

INTERNATIONAL INDIAN SCHOOL BURAI DAH
MATHS-XI/WS /SEQUENCE AND SERIES (2024-25)

1-Which term of the GP $2, 1, \frac{1}{2}, \frac{1}{4}, \dots$ is $\frac{1}{1024}$ Ans: $n = 12$

2-If in a GP, $a_3 + a_5 = 90$ and if $r=2$, find first term of the GP Ans : $a = 9/2$

3-If the product of 3 consecutive terms of GP is 27 find the middle term. Ans: 3

4-The first term of a GP is 2 and sum to infinity is 6 ,find the common ratio .Ans : $r = \frac{2}{3}$

5-If a, b, c are in GP , then show that $a^2 + b^2, ab + bc, b^2 + c^2$ are also in GP.

6-Insert two numbers between 3 and 81 so that resulting sequence is GP. Ans: 9 , 27

7-How many numbers are there between 200 and 500 , which leave remainder 7 when d-ivided by 9
Ans: 33

8-The ratio of the sum of n terms of two A.P's is $(7n - 1) : (3n + 11)$, find the ratio of their 10th terms.

Ans: 33 /17

9-If the numbers a^2, b^2, c^2 are in AP then show that $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are in AP.

10-If $\frac{b+c-2a}{a}, \frac{c+a-2b}{b}, \frac{a+b-2c}{c}$ are in AP, then show that $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in AP.

11-If the AM ,between p^{th} and q^{th} terms of an AP are equal r^{th} and s^{th} terms of an AP ,then show that $p+q = r + s$

12-Raj buys a scooter for Rs 22000. He pays Rs 4000 cash and agree to pay the balance in annual instalments of Rs 1000 plus 10% interest on the unpaid amount.How much scooter cost him?

Ans: Rs 39100

13-If A is the arithmetic mean and G_1, G_2 be two geometric mean between any two numbers then prove that

$$2A = \frac{G_1^2}{G_2^2} + \frac{G_2^2}{G_1^2}$$

14-If the $p^{\text{th}}, q^{\text{th}}$ and r^{th} terms of an AP and GP are both a,b and c respectively then show that $a^{b-c} \cdot b^{c-a} \cdot c^{a-b} = 1$

15- The lengths of three unequal edges of a rectangular solid block are in GP. The volume of the block is 216 cubic cm and the total surface area is 252 square cm .Find the edges of the solid .

Ans: 3,6,12

16-The ratio of the AM and GM of two positive numbers a and b is $m : n$. show that

$$a : b = (m + \sqrt{m^2 - n^2}) : (m - \sqrt{m^2 - n^2}).$$

17-Find the sum of $0.3 + 0.33 + 0.333 + 0.3333 + \dots + n$ terms

18-Find the value of n so that $\frac{a^{n+1} + b^{n+1}}{a^n + b^n}$ may be the geometric mean between a and b.

19-If A and G be AM and GM respectively , between two positive numbers prove that the numbers are

$$A \pm \sqrt{(A + G)(A - G)}$$

20-Let S be the sum , P be the product and R be the sum of reciprocals of n terms in a GP.Prove that $P^2 R^n = S^n$