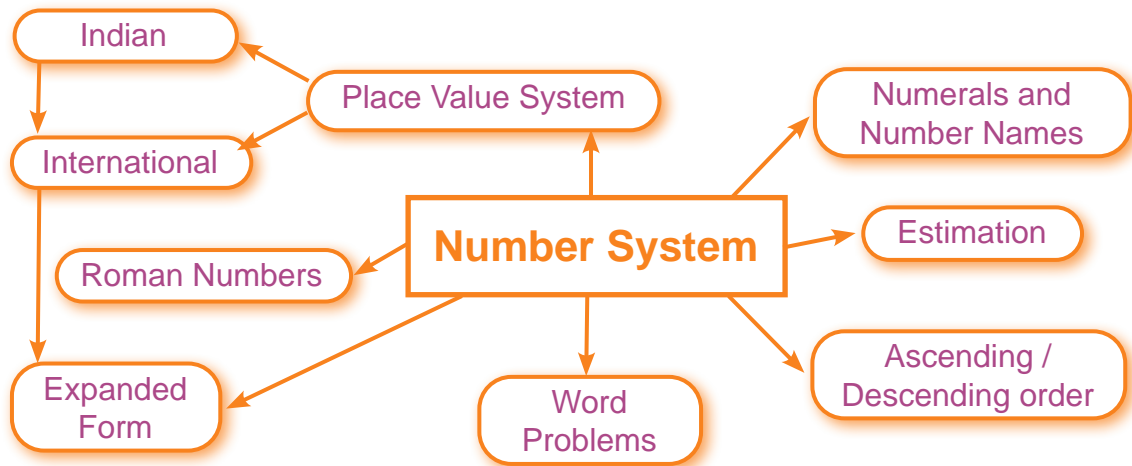
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CLASS-5
OLYMPIAD PRACTICE QUESTIONS

CONTENT	Page No.
1. NUMBER SYSTEM	5
2. COMPUTATION OPERATIONS	14
3. FRACTIONS	23
4. DECIMALS	33
5. MEASUREMENTS	43
6. BASIC GEOMETRY	54
7. PERIMETER AND AREA	63
8. DATA HANDLING	74
9. LOGICAL QUEST	87
ANSWER KEY	96
SAMPLE PAPER	98

1 Chapter

Number System



Summary:

1) Indian System of Numeration:

Period	Lakhs		Thousands		Ones		
Place	Ten Lakh	Lakh	Ten Thousands	Thousands	Hundreds	Tens	Ones
23, 74, 519	2	3	7	4	5	1	9

Number name = Twenty three lakh seventy four thousand five hundred nineteen.

Expanded Form = $20,00,000 + 3,00,000 + 70,000 + 4,000 + 500 + 10 + 9$.

2) International System of Numerations:

Period	Millions			Thousands			Ones		
Place	Hundred Million	Ten Million	Million	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
456, 871, 325	4	5	6	8	7	1	3	2	5

Number Name = Four hundred fifty six million eight hundred seventy one thousand three hundred twenty five.

Expanded Form = $400,000,000 + 50,000,000 + 6,000,000 + 800,000 + 70,000 + 1,000 + 300 + 20 + 5$.





Reasoning and Aptitude

1. What is the Roman numeral for the predecessor of largest 3-digit number?

- (a) IXIXVIII (b) CMIXVIII (c) CMXCIX (d) CMXCVIII

1.

(A)

(B)

(C)

(D)

2. Standard form of $7,00,000 + 5,000 + 20 + 9$

- (a) 7,05,029 (b) 70,50,209 (c) 7,50,209 (d) 7,05,209

2.

(A)

(B)

(C)

(D)

3. 1 Lakh = _____ million.

- (a) 1 (b) 10 (c) 100 (d) 1,000

3.

(A)

(B)

(C)

(D)

4. What is the difference between the place value of 9 and 8 in the number 48,96,527?

- (a) 8,10,000 (b) 7,10,000 (c) 8,90,000 (d) 7,90,000

4.

(A)

(B)

(C)

(D)

5. By using digits 7, 9, 4, 5, make the largest and the smallest 4-digit number and find the difference between them.

- (a) 0 (b) 7,155 (c) 5,175 (d) 4,579

5.

(A)

(B)

(C)

(D)



6. **7986 when rounded off to nearest hundreds is _____.**

- (a) 7,986 (b) 8,000 (c) 7,990 (d) 7,980

6.

A

B

C

D

7. **Forty three lakh twenty five thousand seven hundred nine can be written in International System of Numeration as _____.**

- (a) 4,32,579 (b) 432,579 (c) 43,25,709 (d) 4,325,709

7.

A

B

C

D

8. **What is the successor of the product of 230 and 479?**

- (a) 1,01,171 (b) 1,10,0169 (c) 1,10,171 (d) 1,10,170

8.

A

B

C

D

9. **Round off the sum of 2687 and 4289 to nearest thousand?**

- (a) 7,000 (b) 6,000 (c) 6,900 (d) 6,976

9.

A

B

C

D

10. **What is the sum of the place value of 7 and face value of 9 in 67,30,958.**

- (a) 7,00,009 (b) 7,00,900 (c) 70,090 (d) 6,30,000

10.

A

B

C

D

11. **Where should we place C in the numeral LXXXV such that the numeral becomes 185?**

- (a) Left of V (b) Right of L (c) Left of L (d) Right of V

11.

A

B

C

D



12. Arrange the following in descending order.

P = Twenty four lakh three thousand forty nine.

Q = Two million forty three thousand forty nine.

R = 2,43,0049.

S = 2,00,0000 + 4,00,000 + 3000 + 400 + 9.

- (a) R,S,P,Q (b) R,P,S,Q (c) P,R,S,Q (d) Q,P,S,R

12.

A

B

C

D

13. Which of the following is not true?

- (a) 100 Lakh = 10 million
(b) Largest 3-digit number is CMXCIX
(c) $XXC = 100 - 20 = 80$
(d) V and L are never subtracted

13.

A

B

C

D

14. Which is greater?

CMLXXII **MCLXXII**

- (a) > (b) <
(c) = (d) Can't be determined

14.

A

B

C

D

15. In the numeral **976432**, place value of **6** is divided by place value of **3**, we get _____.

- (a) 1800 (b) 30 (c) 600 (d) 200

15.

A

B

C

D





Mathematics in Action

16. Preeti walked CMLXV steps while Meena traveled DCCCLXII. Who traveled more and by how much.

- (a) Preeti, 103 steps (b) Meena, 103 steps
(c) Preeti, 130 steps (d) Meena, 130 steps

16.

(A)

(B)

(C)

(D)

17. I am a smallest 5-digit even number formed by using digits 5, 6, 2, 1, 9 only once.

- (a) 12569 (b) 12596 (c) 96512 (d) 10002

17.

(A)

(B)

(C)

(D)

18. Rekha gives a cheque of ₹23,05,008 for buying a flat. Help her write this amount in words in the cheque.

- (a) Twenty three crore five lakh eight.
(b) Twenty three lakh, five thousand and eight.
(c) Twenty three lakh, fifty thousand eight.
(d) Twenty three lakh five thousand eight.



18.

(A)

(B)

(C)

(D)



19. The population of a Town A is 24,75,350 and that of Town B is 2,485,350. Which Town has larger population?

- (a) Town A (b) Town B
(c) Both have equal (d) Can't be compared

19.

A

B

C

D

20. Four friends wrote the numeral for the following number name. Who is correct?

Nine million four hundred three thousand eighty seven

- (a) Rohit wrote : 9,40,387 (b) Keshav wrote : 90,40,387
(c) Ramit wrote : 9,403,087 (d) Arun wrote : 94,03,087

20.

A

B

C

D

21. What should be added to twelve lakh fourteen thousand nine to get one million two hundred twenty three thousand fifteen.

- (a) 9006 (b) 6009 (c) 9060 (d) 11014

21.

A

B

C

D

22. Rohan collected 2,807 marbles while Poonam had a collection of 1,350 marbles. What is total number of marbles they have all together, when rounded off to nearest hundred.

- (a) 4,100 (b) 4,200 (c) 4,000 (d) 5,000

22.

A

B

C

D



23. Priya bought a dress for ₹5,240, a laptop for ₹24,500 and a mobile for ₹16,380. Find out how much she has to pay (approximately) by rounding it off to nearest hundred.

- (a) ₹46,120 (b) ₹46,000 (c) ₹46,200 (d) ₹46,100

23.

A

B

C

D

24. In a town, where three lakh forty thousand eighty people live, one lakh eighty thousand are men. How many are women? Write in International place value system.

- (a) 1,06,080 (b) 106,080 (c) 1,60,080 (d) 160,080

24.

A

B

C

D

25. Mona wanted to estimate the product of 237 and 42 to nearest thousand. What answer will she get?

- (a) 10,000 (b) 9,954 (c) 9,000 (d) 9,900

25.

A

B

C

D



Mindathon Challenger's Zone

26. The place value of the digit 8 in the 4,87,632 is the successor of

- _____.
- (a) 9,999 (b) 89,999 (c) 79,999 (d) 7,999

26.

A

B

C

D



27. Which of the following is true?

- (a) LXXV is the successor of LXXVI
- (b) Sum of 380 and 412 is DCCXCII
- (c) $915 = \text{CMIXV}$
- (d) $\text{IC} = 99$

27.

A

B

C

D

28. How can  + =  be corrected in Roman numbers?

- (a) By putting one matchstick on the right side of X on right hand side.
- (b) By removing one matchstick from 'XI' on left hand side to make it 'X'.
- (c) By removing right side matchstick from 'XI' and put it on left to make 'IX'
- (d) By not touching any stick.

28.

A

B

C

D

29. I am a 5-digit even number obtained by placing the smallest even prime number at unit's place. At ten's place is the smallest odd prime number. The second multiple of ten's digit is at thousand's place and the fourth multiple of one's digit is at lakh's place. The rest of the places have largest odd number. Who am I?

- (a) 4,96,930
- (b) 6,96,937
- (c) 8,96,923
- (d) 8,96,932

29.

A

B

C

D



30. How many 3-digit number are there in all?

(a) 899

(b) 999

(c) 900

(d) 901

30.

A

B

C

D

HINTS

11. $LXXXV = 85$

$\therefore CLXXXV = 185$

14. $CMLXXII = 972$

$MCLXXII = 1172$

15. $6000 \div 30 = 200$

18. In number names- 'commas', 'and' doesn't come.

25. $237 \times 42 = 9954$

28. $IX + I = X$

30. Largest 3-digit number = 999. Smallest 3-digit number = 100

$999 - 100 = 899$ numbers

From 100 to 999, we have $899 + 1 = 900$ numbers

