
✅ CHAPTER: Arithmetic Progressions

📘 CLASS 10 MATHS | 📝 Worksheet with 25 Questions + Answers

All questions are selected from previous years' board exams or based on CBSE sample papers.

📗 QUESTIONS (Q1–Q25)

🔵 Section A: Multiple Choice Questions (1 mark each)

Q1. Which term of the A.P. 3, 8, 13, 18, ... is 78? *(CBSE 2022)*
a) 14 b) 15 c) 16 d) 17

Q2. The nth term of an A.P. is given by an = 2n + 3. What is the 10th term? *(Sample 2021)*
a) 20 b) 23 c) 25 d) 30

Q3. Find the sum of the first 10 terms of the A.P. 5, 10, 15, 20, ... *(CBSE 2023)*
a) 250 b) 275 c) 300 d) 325

Q4. In an AP, a = 4, d = 5. Which term will be 109? *(CBSE 2020)*
a) 20 b) 22 c) 25 d) 30

Q5. The 7th term of an A.P. is 13 and the 12th term is 23. What is the common difference? *(CBSE 2022)*
a) 2 b) 3 c) 1 d) 4

🟠 Section B: Short Answer Type (2–3 marks)

Q6. Find the 17th term of an A.P. whose 4th term is 12 and 9th term is 27. *(CBSE 2020)*

Q7. Which term of the A.P. 4, 9, 14, ... will be 254? *(CBSE 2017)*

Q8. Find the sum of first 22 terms of an A.P. in which d = 7 and the 22nd term is 149. *(CBSE 2019)*

Q9. If the 3rd and 9th terms of an A.P. are 4 and -8 respectively, find the first term and common difference. *(CBSE 2018)*

Q10. The sum of the first n terms of an A.P. is $5n^2 + 2n$. Find the general term of the A.P. *(Sample 2020)*

🟡 Section C: Long Answer Type (4 marks)

Q11. The sum of the first 10 terms of an A.P. is -150. If the first term is 4, find the 10th term and common difference. *(CBSE 2018)*

Q12. Find the sum of all three-digit numbers which leave a remainder of 1 when divided by 3. *(CBSE 2020)*

Q13. The sum of 6th and 15th term of an A.P. is 90. If the first term is 7, find the common difference and the 20th term. *(CBSE 2017)*

Q14. If the mth term of an A.P. is 1/n and nth term is 1/m, show that the sum of first (m + n) terms is (m + n)/2. *(CBSE 2021)*

Q15. How many terms of the A.P. 18, 16, 14, ... be taken so that their sum is zero? *(CBSE 2019)*

🟢 Section D: Competency-Based / Case Study Questions

Q16. A gardener plants 4 saplings in the first row, 6 in the second, 8 in the third, and so on. There are 25 rows in all. *(CBSE 2023)*
a) How many saplings are in the 25th row?
b) How many saplings has he planted in total?

Q17. A student saves ₹100 in the first month, ₹150 in the second, ₹200 in the third, and so on. *(CBSE 2024)*
a) How much will he save in the 12th month?
b) What is the total saving in 12 months?

🔴 Section E: Miscellaneous / Repeated Questions

Q18. Find the number of terms in the A.P. -3, 0, 3, ..., 111. *(CBSE 2016)*

Q19. Find the sum of first 25 terms of an A.P. whose nth term is an = 7 - 3n. *(CBSE 2018)*

Q20. The 4th term of an A.P. is 0. Find the sum of the first 40 terms. *(CBSE 2017)*

Q21. If the sum of three numbers in A.P. is 27 and their product is 504, find the numbers. *(CBSE 2019)*

Q22. The 5th term of an A.P. is 22 and the 13th term is 50. Find the A.P. *(CBSE 2016)*

Q23. Which term of the A.P. 21, 18, 15, ... is -81? *(CBSE 2019)*

Q24. Find the sum of all natural numbers less than 100 which are multiples of 3. *(CBSE 2018)*

Q25. The 5th, 8th, and 11th terms of an A.P. are three consecutive terms of a G.P. Find the common ratio. *(CBSE 2023)*

✅ ANSWERS (A1–A25)

A1. 16
A2 . 23
A3. 275
A4 22
A5 2

A6. a = 3, d = 3 ⇒ a_{17} = a + 16d = 51

A7 a = 4, d = 5 ⇒ 254 = a + (n-1)d ⇒ n = 51

A8. a_{22} = a + 21d = 149, d = 7 ⇒ a = -− b ⇒ S_{22} = 11(2a + 21d)

A9. a + 2d = 4 and a + 8d = -8 ⇒ solving gives a = 10, d = -3

A10. a□ = S□ - S□₋₁ ⇒ a□ = 10n - 3 ⇒ A.P.: 7, 17, 27, ...

A11. S_{10} = -150, a = 4 ⇒ use S□ = n/2(2a + (n-1)d) ⇒ d = -7, T_{10} = a + 9d = -59

A12. A.P.: 100, 103, ..., 997 ⇒ a = 100, d = 3 ⇒ find n ⇒ S□ = n/2(2a + (n-1)d)

A13. a_6 + a_{15} = 90 ⇒ (a + 5d) + (a + 14d) = 90 ⇒ a = 7 ⇒ solve for d, T_{20}

A14. Using formula of a□ and a□ and Sn ⇒ Sn = n/2(2a + (n-1)d)

A15 A.P. = 18, 16, ... ⇒ S□ = 0 ⇒ solve using formula ⇒ n = 9

A16. a = 4, d = 2 ⇒ a_{25} = 52, S_{25} = 25/2(4 + 52) = 700

A17. a = 100, d = 50 ⇒ a_{12} = 650, S_{12} = 6(100 + 650) = ₹4500

A18. A.P.: -3, 0, 3, ..., 111 ⇒ d = 3 ⇒ a□ = a + (n-1)d ⇒ n = 39

A19. an = 7 - 3n ⇒ a = 4, d = -3 ⇒ S_{25} = 25/2(2×4 + 24×(-3)) = -775

A20. a = ?, a_4 = 0 ⇒ a + 3d = 0 ⇒ use in S_{40}

A21. a - d, a, a + d ⇒ a = 9, d = 3 ⇒ numbers: 6, 9, 12

A22. $a + 4d = 22$, $a + 12d = 50 \Rightarrow a = 2$, $d = 5 \Rightarrow$ A.P.: 2, 7, 12…

A23. $a = 21$, $d = -3 \Rightarrow a + (n-1)d = -81 \Rightarrow n = 35$
A24. A.P.: 3, 6, 9, ..., 99 $\Rightarrow a = 3$, $d = 3$, $n = 33 \Rightarrow S$□ $= 33/2(3 + 99) = 1683$

A25. Let $a = a_5$, then $a_8 = ar$, $a_{11} = ar^2 \Rightarrow r = \sqrt{(a_{11} / a_5)} \Rightarrow$ use ratios

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