

CLASS –XI
ASSIGNMENT- 8

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 6th 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 $\frac{3n(2n-1)}{2}$
- Q20 a) 84500

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