

MATHS

Whole Numbers

1. Counting numbers are called natural numbers. Natural numbers are denoted by N and given by $N = \{1, 2, 3, 4, \dots\}$
2. Natural numbers included with '0' are called whole numbers. Whole numbers are represented by W and given by $W = \{0, 1, 2, 3, 4, \dots\}$
3. A number which comes after a given number is called its successor.
Successor = given number + 1
4. A number which comes before a given number is called its predecessor.
Predecessor = given number - 1
5. Every whole number has a successor. Every whole number except 0, has a predecessor.
6. The following number line represents a whole number line on which whole numbers are represented.



The distance between two points is called unit distance.

Number operations of addition, subtraction and multiplication can easily be performed on number line.

7. Closure Property for addition and multiplication: If we add or multiply two whole numbers the result is again a whole number.
Closure property does not hold good for subtraction and division of whole numbers.
8. Commutativity of addition and multiplication: Whole number can be added or multiplied in any order. That is, for any two whole numbers 'a' and 'b', $a + b = b + a$ and $a \times b = b \times a$
Commutative property does not hold good for subtraction and division of whole numbers.
9. Associativity of addition and multiplication: Whole numbers can be grouped for the convenience of adding or multiplying. That is, for any three whole numbers 'a', 'b' and 'c',
 $a + (b + c) = (a + b) + c$ and $a \times (b \times c) = (a \times b) \times c$
Associative property does not hold good for subtraction and division of whole numbers.
10. Distributivity of multiplication over addition: For any three whole numbers 'a', 'b' and 'c',
 $a \times (b + c) = (a \times b) + (a \times c)$
11. Identity for addition: 0 is the identity for addition; this means when 0 is added to any whole the result is the whole number itself.
12. Identity for multiplication: 1 is the identity for multiplication; this means when 1 is multiplied with any whole number the result is the whole number itself.
13. Division of a whole number by zero is not defined.