

Subject - Maths

Chapter - Whole Numbers

Natural Numbers = We are already familiar with the counting numbers 1, 2, 3, 4, 5, 6 etc. Counting numbers are called natural numbers.

**WHOLE NUMBERS** All natural numbers together with '0' are called whole numbers. Thus 0, 1, 2, 3, 4, 5, 6, 7, ..... are whole numbers.

Clearly, every natural number is a whole number but 0 is a whole number which is not a natural number.

**Successor of a Whole number.** If we add 1 to a whole number, we get the next whole number, called its successor.

**PREDECESSOR OF A WHOLE NUMBER**  
One less than a given whole number, is called its predecessor.

Thus, the predecessor of 1 is 0, the predecessor of 2 is 1, the predecessor of 10 is 9, and so on.

Q1. Write the next three whole number after 30999.

Q2. Write the three whole numbers occurring just before 10001.

Q3 - Which is the smallest whole number?

Q4 - Write the successor of

a. 2540801      b. 999      c. 50904

d. 687890      e. 957638      f. 156399

# PROPERTIES OF ADDITION

(i) CLOSURE PROPERTY If  $a$  and  $b$  are any two whole number then  $(a+b)$  is also a whole number.

Ex -  $3+5=8$  (Whole number)

(ii) COMMUTATIVE LAW If  $a$  and  $b$  are any two whole numbers, then  $(a+b) = (b+a)$

Examples.

(i)  $(8+11=19)$  and  $(11+8=19)$

Is  $(8+11) = (11+8)$ ? Yes.

(ii)  $(12+23=35)$  and  $(23+12=35)$

Is  $(12+23) = (23+12)$ ? Yes.

(iii) ADDITIVE PROPERTY OF ZERO If  $a$  is any whole number, then  $a+0 = 0+a = a$

Ex -  $235+0=235$  and  $0+235=235$

(iv) ASSOCIATIVE LAW FOR any whole numbers  $a, b, c$  we always have  
 $(a+b)+c = a+(b+c)$

Ex- Let us take three whole number, say 9, 12 and 15. Then

$$(9+12)+15 = 21+15 = 36$$

$$\text{And } 9+(12+15) = 9+27 = 36$$

$$\therefore (9+12)+15 = 9+(12+15)$$

A6- Fill in the blanks to make each of the following a true statement:

(i)  $458+639=639+\dots$  (ii)  $864+2006=2006+\dots$

(iii)  $1946+\dots = 984+1946$  (iv)  $8063+0 = \dots$

A7- Add the following numbers and check by reversing the order of the addends:

(i)  $16509+114$

(ii)  $2359+548$

(iii)  $19753+2867$

Q 8- Find the sum by short method:

(i)  $6784 + 9999$

(ii)  $10578 + 99999$

### PROPERTIES OF MULTIPLICATION OF WHOLE NUMBERS

— x — x — x — x — x —

(i) CLOSURE PROPERTY If  $a$  and  $b$  are whole number, then  $(a \times b)$  is also a whole number.

Ex -  $9 \times 8 = 72$  (Yes, whole number)

$16 \times 10 = 160$  (Yes, whole number)

(ii) COMMUTATIVE LAW If  $a$  and  $b$  are any two whole numbers then  $(a \times b) = (b \times a)$

Ex - (i)  $7 \times 5 = 35$  and  $5 \times 7 = 35$

Is  $(7 \times 5) = (5 \times 7)$ ? Yes.

(iii) MULTIPLICATIVE PROPERTY OF ZERO

For every whole number  $a$ , we have  $(a \times 0) = (0 \times a) = 0$

Ex - (i)  $9 \times 0 = 0 \times 9 = 0$

(ii)  $37 \times 0 = 0 \times 37 = 0$

## (IV) MULTIPLICATIVE PROPERTY OF 1

For any whole number  $a$  we have

$$(a \times 1) = (1 \times a) = a$$

Ex -

$$(i) \quad 8 \times 1 = 1 \times 8 = 8$$

$$(ii) \quad 76 \times 1 = 1 \times 76 = 76$$

(V) ASSOCIATIVE LAW If  $a, b, c$  are any whole numbers, then

$$(a \times b) \times c = a \times (b \times c)$$

Ex - Take the whole numbers 9, 7 and 10.

$$(9 \times 7) \times 10 = 63 \times 10 = 630$$

$$(9 \times (7 \times 10)) = 9 \times 70 = 630$$

$$\therefore (9 \times 7) \times 10 = 9 \times (7 \times 10) \quad \bullet$$

## (VI) DISTRIBUTIVE LAW OF MULTIPLICATION OVER ADDITION

For any whole numbers  $a, b, c$  we have

$$a \times (b + c) = (a \times b) + (a \times c)$$