

Chapter 1

Number Adventure World

(NEP 2020 & NCF Aligned)




Let Us Begin – A Story

Aarav and Meera visited the “**Maths Wonder Fair**”. At the entrance, they saw many big numbers:



Think and Discuss

Look around and find where large numbers are used:

-  Mobile numbers
-  Population of cities
-  Price of vehicles
-  Cricket scores
-  Distances between places



Meera asked, “How do people read such huge numbers?”



Their teacher smiled and said, “Today we will become **Number Explorers!**”



Discuss:

1 Have you seen a number bigger than one lakh?



2 Why do we use commas in numbers?



Understanding Place Value



Every digit has:

★ **Face Value** → the digit itself

★ **Place Value** → the value according to its position

Example:

5,43,218

Digit	Place	Place Value
5	Lakhs	5,00,000
4	Ten Thousands	40,000
3	Thousands	3,000
2	Hundreds	200
1	Tens	10
8	Ones	8



Activity Time – Human Number Game

Materials:

Number cards (0–9)

Steps:

- 1 Six students stand in a line.
- 2 Each student holds one number card.
- 3 Teacher calls out a place value.
- 4 Students rearrange to form different numbers.



Discuss:

- Which arrangement gives the greatest number?
- Which gives the smallest number?



Indian Number System

In India, commas are placed differently.

Example:

7,25,43,816

It is read as:

Seven crore **twenty-five** lakh **forty-three** thousand **eight** hundred **sixteen**.



Indian Place Value Chart

Crores		Lakhs		Thousands		Ones		
TC	C	TL	L	TTh	Th	H	T	O
Ten Crores	Crores	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones



Remember

- ★ First comma comes after 3 digits from the right.
- ★ Then commas are placed after every 2 digits.

Example:

12,34,56,789



Quick Practice

Write these numbers using commas (Indian System):

1 4567890 →

2 98765432 →

3 12004567 →

4 7654321 →



Indian System is used in:

- Reading large numbers in Indian books and newspapers.
- Indian currency and government records.



Comparing and Ordering Numbers



How to Compare?

- ★ Compare the place values from left to right.
- ★ The number with more digits is greater.
- ★ If digits are same, compare the next place value.

Greater Than

>

7,45,300 > 6,98,765

7,45,300 is greater than 6,98,765.

Less Than

<

3,12,450 < 3,15,678

3,12,450 is less than 3,15,678.

Equal To

=

5,67,890 = 5,67,890

5,67,890 is equal to 5,67,890.



Order the Numbers

Ascending Order (Smallest to Greatest)

3,21,450 1,98,765 3,10,200 2,75,300

____, _____, _____, _____

Descending Order (Greatest to Smallest)

8,65,400 7,98,321 9,10,250 8,05,600

____, _____, _____, _____



Fun with Symbols!

Use >, < or = to make the statements true.

- 4,25,300 ○ 4,25,030
- 7,11,045 ○ 7,10,999
- 3,00,500 ○ 3,00,500
- 6,78,900 ○ 6,79,001
- 1,23,456 ○ 9,87,654



Real Life Connection

These are the populations of some Indian cities (approx.):

City	Population
Mumbai	1,24,42,373
Delhi	1,67,53,235
Bengaluru	84,43,675
Kolkata	44,86,679

- ★ Which city has the largest population? _____
- ★ Which city has the smallest population? _____
- ★ Arrange the cities in ascending order of their population.

____ → ____ → ____ → ____



Brain Booster

Form the greatest and the smallest 6-digit numbers using the digits given below (Each digit can be used only once).

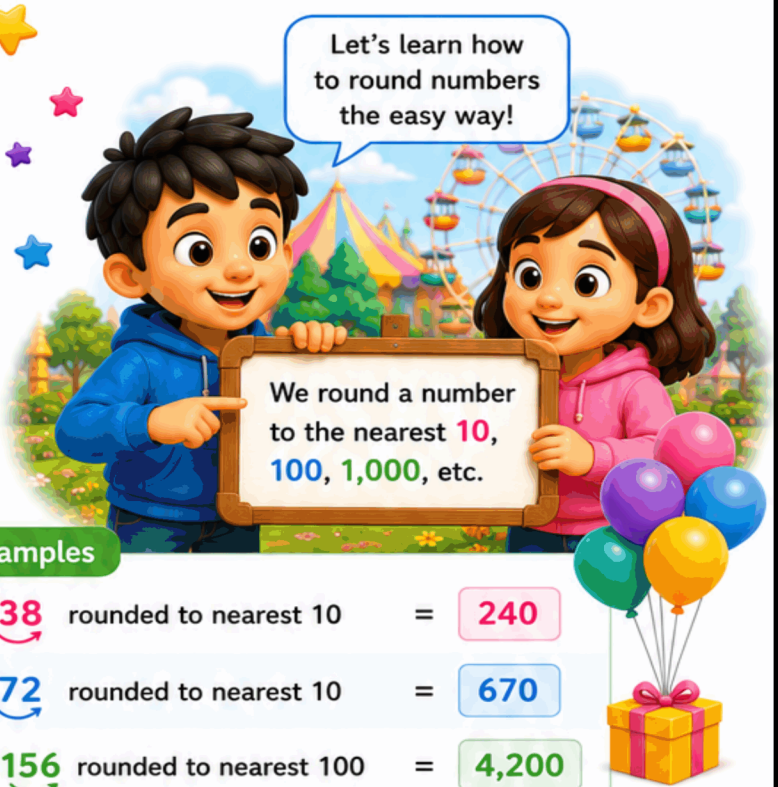
7 3 9 1 6 2

Greatest 6-digit number:

Smallest 6-digit number:

Rounding Numbers

Let's learn how to round numbers the easy way!



Rounding helps us to make numbers easier to work with.

Rounding Rules

- If the last digit is **0, 1, 2, 3 or 4**, round down.
- If the last digit is **5, 6, 7, 8 or 9**, round up.
- Replace the digits on the right with zeros.

Examples

238 rounded to nearest 10 = 240

672 rounded to nearest 10 = 670

$4,156$ rounded to nearest 100 = $4,200$

$8,749$ rounded to nearest 1,000 = $9,000$

Number Line

The number 728 rounded to the nearest 10 is 730 .



728 is closer to 730 than to 720 . So, it becomes 730 .

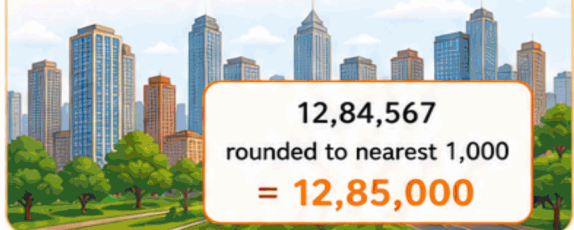
Try These!

Round the numbers to the nearest 10, 100 and 1,000.

Number	Nearest 10	Nearest 100	Nearest 1,000
1. 235
2. 6,789
3. 23,456
4. 89,642
5. 567

Real Life Connection

The population of a city is 12,84,567. About how many people live there? (Round to the nearest 1,000.)



$12,84,567$
rounded to nearest 1,000
= $12,85,000$

Think and Answer

1 I am a 3-digit number. My tens digit is 7 and ones digit is 6. When I am rounded to the nearest 10, I become 130. What number am I?



2 Round 3,498 to the nearest 100. What is the hundreds digit in the rounded number?



3 Is 5,672 closer to 5,600 or 5,700?



Operations with Large Numbers

Let's solve big problems step by step!



We can add, subtract, multiply and divide large numbers using place value.

+ Addition

Example:
Add 24,35,678 and 13,48,765.

	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
	2	4	3	5	6	7	8
+	1	3	4	8	7	6	5
	3	7	8	4	4	4	3

- Steps:**
- ★ Add ones.
 - ★ Add tens.
 - ★ Add hundreds.
 - ★ Add thousands.
 - ★ Add ten thousands.
 - ★ Add lakhs.
 - ★ Add ten lakhs.

So,
 $24,35,678 + 13,48,765$
 $= 37,84,443$

- Subtraction

Example:
Subtract 7,45,678 from 15,32,987.

	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
	1	5	3	2	9	8	7
-	0	7	4	5	6	7	8
	0	7	8	7	3	0	9

- Steps:**
- ★ Subtract ones.
 - ★ Subtract tens.
 - ★ Subtract hundreds.
 - ★ Subtract thousands.
 - ★ Subtract ten thousands.
 - ★ Subtract lakhs.
 - ★ Subtract ten lakhs.

So,
 $15,32,987 - 7,45,678$
 $= 7,87,309$

x Multiplication

Example:
Multiply 2,34,567 by 3.

Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
2	3	4	5	6	7
					$\times 3$
7	0	3	7	0	1

So,
 $2,34,567 \times 3$
 $= 7,03,701$

÷ Division

Example:
Divide 9,87,654 by 3.

	3	2	9	2	1	8	
3)	9	8	7	6	5	4
		-	9				
		0	8				
			-	6			
			2	7			
				-	7		
				0	0		
					-	0	0
						0	

So,
 $9,87,654 \div 3$
 $= 3,29,218$

Mental Maths

Calculate in your head:

- | | | | |
|---|-------------------------|---|-------------------------|
| 1 | $25,000 + 30,000 =$ | 4 | $4,50,000 \div 9 =$ |
| 2 | $7,50,000 - 2,50,000 =$ | 5 | $3,20,000 + 1,80,000 =$ |
| 3 | $12,000 \times 5 =$ | 6 | $9,00,000 - 6,75,000 =$ |

Real Life Connection

A school collected ₹ 3,45,678 for charity in 2023 and ₹ 2,78,540 in 2024.

- ★ How much did they collect in total?
- ★ How much more was collected in 2023 than in 2024?



Think and Solve

- | | | | | | | | |
|---|------------------------------|---|-----------------------------------|---|-------------------------|---|-----------------------|
| 1 | Add 12,34,567 and 23,45,678. | 2 | Subtract 5,67,890 from 12,34,567. | 3 | Multiply 4,56,789 by 6. | 4 | Divide 8,64,720 by 8. |
|---|------------------------------|---|-----------------------------------|---|-------------------------|---|-----------------------|

Multiples, Factors and HCF & LCM



These ideas help us to solve problems in a smarter way.

1 Multiples

Multiples of a number are the numbers we get when we multiply that number by 1, 2, 3, 4 ...

Multiples of 6:

6, 12, 18, 24, **30**, 36, 42, ...

Multiples of 8:

8, 16, 24, 32, **40**, 48, 56, ...

★ Common multiples of 6 and 8 are: **24, 48, 72, ...**

2 Factors

Factors of a number are the numbers that divide it exactly with no remainder.

Factors of 18:

1 2 3 6 9 18

Factors of 24:

1 2 3 4 6 8 12 24

★ Common factors of 18 and 24 are: **1, 2, 3, 6**

3 HCF (Highest Common Factor)

HCF of two or more numbers is the greatest number which divides all of them exactly.

Example: Find the HCF of 18 and 24.

Factors of 18: 1 2 3 6 9 18

Factors of 24: 1 2 3 4 6 8 12 24

Common factors: 1, 2, 3, 6

HCF of 18 and 24 = **6**

4 LCM (Least Common Multiple)

LCM of two or more numbers is the smallest number which is a multiple of all of them.

Example: Find the LCM of 6 and 8.

Multiples of 6:

6, 12, 18, **24**, 30, 36, ...

Multiples of 8:

8, 16, **24**, 32, 40, 48, ...

Common multiples: **24, 48, 72, ...**

LCM of 6 and 8 = **24**



Let's Practice

1. Write the first five multiples of:

a) 7 → _____

b) 9 → _____

2. Write all the factors of:

a) 16 → _____

b) 20 → _____

3. Find the HCF of:

a) 12 and 18 → _____

b) 15 and 25 → _____

4. Find the LCM of:

a) 4 and 6 → _____

b) 5 and 10 → _____



Quick Tip

HCF is the **GREATEST** of the common factors.

LCM is the **SMALLEST** of the common multiples.



Think and Solve

Two friends are ts books in equal rows.

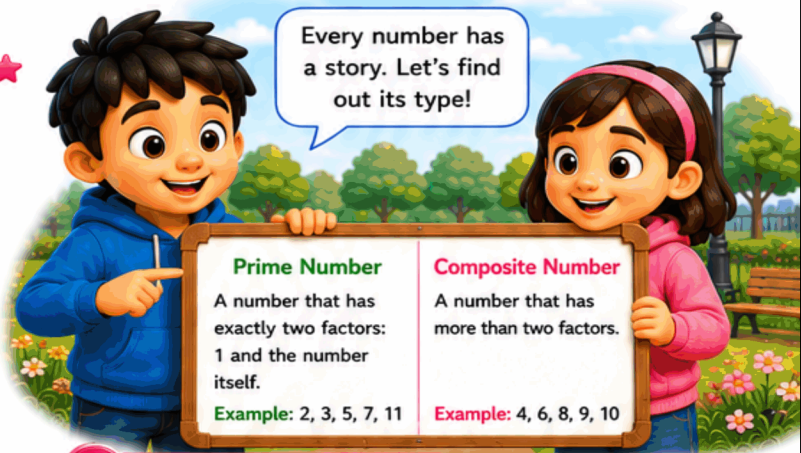
1 Rohan has 36 books and wants to arrange them in equal rows. What is the maximum number of books in each row?



2 Meera has 48 books and wants to arrange them in equal rows. What is the maximum number of books in each row?

(Use the HCF to find the answer!)

Prime and Composite Numbers



Let's learn about special numbers called prime and composite numbers.

1 Prime Numbers

Prime numbers have only two factors: 1 and itself.

Examples:

2 3 5 7 11 13

Factors of 2: 1, 2 Factors of 7: 1, 7
 Factors of 3: 1, 3 Factors of 11: 1, 11
 Factors of 5: 1, 5 Factors of 13: 1, 13

★ Note: 1 is neither prime nor composite.

2 Composite Numbers

Composite numbers have more than two factors.

Examples:

4 6 8 9 10

Factors of 4: 1, 2, 4 Factors of 9: 1, 3, 9
 Factors of 6: 1, 2, 3, 6 Factors of 10: 1, 2, 5, 10
 Factors of 8: 1, 2, 4, 8

★ A number with more than two factors is composite.

3 Prime or Composite?

Write P for prime number, C for composite number and N for neither.

1	2	<input type="checkbox"/>	6	23	<input type="checkbox"/>	11	37	<input type="checkbox"/>
2	9	<input type="checkbox"/>	7	20	<input type="checkbox"/>	12	12	<input type="checkbox"/>
3	17	<input type="checkbox"/>	8	29	<input type="checkbox"/>	13	19	<input type="checkbox"/>
4	1	<input type="checkbox"/>	9	31	<input type="checkbox"/>	14	25	<input type="checkbox"/>
5	15	<input type="checkbox"/>	10	4	<input type="checkbox"/>	15	7	<input type="checkbox"/>

4 Sieve of Eratosthenes (Up to 50)

Cross out the composite numbers.

The remaining numbers are prime numbers.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Prime numbers between 1 and 50 are:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

5 Real Life Connection

Prime numbers are used in many important things!



In password security to keep our data safe.



In encryption to protect messages and websites.



In communication satellites and signals.

6 Number Detective

Read the clues and write the number.

- ★ It is less than 20.
- ★ It is a composite number.
- ★ It has 3 factors.
- ★ The sum of its factors is 12.

The number is _____



Think and Answer

1 How many prime numbers are there between 1 and 30?

_____ ?

2 Write any three composite numbers that are even.

_____, _____, _____ ?

3 Is 97 a prime number or a composite number?

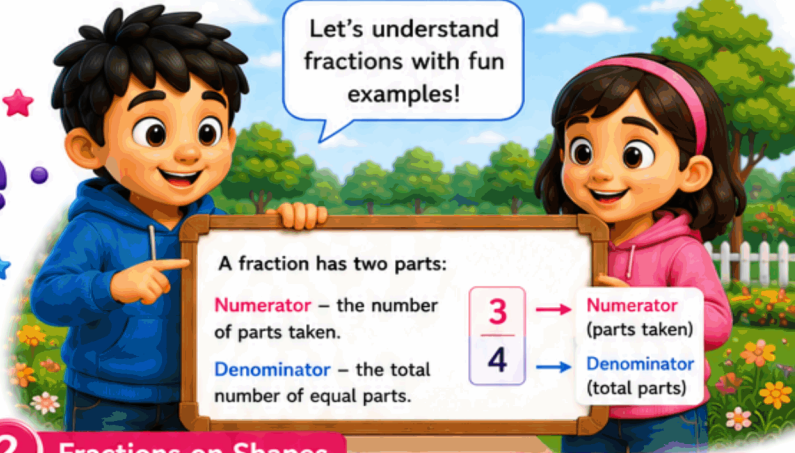
_____ ?

4 What is the smallest prime number?

_____ ?

Fractions - Parts of a Whole

Let's understand fractions with fun examples!



A fraction shows how many equal parts of a whole are taken.

1 What is a Fraction?

Fractions show equal parts of a whole.

Examples:



$$\frac{2}{4}$$

Two-fourths



$$\frac{3}{8}$$

Three-eighths



$$\frac{1}{5}$$

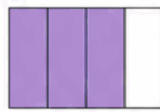
One-fifth

★ All parts must be equal.

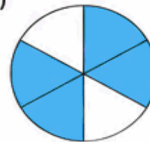
2 Fractions on Shapes

Write the fraction that is shaded.

(a)



(b)



(c)



(d)



3 Equivalent Fractions

Fractions that show the same value are called equivalent fractions.

Examples:

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$



★ They look different but have the same value.

4 Comparing Fractions

When the denominators are same, compare the numerators.
When denominators are different, make them same.

Same Denominator

$$\frac{3}{7} < \frac{5}{7}$$

Since $3 < 5$,
 $\frac{3}{7} < \frac{5}{7}$

Different Denominator

$\frac{1}{2}$ $\frac{2}{3}$
Make denominator same (LCM of 2 and 3 is 6)

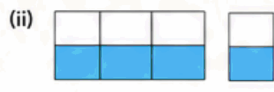
$$\frac{1}{2} = \frac{3}{6} \quad \frac{2}{3} = \frac{4}{6}$$

Since $3 < 4$, $\frac{1}{2} < \frac{2}{3}$

5 Let's Practice

A. Write the fraction that is shaded.





B. Write two equivalent fractions for each.

(i) $\frac{1}{3} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

(ii) $\frac{2}{5} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

(iii) $\frac{3}{4} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

C. Compare using $<$, $>$ or $=$.

(i) $\frac{2}{5}$ $\frac{3}{5}$

(ii) $\frac{1}{2}$ $\frac{2}{4}$

(iii) $\frac{1}{3}$ $\frac{1}{4}$

(iv) $\frac{3}{8}$ $\frac{5}{8}$

Quick Tip

Fractions are used in daily life!

- ★ Eating pizza or cake
- ★ Measuring ingredients
- ★ Telling time
- ★ Sharing things fairly



Real Life Connection

Riya has a chocolate bar divided into 8 equal parts.

- ★ She eats 3 parts.
- ★ What fraction of the chocolate did she eat?
- ★ How many parts are left?



Eaten: Left:

Think and Solve

1 A jug has 3 litres of juice. If $\frac{1}{3}$ of the juice is used, how much juice is left?

litres

2 A ribbon is 1 metre long. $\frac{2}{4}$ of it is red. What fraction is not red?

of the ribbon