From the session 2023-24, the textbooks are rationalised under the new National Education Policy 2020. This **Sanjiv Refresher** is completely based on the new rationalised textbook.

Sanjiv Refresher

Mathematics

Class VI

Based on Latest NCERT Textbook

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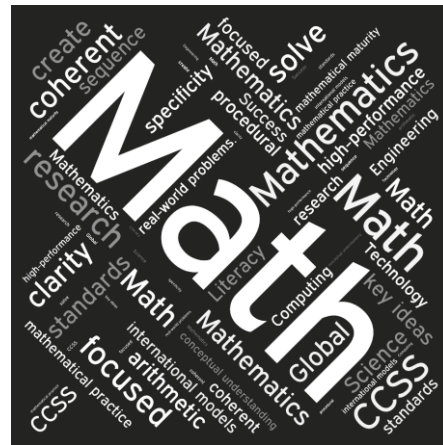
▶ SANJIV PRAKASHAN

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Syllabus

No.	Chapter/Unit	Objectives
1.	Knowing our Numbers	Introduction, comparing numbers, large numbers in Practice.
2.	Whole Numbers	Introduction whole numbers.
3.	Playing with Numbers	Introduction, factors and multiples, prime and composite numbers, tests for divisibility of number. Common factors and common multiples, highest common factor, lowest common multiple, some problems on HCF and LCM.
4.	Basic Geometrical Ideas	Introduction to geometry and its linkage and reflection with our everyday experience.
5.	Understanding Elementary Shapes	Understanding lines, angles and 2-D shapes.
6.	Integers	Understand reflection, its symmetry and identifying axes.
7.	Fractions	Detailed reviewing of fractions.
8.	Decimals	Understand the properties of decimals.
9.	Data Handling	Learn organisation and collection of data with the help of pictographs and bar graphs.
10.	Mensuration	Understanding the concepts of perimeter and area.
11.	Algebra	Understand the introduction of variables through patterns.
12.	Ratio and Proportion	Understanding the concept of ratio and proportion and solving word problems.

Contents ////

Knowing our Numbers

Introduction

Knowing our numbers help us in counting objects in large numbers and representing them through numbers.

What are natural numbers?

Counting numbers 1, 2, 3, 4, 5, ... are called natural numbers. The smallest natural number is 1 and there is no largest natural number.

Digits and place value

Numbers are formed using the ten symbols 0 to 9. These are called digits or figures.

To find the place value of a digit in a number, multiply the digit with the value of the place it occupies.

Comparing Numbers

We need to compare two or more numbers. It can be performed as :

If two numbers have unequal number of digits then the number with the greater number of digits is greater.

If two numbers have equal number of digits then the number with greater valued digit on the extreme left is greater. If the digits on extreme left are equal then the digits to the right of the extreme left digits are compared and so on.

Try These (*With Solution*)   **(Page 2)**

Q. Can you instantly find the greatest and the smallest numbers in each row?

1. 382, 4972, 18, 59785, 750.

Ans. 59785 is the greatest and 18 is the smallest.

2. 1473, 89423, 100, 5000, 310.

Ans. 89423 is the greatest and 100 is the smallest.

3. 1834, 75284, 111, 2333, 450.

Ans. 75284 is the greatest and 111 is the smallest.

4. 2853, 7691, 9999, 12002, 124.

Ans. 12002 is the greatest and 124 is the smallest.

Try These (*With Solution*) (Page 2)

Q. Find the greatest and the smallest numbers.

(a) 4536, 4892, 4370, 4452.

Ans. 4892 is the greatest and 4370 is the smallest.

(b) 15623, 15073, 15189, 15800.

Ans. 15800 is the greatest and 15073 is the smallest.

(c) 25286, 25245, 25270, 25210.

Ans. 25286 is the greatest and 25210 is the smallest.

(d) 6895, 23787, 24569, 24659.

Ans. 24659 is the greatest and 6895 is the smallest.

Review Exercise (*With Solution*) (Page 3)

Q. Compare 4875 and 4889; also compare 4875 and 4879.

Solution : (i) 4875 and 4889

They both have the same number of digits, *i.e.* four digits. Their leftmost digits are also the same (4). So, we look for next digits which are also the same (8). Therefore, we look further for next digits. These are 7 and 8 in the first and second numbers respectively. Since 8 > 7, we can say that 4889 is greater than 4875.

(ii) 4875 and 4879

The number of digits is the same (4) in both the numbers. Their leftmost digits are also the same (4). Their next digits are also the same (8). Their still next digits are also the same (7). But, their units digits are different namely 5 and 9 respectively. As 9 > 5, we can say that 4879 > 4875.

Try These (*With Solution*) (Page 3, 4)

Q. 1. Use the given digits without repetition and make the greatest and smallest 4-digit numbers.

(a) 2, 8, 7, 4   (b) 9, 7, 4, 1   (c) 4, 7, 5, 0   (d) 1, 7, 6, 2   (e) 5, 4, 0, 3.

(Hint : 0754 is a 3-digit number.)

Solution :

Given digits	Greatest 4-digit number	Smallest 4-digit number
(a) 2, 8, 7, 4	8742	2478
(b) 9, 7, 4, 1	9741	1479
(c) 4, 7, 5, 0	7540	4057
(d) 1, 7, 6, 2	7621	1267
(e) 5, 4, 0, 3	5430	3045

Q. 2. Now make the greatest and the smallest 4-digit numbers by using any one digit twice.

(a) 3, 8, 7   (b) 9, 0, 5   (c) 0, 4, 9   (d) 8, 5, 1

(Hint : Think in each case which digit will you use twice.)

Solution :

Given digits	Greatest 4-digit number	Smallest 4-digit number
(a) 3, 8, 7	8873	3378
(b) 9, 0, 5	9950	5009
(c) 0, 4, 9	9940	4009
(d) 8, 5, 1	8851	1158

Note : In the greatest number, the greatest digit is used twice while in the smallest number, the smallest digit is used twice.

Q. 3. Make the greatest and the smallest 4-digit numbers using any four different digits with conditions as given.

Solution :

(a) Digit 7 is always at ones place	Greatest 9867 Smallest 1027
(b) Digit 4 is always at tens place	Greatest 9847 Smallest 1042
(c) Digit 9 is always at hundreds place	Greatest 8976 Smallest 1902
(d) Digit 1 is always at thousands place	Greatest 1987 Smallest 1023

Q. 4. Take two digits, say 2 and 3. Make 4-digit numbers using both the digits equal number of times.

(i) Which is the greatest number?

Ans. 3322.

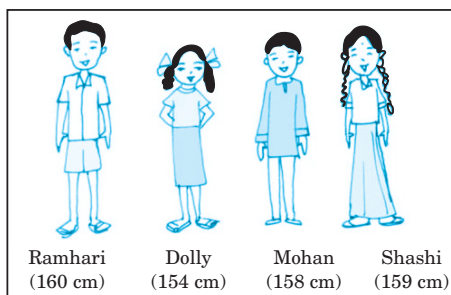**(ii) Which is the smallest number?**

Ans. 2233.

(iii) How many different numbers can you make in all?

Ans. 3322, 2233, 3232, 2323, 2332, 3223, *i.e.*

We can make 6 different numbers in all.

Review Exercise (*With Solution*) (Page 4)

Ramhari (160 cm) Dolly (154 cm) Mohan (158 cm) Shashi (159 cm)

Q. 1. Who is the tallest?

Ans. Ramhari is the tallest.

Q. 2. Who is the shortest?

Ans. Dolly is the shortest.

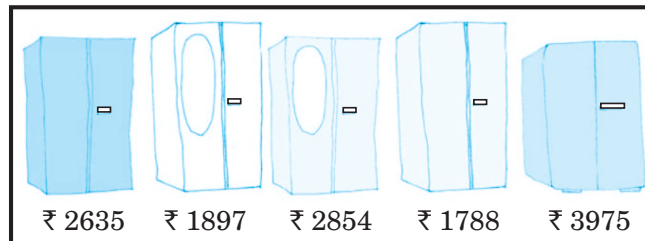**(a) Can you arrange them in the increasing order of their heights?**

Ans. Dolly (154 cm) < Mohan (158 cm) < Shashi (159 cm) < Ramhari (160 cm).

(b) Can you arrange them in the decreasing order of their heights?

Ans. Ramhari (160 cm) > Shashi (159 cm) > Mohan (158 cm) > Dolly (154 cm).

Q. 3. Which to buy?

Sohan and Rita went to buy an almirah. There were many almirahs available with their price tags.

₹ 2635   ₹ 1897   ₹ 2854   ₹ 1788   ₹ 3975

(a) Can you arrange their prices in increasing order?

Ans. ₹ 1788 < ₹ 1897 < ₹ 2635 < ₹ 2854 < ₹ 3975

(b) Can you arrange their prices in decreasing order?

Ans. ₹ 3975 < ₹ 2854 < ₹ 2635 < ₹ 1897 < ₹ 1788

Try These (*With Solution*) (Page 4)

Q. 1. Think of five more situations where you compare three or more quantities.

Ans. (1) The annual income of 4 employees; Ajay, Aman, Ramesh, Mahesh are ₹ 5,00,000, ₹ 7,25,000, ₹ 2,50,000, ₹ 4,00,000 respectively.

(2) The number of students in 4 colleges; A, B, C, D are 1650, 1980, 5790, 2290 respectively.

(3) The heights of five boys; Hridaya, Anand, Apoorva, Ansh and Harsha are 160 cm, 190 cm, 145 cm, 182 cm, 172 cm respectively.

(4) The weight of 4 students; Neha, Sneha, Riya, Kashvi are 45 kg, 52 kg, 62 kg, 59 kg respectively.

(5) The distance of 4 cities from the capital city New Delhi are :

City A–522 km, City B–485 km, City C–395 km, City D–905 km.

Try These (*With Solution*) (Page 5)

Q. 1. Arrange the following numbers in ascending order :

(a) 847, 9754, 8320, 571

(b) 9801, 25751, 36501, 38802

Ans. (a) 571, 847, 8320, 9754

(b) 9801, 25751, 36501, 38802

Q. 2. Arrange the following numbers in descending order :
(a) 5000, 7500, 85400, 7861

(b) 1971, 45321, 88715, 92547

Ans. (a) 85400, 7861, 7500, 5000
(b) 92547, 88715, 45321, 1971

Making Numbers from Individual Digits, i.e. Shifting Digits

When we have a few single digits, a variety of numbers can be formed by arranging the digits in different orders. To make a new number from existing, shift places of digits.

Example : 1, 3, 5, 9 can be made as

9531, 9351, 9135, 3519, 3951, etc. by shifting the place of the digits.

To make largest number from a given number of digits :

→ Keep the largest digit at the highest place.

→ Keep the second largest digit at the second highest place and so on.

To make smallest number from a given number of digits :

→ Keep the smallest digit at the highest place.

→ Keep the second smallest digit at the second highest place and so on.

Example : **Use given digits without repetition and make smallest and greatest 4-digit number.**

Solution : Since a 4-digit number is to be made, 0 cannot be put at the highest place as it will make the number; a 3-digit number. So, if there is a 0 in 4 digits, put the third largest number at the highest place to make the smallest 4-digit number.

Value	Largest digit	Second largest digit	Third largest digit	Fourth largest digit	Smallest number	Greatest number
(a) 2, 8, 7, 5	8	7	5	2	2578	8752
(b) 9, 7, 5, 2	9	7	5	2	2579	9752
(c) 4, 7, 5, 0	7	5	4	0	4057 (Since 0457 is a 3 digit number.)	7540
(d) 5, 4, 0, 3	5	4	3	0	3045 (Since 0345 is a three digit number.)	5430

Increase in Number of Digits by Adding 1

The smallest 2-digit number is 10 (ten). The greatest 2-digit number is 99. The smallest 3-digit number is 100 (one hundred). The greatest 3-digit number is 999. The smallest 4-digit number is 1000 (one thousand). The greatest 4-digit number is 9999. The smallest 5-digit number is 10,000 (ten thousand). The greatest 5-digit number is 99999. The smallest 6-digit number is 1,00,000 (one lakh). The greatest 6-digit number is 9,99,999. This goes on for higher digit numbers in a similar way.