Revision Notes

CHAPTER – 1

Integers

- Integers are a bigger collection of numbers which is formed by whole numbers and their negatives.
- You have studied in the earlier class, about the representation of integers on the number line and their addition and subtraction.
- We now study the properties satisfied by addition and subtraction.

  (a) Integers are closed for addition and subtraction both. That is, $a + b$ and $a – b$ are again integers, where a and b are any integers.

  (b) Addition is commutative for integers, i.e., $a + b = b + a$ for all integers a and b.

  (c) Addition is associative for integers, i.e., $(a + b) + c = a + (b + c)$ for all integers a, b and c.

  (d) Integer 0 is the identity under addition. That is, $a + 0 = 0 + a = a$ for every integer a.
- We studied, how integers could be multiplied, and found that product of a positive and a negative integer is a negative integer, whereas the product of two negative integers is a positive integer. For example, $– 2 \times 7 = – 14$ and $– 3 \times – 8 = 24$.
- Product of even number of negative integers is positive, whereas the product of odd number of negative integers is negative.
- Integers show some properties under multiplication.

  (a) Integers are closed under multiplication. That is, $a \times b$ is an integer for any two integers a and b.

  (b) Multiplication is commutative for integers. That is, $a \times b = b \times a$ for any integers a and b.

  (c) The integer 1 is the identity under multiplication, i.e., $1 \times a = a \times 1 = a$ for any integer a.

  (d) Multiplication is associative for integers, i.e., $(a \times b) \times c = a \times (b \times c)$ for any three integers a, b and c.
- Under addition and multiplication, integers show a property called distributive property. That is, $a \times (b + c) = a \times b + a \times c$ for any three integers a, b and c.
- The properties of commutativity, associativity under addition and multiplication, and

the distributive property help us to make our calculations easier.

- We also learnt how to divide integers. We found that,

  (a) When a positive integer is divided by a negative integer, the quotient obtained is a negative integer and vice-versa.

  (b) Division of a negative integer by another negative integer gives a positive integer as quotient.

- For any integer a, we have

  $(a)\ a \div 0$ *is not defined*

  $(b)\ a \div 1 = a$