

Board –

Class –

Topic –

1. How many terms of the A.P. 18,16, 14, be taken so that their sum is zero? **Ans :- 19**
2. The 4th term of an A.P. is zero. Prove that the 25th term of the A.P. is three times its 11th term.
3. If the ratio of sum of the first  $m$  and  $n$  terms of an A.P. is  $m^2 : n^2$ , show that the ratio of its  $m$ th and  $n$ th terms is  $(2m - 1) : (2n - 1)$ .
4. The sums of first  $n$  terms of three A. Ps' are  $S_1, S_2$  and  $S_3$ . The first term of each is 5 and their common differences are 2,4 and 6 respectively. Prove that  $S_1 + S_3 = 2S_2$
5. A thief, after committing a theft, runs at a uniform speed of 50 m/minute. After 2 minutes, a policeman runs to catch him. He goes 60 m in first minute and increases his speed by 5 m/minute every succeeding minute. After how many minutes, the policeman will catch the thief? **Ans:- 5 min**
6. The houses in a row are numbered consecutively from 1 to 49. Show that there exists a value of  $X$  such that sum of numbers of houses preceding the house numbered  $X$  is equal to sum of the numbers of houses following  $X$ . **Ans:- 35**
7. Reshma wanted to save at least? 6,500 for sending her daughter to school next year (after 12 months). She saved? 450 in the first month and raised her savings by? 20 every next month. How much will she be able to save in next 12 months? Will she be able to send her daughter to the school next year? **Ans:- 6720**
8. Find the 60th term of the AP 8,10, 12, if it has a total of 60 terms and hence find the sum of its last 10 terms. **Ans:- 1170**
9. An arithmetic progression 5,12, 19, has 50 terms. Find its last term. Hence find the sum of its last 15 terms. **Ans:- 4485**
10. Find the middle term of the sequence formed by all numbers between 9 and 95, which leave a remainder 1 when divided by 3. Also find the sum of the numbers on both sides of the middle term separately. **Ans:- 1043**
11. Find the middle term of the sequence formed by all three-digit numbers which leave a remainder 5 when divided by 7. Also find the sum of all numbers on both sides of the middle term separately. **Ans:- 551, 49824**
12. If the seventh term of an AP is and its ninth term is, find its 63rd term. **Ans:- 1**

13. The sum of the 2nd and the 7th terms of an AP is 30. If its 15th term is 1 less than twice its 8th term, find the AP. **Ans:- 1,5,9,13**
14. In an AP of 50 terms, the sum of first 10 terms is 210 and the sum of its last 15 terms is 2565. Find the AP. **Ans:- 171**
15. In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in the school and each class has two sections, find how many trees were planted by the students. Which value is shown in this question? **Ans:- 312**
16. Find the number of terms of the AP: 18, 15.  $\frac{1}{2}$ , 13, ..... ( $-49. \frac{1}{2}$ ), and find the sum of all its terms. **Ans:- -441**
17. Students of a school thought of planting trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be the same as the class, in which they are studying, e.g., a section of class I will plant 1 tree, a section of class II will plant 2 trees and so on till class XII. There are three sections of each class. Find the total number of trees planted by the students of the school. Pollution control is necessary for everybody's health. Suggest one more role of students in it. **Ans:- 234**
18. Find the sum of all multiples of 7 lying between 500 and 900. **Ans:- 39900**
19. Sum of the first 20 terms of an A.P. is - 240, and its first term is 7. Find its 24th term. **Ans:- -39**
20. The sum of 4th and 8th terms of an A.P. is 24 and the sum of its 6th and 10th terms is 44. Find the sum of first ten terms of the A.P. **Ans:- 95**
21. Find nth term of - 15, -18, -21, **Ans  $3(n+4)$**
22. If  $2p$ ,  $p+10$ ,  $3p+2$  are in AP then find  $p$ . **Ans  $p= 6$**
23. If arithmetic mean between  $3a$  and  $2a-7$  is  $a+4$ , then find  $a$ . **Ans  $a= 5$**
24. The first term of an AP is -7 and the common difference 5, find its 18th term and the general term. **Ans:  $a_{18} = 78n$  &  $a_n = 5n - 12$**
25. If the nth term of an AP is  $(2n+1)$ , find the sum of first n terms of the AP. **Ans:  $S_n = n(n+2)$**