Ratio and Proportion

1. The ratio of a number `a' to another number 'b' (b ≠0) is a fraction $\frac{a}{b}$ and is written as a : b.

2. In the ratio a : b, the first term is a and the second term is b.

3. A ratio is said to be in the simplest form if its two terms have no common factor other than 1

4. The ratio of two numbers is usually expressed in its simplest form.

5. The ratio of two quantities is an abstract quantity, i.e., it has no units in itself.

6. An equality of two ratios is called a proportion. If a : b = c : d , then we write a : b :: c : d.

7. The numbers a, b, c, d are in proportion if the ratio of the first two is equal to the ratio of last two, i.e., a : b = c : d.

8. If four numbers a, b, c, d are in proportion, then a and d are known as extreme terms and b and c are called middle terms.

9. Four numbers are in proportion if the product of extreme terms is equal to the product of middle terms, i.e., a : b :: c : d if and only if ad = bc.

10. From the terms of a given proportion, we can make three more proportions.

11. If a : b = b : c , then a, b, c are said to be in continued proportion.

12. if a, b, c are in continued proportion, i.e., a : b :: b : c, then b is called the mean proportional between a and c.

13. More is the number of articles, more is the value.

∴Value of a given number of articles = (Value of one article) x (Number of articles)

14. Less is the number of articles, less is the value,

$$\therefore \text{Value of one article} = \frac{\text{Value of given number of articles}}{\text{Number of articles}}$$

15. The method of finding first the value of one article from the value of the given number of articles and then the value of the required number of articles is called the unitary method.