Comparing the two systems

There are two major systems for reading and writing large numbers:

- The Indian System of Numeration
- The International System of Numeration

These systems are used to represent large numbers and have differences in how the place values are grouped.

The Indian System of Numeration

In the Indian System, numbers are grouped in periods of two digits for the ones and thousands places, and three digits for the lakh and higher periods. The periods in this system are:

- Ones
- Thousands
- Lakhs
- Crores

For example:

- 1,00,000 = One lakh
- 1,00,00,000 = One crore

The International System of Numeration

In the International System, numbers are grouped in periods of three digits each. The periods are:

- Ones
- Thousands
- Millions
- Billions

For example:

- 1,000,000 = One million
- 1,000,000,000 = One billion

Differences Between the Two Systems

i. Grouping of Digits:

Indian System: Grouping starts after every two digits (thousands, lakhs, crores).

International System: Grouping starts after every three digits (thousands, millions, billions).

ii. Place Values:

In the Indian System, the place values are named as lakh and crore for numbers in the range of millions.

In the International System, the place values are million and billion for larger numbers.

Properties of the Two Systems

Place Value: Both systems have place values such as ones, tens, hundreds, but the grouping of the numbers varies.

Commas: In the Indian system, commas are placed after every two digits for thousands, lakhs, and crores. In the International system, commas are placed after every three digits for thousands, millions, and billions.

Reading Numbers: Both systems use similar methods to read numbers, but the periods differ in size.

Example 1

Question: Compare the number 12,34,567 in the Indian System and 12,345,678 in the International System.

Solution:

In the Indian System, 12,34,567 is read as Twelve lakh, thirty-four thousand, five hundred sixty-seven.

In the International System, 12,345,678 is read as Twelve million, three hundred forty-five thousand, six hundred seventy-eight.

Thus, the two systems use different periods and names for large numbers.

Example 2

Question: Write the number 45,67,890 in the International System.

Solution:

In the Indian System, 45,67,890 is read as Forty-five lakh, sixty-seven thousand, eight hundred ninety.

In the International System, this number is written as 4,567,890 and read as Four million, five hundred sixty-seven thousand, eight hundred ninety.

Summary Points

- The Indian System and the International System differ in how large numbers are grouped and named.
- The Indian System uses lakhs and crores, while the International System uses millions and billions.
- Commas are placed differently in the two systems, with the Indian System separating numbers in periods of two digits and the International System separating them in periods of three digits.
- Both systems use the same concept of place value but apply it to different place names for larger numbers.