



Attempt questions first; check the separate key afterward. Show steps and draw labelled diagrams where asked.

A. Very short answers - 1 mark each

1. Define an arithmetic progression.
2. Find common difference of 5, 9, 13,....
3. Find tenth term of 2, 5, 8,....
4. Is 1, 2, 4, 8,... an AP?
5. Write n th term of an AP.
6. Find first term if $a_5=18$ and $d=3$.
7. Find common difference if $a=7$ and $a_4=19$.
8. Find sum of first 10 natural numbers.

B. Short answers / practice - 2 marks each

9. Find twentieth term of 7, 11, 15,....
10. Which term of 3, 7, 11,... is 99?
11. Find sum of first 20 terms of 5, 8, 11,....
12. Find sum of all multiples of 3 from 3 to 60.
13. Insert three arithmetic means between 4 and 20.
14. Find a and d if $a_3=11$ and $a_8=31$.
15. Find sum of first 15 odd positive integers.
16. An AP has $a=20$, $d=-2$. Find first negative term.
17. Is 0 a term of 7, 12, 17,...?

18. Find number of terms in 4, 9, 14,...., 99.

19. If $S_n=3n^2+2n$, find n th term.

20. Find sum of integers from 51 to 100.

C. Application / reasoning - 3 marks each

21. A student saves ₹10 on day 1, ₹15 on day 2, increasing by ₹5 daily. Find 30-day savings.

22. Find middle term of 7, 13, 19,...., 97.

23. Find sum of first n multiples of 5.

24. Three numbers in AP sum to 27 and have product 504. Find them.

25. Find AP with $a_4=14$ and $a_9=34$.

26. Can an AP with positive first term and negative difference eventually have negative terms?

27. Find the sum of the first 25 positive multiples of 4.

28. An AP has $a_5=22$ and $a_{10}=47$. Find a and d .

29. Which term of 90, 86, 82,... is the first negative term?

30. The n th term is $7-3n$. Find the sum of the first 10 terms.

31. A staircase has 15 steps, with 4 tiles on the first and 2 more on each following step. Find total tiles.

D. Extended practice - 5 marks each

32. Derive the sum of first n terms of an AP by reversing and adding.

33. An auditorium has 20 rows; first has 18 seats and each next row 2 more. Find total seats.

34. Find the sum of two-digit numbers divisible by 7.

35. An AP has first term 3 and last term 43, and sum 253. Find n and d .

ANSWER KEY - Numerical / closed questions

- 2) 4. 3) 29. 4) No. 5) $a+(n-1)d$. 6) 6. 7) 4. 8) 55. 9) 83. 10) 25th. 11) 670. 12) 630. 13) 8, 12, 16. 14) $a=3$, $d=4$. 15) 225. 16) 12th term, -2 . 17) No. 18) 20. 19) $6n-1$. 20) 3775. 21) ₹2475. 22) 16 terms; two middle terms 49, 55. 23) $5n(n+1)/2$. 24) 4, 9, 14. 25) 2, 6, 10,.... 26) Yes. 27) 1300. 28) $a=2$, $d=5$. 29) 24th; -2 . 30) -95 . 31) 270. 33) 740. 34) 728. 35) $n=11$, $d=4$.