- If 'a' is the first term and 'r' is the common ratio of the geometric progression, then its $n^{th}$ term is given by $a_n = ar^{n-1}$
- The sum, $S_n$ of the first 'n' terms of the G.P. is given by $S_n = a (r^n – 1)/ (r-1)$, when $r \neq 1$; = na , if r =1
- If $-1 < x < 1$, then $\lim x^n = 0$, as $n \to \infty$. Hence, the sum of an infinite G.P. is $1+x+x^2+ ..... = 1/(1-x)$
- If $-1 < r < 1$, then the sum of the infinite G.P. is $a +ar+ ar^2+ ..... = a/(1-r)$
- If each term of the G.P is multiplied or divided by a non-zero fixed constant, the resulting sequence is again a G.P.
- If $a_1, a_2, a_3, ....$ and $b_1, b_2, b_3, ...$ are two geometric progressions, then $a_1b_1, a_2b_2, a_3b_3, ......$ is also a geometric progression and $a_1/b_1, a_2/b_2, ... ... ..., a_n/b_n$ will also be in G.P.
- Suppose $a_1, a_2, a_3, ......,a_n$ are in G.P. then $a_n, a_{n-1}, a_{n-2}, ......, a_3, a_2, a_1$ will also be in G.P.
- Taking the inverse of a G.P. also results a G.P. Suppose $a_1, a_2, a_3, ......,a_n$ are in G.P then $1/a_1, 1/a_2, 1/a_3 ......, 1/a_n$ will also be in G.P
- If we need to assume three numbers in G.P. then they should be assumed as a/b, a, ab (here common ratio is b)
- Four numbers in G.P. should be assumed as $a/b^3$, a/b, ab, $ab^3$ (here common ratio is $b^2$)
- Five numbers in G.P. $a/b^2$, a/b, a, ab, $ab^2$ (here common ratio is b)
- If $a_1, a_2, a_3,... ,a_n$ is a G.P ($a_i > 0\ \forall i$), then $\log a_1, \log a_2, \log a_3, ......, \log a_n$ is an A.P. In this case, the converse of the statement also holds good.
- If three terms are in G.P., then the middle term is called the geometric mean (G.M.) between the two. So if a, b, c are in G.P., then b
- $= \sqrt{ac}$ is the geometric mean of a and c.
- Likewise, if $a_1, a_2, ......,a_n$ are non-zero positive numbers, then their G.M.(G) is given by $G = (a_1a_2a_3 ...... a_n)^{1/n}$.
- If $G_1, G_2, ......G_n$ are n geometric means between and a and b then a, $G_1, G_2, ......,G_n$ b will be a G.P.
- Here $b = ar^{n+1}$, $\Rightarrow r = \sqrt[n+1]{b/a}$, Hence, $G_1 = a. \sqrt[n+1]{b/a}$, $G_2 = a(\sqrt[n+1]{b/a})^2$,..., $G_n = a(\sqrt[n+1]{b/a})^n$.