BHARATIYA VIDYA BHAVAN'S V M PUBLIC SCHOOL, VADODARA
QUESTION BANK
ARITHMATIC PROGRESSION

1. An AP consists of 50 terms of which 3rd term is 12 and the last term is 106. Find the 29th term.

2. The 17th term of an AP exceeds its 10th term by 7. Find the common difference.

3. For what value of n, are the nth terms of two APs: 63, 65, 67,… and 3, 10, 17,… equal?

4. Find the 20th term from the last term of the AP: 3, 8, 13, ……, 253.

5. Subba Rao started working in 1995 at an annual salary of Rs. 5000 and received an increment of Rs. 200 each year. In which year did his income reached Rs. 7000?

6. the sum of the following APs:
(i) 2, 7, 12, ……, to 10 terms(ii) -37, -33, -29, …… to 12 terms(iii) 0.6, 1.7, 2.8, …… to 100 terms. (iv) 7+10.5+14+…..+84

7. (i) Given that $a_{12} = 37$, d = 3, find a and S_{12}. (ii) Given a = 2, d = 8, S_n = 90, find n and a_n. (iii) Given a = 8, a_n = 62, S_n = 210, find n and d. (iv)Given a = 3, n = 8, S_n = 192, find d.

8. The first term of an AP is 5, the last term is 45 and the sum is 400. Find the number of terms and the common difference.

9. If the sum of first 7 terms of an AP is 49 and that of 17 terms is 289, find the sum of first n terms.

10. Find the sum of the odd numbers between 0 and 950.

11. Which term of the arithmetic progression **10, 16, 22, 28** is 190?

12. A sequence of numbers that are in arithmetic progression starts with 3 and ends with 204. What is the sum of the 19th term from the beginning of the sequence and the 19th term from the end of the sequence?

13. What is the middle term of the arithmetic progression 6, 17, 28,...,446?

14. Which term will be the first negative term in the arithmetic progression **133, 125, 117,...**?

15. Which is the 14th term from the end of the arithmetic progression **7, 24, 41,...,704**?

16. How many terms of the arithmetic progression **8, 22, 36, 50** have to be added to get the sum 14220?

17. The sum of the first three terms of an AP is 165, and the sum of the next three terms is 309. What is the value of the 10th term?

18. What is the difference between the 35th element and 15th element in the arithmetic progression **10, 1, -8, -17**?

19. The fourth term of an AP is 0. Prove that its 25th term is triple its 11th term.

20. Find the 20th term from the end of the AP 3, 8, 13……..253.

21. If the pth, q^{th} & r^{th} term of an AP is x, y and z respectively,   show that x(q-r) + y(r-p) + z(p-q) = 0.

22. Find the sum of first 40 positive integers divisible by 6 also find the sum of first 20 positive integers divisible by 5 or 6.

23. A man arranges to pay a debt of Rs.3600 in 40 monthly instalments which are in a AP. When 30 instalments are paid he dies leaving one third of the debt unpaid. Find the value of the first instalment

24. Find the sum of all 3 digit numbers which leave remainder 3 when divided by 5.

25. Find the value of x if 2x + 1, x2 + x +1, 3x2 - 3x +3 are consecutive terms of an AP.

26. Raghav buys a shop for Rs.1, 20,000. He pays half the balance of the amount in cash and agrees to pay the balance in 12 annual instalments of Rs.5000 each. If the rate of interest is 12% and he pays with the instalment the interest due for the unpaid amount. Find the total cost of the shop.

27. If the roots of the equation (b-c)x² +(c-a) x +(a-b) = 0 are equal show that a, b, c are in AP.

28. The 15th term of an arithmetic progression has the value 0. Which term of the AP is 4 times the 26 th element?

29. The sum of first 9 terms of an arithmetic progression is 252. The ratio of term 10 th to term 40th of the AP is 29:119. What is the value of the 77th term of the AP?

30. In an arithmetic progression, the value of the 19th element is 114 , and the value of 14th element is 119 . What is the value of 266th element?

31. What is the sum of all natural numbers between 80 and 250 which are divisible by 6?

32. Find number of terms in the arithmetic progression 9, 23, 37, 51, ... such that sum of the series is 14265?

33. Which term in the arithmetic progression 7, 14, 21, 28 will be 105 more than the 20th term?

34. What is the sum of all three-digit numbers that are divisible by 23?

35. Which term of the arithmetic progression 10, -3, -16, -29 is -1082?

36. For what values of b are 2b + 32, 3b + 20, and 5b + 1 sequential members of an arithmetic progression?

37. The sum of first 9 terms of an arithmetic progression is -90 and sum of its first 17 terms is - 442. What is the sum of the first 40 terms of this AP?

38.   What is the middle term of the arithmetic progression 8, 21, 34, ... 320?

39.   The sum of the 8th element and the 12th element of an arithmetic progression is 246. The sum of the 10th and the 14th element is 298. What is the value of the 35th term?

40. Which term of the following two arithmetic progressions will have the same value?
    -9, -2, 5,12..., and 151, 148, 145, 142...

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