GEOMETRIC PROGRESSION

SUBJECT :BASIC NUMERICAL SKILLS

STEFY M M

DEPT OF COMMERCE

ACADEMIC YEAR :2020-2021

Geometric progression

- A series is said to be in GP if every term of it is obtained by multiply the previous term by a constant number is called common ratio denoted by r .where r≠0.

- Eg:4,8,16…. Is in GP.

- Common ratio = 8/4=4/1

Nth term of GP

Tn = ar^{n-1}

- Give the series 2,6,18,54…….find 12thterm and nth term

  a=2,r=3,n=12

  Tn=ar^{n-1}

  =2*3^{12-1}

  =2*177147=354294.

  nth term=2*3^{n-1}

Sum of nth term of GP

- $Sn = \dfrac{a(1-r^n)}{1-r}$ when r<1
- $Sn = \dfrac{a(r^n-1)}{r-1}$ when r>1

Eg: 1+3+9+27…..to 10 terms. Find the sum.

r=3/1-3

$Sn = \dfrac{a(r^n-1)}{r-1}$

$= \dfrac{1(3^{10}-1)}{3-1}$

$= \dfrac{1(59049-1)}{2}$

=29524.

Geometric mean

- If a,b,c are in GP. Then b is said to be the geometric mean b/w a and c. The general form of a geometric sequence is a,ar^2, ar^3.....
- eg : insert 5 geometric mean b/w 2 and 1458.

2,G1,G2,G3,G4,G5,1458

n=7,a=2

Tn=ar^{n-1} =1458

=2*$7^{n-1} = 1458$

$2 * r^6 = 1458$

$r^6 = 729$

$r^6 = 3^6$

$r = 3$

G1=2*3=6

G2=6*3=18

G3=18*3=54

G4=54*3=162

G5=162*3=486

More Questions

- Find the 10th term of the series 9,6,4…..?
- Which term of the GP 2,8,32…. up to n terms is 131072?
- In a GP the 3rd term is 24 and 6th term is192.find the 10th term.
- Find the 12th term of a GP whose 8th term is 192.common ratio is 2.
- How many terms of GP 3,3/2,3/4….are needed to give the sum $\frac{3069}{512}$.
- Insert two numbers b/w 3 and 81. so that resulting sequence is gp.
- How many terms of GP 3,3^2,3^3 ……. are needed to give sum 120.