The Gen X Series

MATHS OLYMPIAD 2

Useful for Maths Olympiads Conducted at School, National & International Levels

Author
Shraddha Singh
Peer Reviewer
Nisha Dhiman

Strictly According to the Latest Syllabus of Maths Olympiad

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5-1-707/1, Brij Bhawan (Beside Central Bank of India
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☎ 040-24737290
E-mail: vspublishershyd@gmail.com

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Jaywant Industrial Estate, 1st Floor–108, Tardeo Road
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We present to you Brand New Edition of our book – **MATHS OLYMPIAD CLASS 2.**

Each book originally written by Subject Matter Expert, is now further Peer Reviewed by top School Teachers and HODs to eliminate the slightest of errors that were present earlier. Furthermore to ensure authenticity and accuracy of content the book is now completely revised and reformatted as per the guidelines of the examining body. The New and Revised Olympiad Book is now suited to Olympiad examinations conducted at School Level, National Level or International Level by any and all organisations/companies.

The New Edition of this Maths Olympiad Class 2 is written in a Guide like pattern with images and illustrations at every step & is divided into different sections. Each chapter comes with Basic Theory and Solved Examples. Multiple Choice Questions with their Answer Keys and Solutions are liberally included. In order to help students become aware of and to simulate the actual exam conditions, a bunch of OMR Sheets have been enclosed with the book as well.

Amalgamation of Technology with Content has always been at the forefront for V&S Publishers and our new Student Portal for Olympiad Practice–**www.vsexamprep.com** is further testimony to that. We recommend students logging in and using it to their benefit.

P.S. While every care has been taken to ensure correctness of content, if you come across any error, howsoever minor, anywhere in the book, do not hesitate to discuss with your teachers while pointing that out to us in no uncertain terms.

We wish you All The Best!

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SECTION 1
MATHEMATICAL REASONING

Numbers Sense

1

Learning Objectives

In this chapter, students will learn about:

- Number System
- Place Value
- Comparing of Numbers
- Successor and Predecessor of a Number
- Odd and Even Numbers

Number System

The number system contains ten digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Numbers are written using these digits. These digits are called ones. The numerals formed by the digits 1, 2, 3, 4, 5, 6, 7, 8 and 9 are known as Hindu-Arabic Numbers.

(i) 10 ones make 1 ten.

(ii) 10 tens make 1 hundred.

(iii) 10 hundred make 1 thousand.

Numerals

Numbers can be written by using different symbols. The numbers represented by particular symbols are known as the digits of the system.

Number Sense

It refers to a student's abilty to understand and to use the numbers.

Number Names (3-Digit Numbers)

A 3- digit number can be written in hundreds, tens and ones.

For example, 125 – 1 hundred, 2 tens and 5 ones.

Example : Write the number names of the following:

100, 500, 700, 999

Solution:

Number	Number name
100	Hundred
500	Five hundred
700	Seven hundred
999	Nine hundred ninety - nine

Largest and Smallest Numbers

(i) Smallest 1- digit number is 1.

(ii) The largest 1- digit number is 9.

(iii) The smallest 2- digit number is 10.

(iv) The largest 2- digit number is 99.

(v) The smallest 3- digit number is 100.

(vi) The largest 3- digit number is 999.

Place Value

Place value of a digit depends on its position in the given number. As the digit moves to the left, its value increases.

In a 3 - digit number, there are three places named :

Ones place, Tens place and Hundred place.

Example : Write the place value of each digit in the number 123.

Solution : The place value of each digit in 123 is as follows:

1 2 3

Ones place = 3 ones

Tens place = 2 tens

Hundreds place = 1 hundred

$\therefore$ place value of $3 = 3 \times 1 = 3$

place value of $2 = 2 \times 10 = 20$

place value of $1 = 1 \times 100 = 100$

Note : The place value of 0 is always zero.

Expanded Form

Expanded form of 999 is :

$999 = 9$ hundred $+ 9$ tens $+ 9$ ones

$= 900 + 90 + 9$

Ascending Order of Numbers

Arranging the given numbers from smallest to the largest is called ascending order or increasing order.

For example : 16, 67, 112,157 are in ascending order.

Descending Order of Numbers

Arranging the given numbers from largest to the smallest is called descending order or decreasing order.

For example : 157, 112, 67, 16 are in descending order.

Comparing the Numbers

We use the following signs to compare the given numbers.

Equal To $=$

This is the "equal to" sign. When we use it between two numbers, it means that the numbers on both sides of the sign have the same value.

For example : $51 = 51$

Greater Than $>$

This is the "greater than" sign. It is placed between two numbers in such a way that the open side is towards the bigger number.

For example : $46 > 32$

Less Than $<$

This is the "less than" sign. It is placed between two numbers in such a way that the closed side is towards the smaller number.

For example : $52 < 67$

Comparison of Numbers

Rule 1 : If a number has more digits than the other, then it is greater of the two. For example, 163 is greater than 35 i.e., $163 > 35$.

Rule 2 : If two numbers have the same number of digits, the number with greater digit at the leftmost place is greater.

For example : 532 is greater than 432, i.e.,

$$\begin{array}{ccc} 532 & & 432 \\ \downarrow & & \downarrow \\ 5 & > & 4 \end{array}$$

Therefore, $532 > 432$

Rule 3 : If the leftmost digits are also the same. We go to next digit from left and compare the next digits to the right, and so on.

For example, in 786 and 783,

$7 = 7$

And $8 = 8$

But, leftmost digit $6 > 3$.

Therefore, $786 > 783$

Note: Count the digits first, then check H, then T, then O.

Successor of a Number

The number that comes just after a given number is called its successor.

Example : What is the successor of 99?

Solution : The successor of 99 = 99 + 1 = 100

Thus, we see that the successor of a number is obtained by adding 1 to that number.

Predecessor of a Number

The number that comes just before particular number is called its predecessor. So, we can find out the predecessor of a number by subtracting 1 from the number.

Example : What is the predecessor of 135?

Solution : The predecessor of 135 = 135 − 1 = 134

Even Numbers

The numbers that have 2, 4, 6, 8 and 0 in the ones place are called even numbers.

For example : 4, 8, 10, 32, 160, 496 are even numbers.

Odd Numbers

The numbers that have 1,3,5,7 and 9 in the ones place are called odd numbers.

For example : 3, 41, 49, 193 are odd numbers.

Properties of Odd and Even Numbers

(i) When we add an even number to an oddnumber the answer is always an odd number.
For example : 7 + 8 = 15
odd even odd

(ii) When we add an odd number to an odd number, the answer is always an even number.
For example : 5 + 9 = 14
odd odd even

(iii) When we add two even numbers the answer is always an even number.
For example : 6 + 4 = 10
even even even

Multiple Chice Questions

1. _____ is between 898 and 900.
   (a) 897 (b) 901
   (c) 898 (d) 899

2. What is the place value of 2 in 243?
   (a) 200 (b) 2
   (c) 20 (d) 0

3. 444 is _____ 4 + 4 + 4.
   (a) Greater than (b) less than
   (c) Equal to (d) None of these

4. 60 tens is _____ 7 hundreds.
   (a) Greater than (b) Less than
   (c) Equal to (d) None of these

5. Use the following clues to form a 3-digit number.
   (i) The digit in the hundred place is 6 more than 2.
   (ii) The digit in the tens place in an odd number is greater than 7.
   (iii) The digit in the ones place is 2 less than the digit in the ends place.
   The number is _____.
   (a) 698 (b) 672
   (c) 896 (d) 272

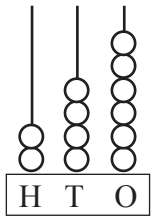
6. The greatest 3-digit odd number is ____.
   (a) 920 (b) 925
   (c) 952 (d) 902

7. Which of the following number names does not show the number in the box?

567	221	327	999

   (a) Two hundred twenty-one
   (b) Three hundred twenty-seven
   (c) Five hundred sixty-seven
   (d) Three hundred thirty-three

8. Which number is shown on the abacus?



   (a) 643 (b) 246
   (c) 245 (d) 346

9. The smallest 3-digit even number is __.
   (a) 052 (b) 520
   (c) 950 (d) 250

10. Which of the following number has 3 in tens place ?
    (a) 323 (b) 396
    (c) 438 (d) 943

11. The number having '3' in the hundreds place, '5' in the ones place and '2' in the tens place is _____:
    (a) 352 (b) 532
    (c) 253 (d) 325

12. Which symbol should be written in the box below to make the number sentence correct?
    432 ☐ 318
    (a) > (b) <
    (c) = (d) All of these

13. What number is 10 less than 205?
    (a) 215 (b) 195
    (c) 135 (d) 185