

CHAPTER 06**Progressions****General form of G.P:**

Let 'a' be the first term and 'r' be the fixed number, then the general form of G.P is $a, ar, ar^2, ar^3, \dots$

Here, the fixed number 'r' is denoted as common ratio of the G.P.

Let us denote the first term of G.P by a_1 , second term by $a_2, \dots, n^{\text{th}}$ term by ' a_n ' and the common ratio by 'r'. Then the G.P becomes,

$$a_1, a_2, a_3, \dots, a_n \text{ and } \frac{a_2}{a_1} = \frac{a_3}{a_2} = \dots = \frac{a_n}{a_{n-1}} = r$$

Note:

- In G.P, $r = \frac{a_n}{a_{n-1}}$ ($r \neq 1$), where 'n' is natural number and $n \geq 2$.

Example:

Write the G.P if the first term $a = 9$ and the common ratio $r = \frac{1}{3}$

Sol.

Given that,

First term = $a = 9$

Common ratio = $r = \frac{1}{3}$

$\therefore$ Second term = $ar = 9 \times \frac{1}{3} = 3$ ($\because$ First term $\times$ Common ratio)

Similarly, third term = second term $\times$ common ratio

$$= 3 \times \frac{1}{3} = 1$$

If we proceed in this way, we get the following G.P.

