

**BAL BHARATI PUBLIC SCHOOL**  
**Ganga Ram Hospital Marg, New Delhi-60**

**CLASS –XI**  
**ASSIGNMENT- 7**

**SUBJECT – MATHEMATICS**  
**TOPIC–SEQUENCES AND SERIES**

- Q1. The first term of a G.P. is 1. The sum of third and fifth terms is 90. Find the common ratio of the G.P.
- Q2. The sum of four numbers in G.P. is 60 and the A.M. between first and the last is 18. Find the numbers.
- Q3. Find the sum of n terms of the series:-  
 (a)  $3 + 15 + 35 + 63 + \dots$   
 (b)  $1 + 3 + 6 + 10 + 15 + \dots$  (c)  $2 + 5 + 10 + 17 + 26 + \dots$
- Q4. The product of three numbers in G.P. is 216, but sum of their product in pairs is 156. Find the numbers.
- Q5. If A.M. and G.M. of roots of a quadratic equation are 8 and 5 respectively, then obtain the quadratic equation.
- Q6. Find the sum of 50 terms of the sequence:-  $.7 + .77 + .777 + .7777 + \dots$
- Q7. Find the sum of the series:-  
 (a)  $1.2^2 + 3.3^2 + 5.4^2 + 7.5^2 + \dots$  to n terms  
 (b)  $\frac{1^3}{1} + \frac{1^3 + 2^3}{2} + \frac{1^3 + 2^3 + 3^3}{3} + \dots$  to n terms  
 (c)  $\left(1 \frac{1}{2}\right)^2 \left(2 \frac{1}{2}\right)^2 \left(3 \frac{1}{2}\right)^2 \dots + n$  terms  
 (d)  $1^2 + 4^2 + 7^2 + \dots$  n terms
- Q8. Find the sum of the following series whose nth term is given:-  
 (i)  $n^2 + n + 1$  (ii)  $n^3 - 4^n$  (iii)  $3n^2 + n$
- Q9. The sum of first three terms of a G.P. is to the sum of the first six terms is 125:152. Find the common ratio of the G.P.
- Q10. Insert 5 geometric means between 576 and 9.
- Q11. How many terms of the series  $\sqrt{3} + 3 + 3\sqrt{3}$  will make the sum  $39 + 13\sqrt{3}$  ?
- Q12. Find the sum of n terms of:-  
 (i)  $\frac{1}{2.5} + \frac{1}{5.8} + \frac{1}{8.11} + \dots$   
 (ii)  $\frac{1}{2.4} + \frac{1}{4.6} + \frac{1}{6.8} + \dots$
- Q13. Find the sum of 32 terms of an A.P. whose third term is 1 and the 6<sup>th</sup> term is 11.

- Q14. How many terms are there in an A.P. whose first and fifth term are -14 and 2 respectively and the sum of terms is 40?
- Q15. Determine the common difference of an A.P. whose sum of  $n$  terms is  $an^2 + bn$ .
- Q16. Solve the equation:-  $1 + 6 + 11 + 16 + \dots = 148$
- Q17. Find the sum of  $2n$  terms of series  $1^2 - 2^2 + 3^2 - 4^2 + 5^2 - 6^2 - \dots$
- Q18. Find the sum of the series  $1 + 3 - 5 + 7 + 9 - 11 + 13 + 15 - 17 + \dots$  to  $3n$  terms.
- Q19. If ratio of the sum of  $p$ -terms and  $q$ -terms of an A.P. is  $p^2 : q^2$ . Prove that the common difference is twice the first term:-
- Q20. Find the value of:- (i)  $2^3 + 4^3 + 6^3 + \dots (50)^3$  (ii)  $4^2 + 6^2 + 8^2 + \dots (30)^2$
- Q21. Find the sum to infinity  
 a)  $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} \dots$   
 b)  $\frac{1}{7} + \frac{1}{49} + \frac{1}{343} \dots$

**Answers to the above Assignment no 7.**

- Q1  $r = \pm 3$
- Q2 2,4,8,16 or 16,8,4,2.
- Q3 a)  $\frac{n(4n^2 + 6n - 1)}{3}$   
 b)  $\frac{n(n+1)(n+2)}{6}$   
 c)  $\frac{n(2n^2 + 3n + 7)}{6}$
- Q4 18, 6, 2 or 2, 6, 18.
- Q5  $x^2 - 16x + 25 = 0$
- Q6  $\frac{7}{9} \{ n - \frac{1}{9} (1 - (0.1)^n) \}$
- Q7 a)  $\frac{n(3n^3 + 10n^2 + 9n - 4)}{6}$   
 b)  $\frac{n(n+1)(n+2)(3n+5)}{48}$   
 c)  $\frac{n(n+2)(2n+5)}{4}$   
 d)  $\frac{n(4n^2 + 12n + 1)}{12}$
- Q9  $r = \frac{3}{5}$
- Q10 288, 144, 72, 36, 18
- Q11  $n = 6$
- Q12 a)  $\frac{n}{2(3n+2)}$   
 b)  $\frac{n}{4(n+1)}$
- Q13 1472
- Q14  $n = 10$
- Q15  $2a$
- Q16  $n = 8$
- Q17  $-n(2n+1)$
- Q18  $3n(2n-1)/2$
- Q20 a) 84500

- Q21
- b) 4956
  - a)  $\frac{2}{3}$
  - b)  $\frac{7}{6}$