KNOWING OUR NUMBERS

Concepts-Definitions-Formulae(C.D.F.)

Natural Numbers

Counting numbers starting from 1.
Smallest natural number is 1.
No greatest natural number.
Zero is not a natural number.

Digits and Values

Digits are 0 to 9.
Face value is the digit itself.
Place value depends on position.
Place value = face value multiplied by place.

Comparison of Numbers

More digits means greater number.
If equal digits, compare from left.
First unequal digit decides.

n-digit Numbers

Smallest n-digit number = 10^{n-1}.
Greatest n-digit number = $10^{n} - 1$.

Indian System

Places: Ones, Tens, Hundreds, Thousands, Lakhs, Crores.
Comma pattern: 3,2,2,2.
Example: 38,64,953.

International System

Places: Ones, Thousands, Millions.
Comma pattern: 3,3,3.
Example: 95,638,709.

Ordering

Ascending: smallest to greatest.
Descending: greatest to smallest.

Formation of Numbers

Smallest number: smallest non-zero digit first.
Greatest number: arrange digits in descending order.
Repetition only if allowed.

Unit Conversion

1 kilometre = 1000 metres.
1 metre = 100 centimetres.
1 kilogram = 1000 grams.
1 litre = 1000 millilitres.

Estimation

Estimation is a reasonable guess.
0 to 4 round down.
5 to 9 round up.
Used in sum, difference, product and quotient.

Roman Numerals

I 1, V 5, X 10, L 50, C 100, D 500, M 1000.
Same symbol repeated means addition.
Smaller before larger means subtraction.
V, L and D are never subtracted.
Same symbol not repeated more than three times.

Olympiad Alert

Leading zeros do not change value.
Roman numerals have no zero.
Estimation gives approximate answers.

This chapter tests rules and logic, not heavy calculations.