Class: VI	Subject: Mathematics	Topic: WholeNumber	Notes

Whole Numbers

We have learned about the natural numbers from 1 to 10. Whole numbers are the set natural numbers including with zero. 0 is the smallest whole number. Whole numbers are 0, 1, 2, 3,........................... All-natural numbers are whole numbers, but all whole numbers are not natural numbers .

Natural numbers

.Numbers that are used for counting and ordering are called natural Numbers.

.1,2,3,4,5,6... are natural numbers

Whole numbers

.Natural numbers along with zero form the collection of whole numbers.

.0,1,2,3,4,5... are called whole numbers.

Properties of Whole Numbers

1. Addition and multiplication of any 2 whole number give a whole number.
2. Subtraction and division of any 2 whole number may or may not give a whole number.

Properties of zero

1. Zero added to any given number gives the same number. For example; 18 + 0 = 18, 71 + 0 = 71

2. Zero subtracted from any number gives the same number. For example; 71 - 0 = 71, 9 - 0 = 0

3. Zero multiplied to any number give always zero .

   For example; 2811 x0 = 0, 4855 x 0 = 0

4. When zero is divided by any number we get zero .

   For example; 0 + 65 = 0 or 0 + 39 = 0

What is a Number line?

We can represent whole number on align called number line.

- Make a point 0 on its extreme left And keep marking point at equal distance to the right of it.

- Now label 1,2,3.

4—1""l"l—|~l""l•—l""l—l~l—l~l—> -6 -5 -4 -3 -2 -1   0   1
2   3 4 5   6

Negative numbers   ' Positive numbers
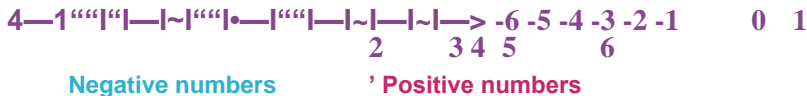
Operations on a number line

=> Addition on a number line. For example, addition of 1 and

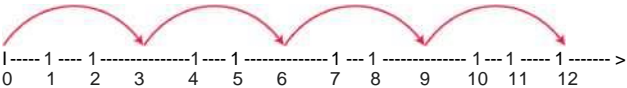5 (1 + 5 = 6).First, locate 1 on the number line. Then move 5 places to the right will give 6.

1O 11   12

=> Subtraction on a number line. For example, subtraction of 3 from 7 (7 - 3 = 4).

First, locate 7 on the number line. Then move 3 places to the left will give 4.

=> Multiplication on a number line. For example product of 3 and 4(3x4 = 12).

Start from 0 and skip 3 places to the right 4 times.

=> Division on a number line. For example 6 + 3 = 2. Start from 6 and subtract 3 for a number of times till 0 is reached. The number of times 3 is subtracted gives the quotient.

Properties of Operators: Commutative Associative and Distributive
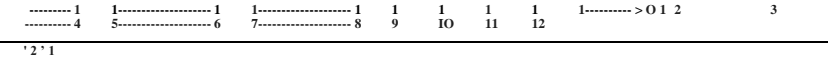
Closure property:

For any two whole numbers a and b, their product a x b is always a whole number. E.g. 12x7

= 84,   12,7 and 84 all are whole numbers.

Commutative property:

For any two whole numbers a and b, a a x b = b x a Order of multiplication is not important.

E.g 11x6= 66 and 6x11 =66

Therefore, 11x6 = 6x11

Associative property:

For any three whole numbers a, b and c, (a x b) x c = a x (b x c), this means the product is regardless of how grouping is done.

E.g 8x(4x5) = 8x20 = 160; (8 x 4) x 5 = 32 x 5 = 160

Therefore, 8 x (4 x 5) = (8 x 4) x 5

Distributive property of multiplication over Addition:

This property is used when we have to multiply a number by the sum.

For any three whole numbers a, band c a x (b + c) = a x b + a x c

In order to verify this property, we take any three whole numbers a, b and c and find the values of the expressions a x (b + c) and a x b + a x c as shown below:

Find 3x(4 + 5).

In this case either you can add the numbers 4 and 5 and then multiply them by 3 3 x (4 + 5) =

3 x 9 = 27

OR you can multiply each addend by 3 and then add the products

3x4 + 3x5 = 12 + 15 = 27

Therefore, 3x(4 + 5) = 3x4 + 3x5

Multiplicative identity:

For any whole number a, a x 1 = a , Since any number multiplied by 1 doesn't change its identity hence 1 is called as multiplicative identity of a whole number.

E.g.21 x1 =21

Additive identity property:

For every whole number a, a + 0 = a. Therefore '0' is called the Additive identity.

E.g.19 + 0 = 19