Mathematics

Practice Test Paper 9

(Chapter 5: Arithmetic Progressions)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Use algebraic methods where required. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. The common difference of $-\frac{1}{2}, -\frac{3}{2}, -\frac{5}{2}, \ldots$ is:

(A) 1

(B) $-\frac{1}{2}$

(C) -1

(D) -2

2. If an AP has 18 terms, the fifth term from the end is which term from the beginning?

(A) 13th (B) 14th

(C) 15th (D) 12th

3. In an AP, $a_{15} - a_9$ equals:

(A) $6d$

(B) $5d$

(C) $24d$

(D) $6a$

4. The sum of five consecutive AP terms is 65. Their middle term is:

(A) 10 (B) 12

(C) 15 (D) 13

5. If $a_1 = 11$ and $a_{10} = 38$, the common difference is:

(A) 2 (B) 3

(C) 4 (D) 27

SECTION B

(4 questions × 2 marks = 8 marks)

6. Two APs have the same common difference. Their 100th terms differ by 100. How much do their 1000th terms differ? Explain.

7. Separate tile panels follow the pattern shown, adding three tiles at each stage. How many tiles are needed to make one panel of each of stages 1 to 15?



Stage 1 — 2 tiles

Stage 2 — 5 tiles

Stage 3 — 8 tiles

8. Find the sum of all positive odd integers less than 50.

9. Show that $(a - b)^2$, $a^2 + b^2$ and $(a + b)^2$ are in AP.

SECTION C

(3 questions × 3 marks = 9 marks)

10. The seventeenth term of an AP is 5 more than twice its eighth term. Its eleventh term is 43. Find its nth term.

11. The sum of the first n terms of an AP is $S_n = 3n^2 + 2n$. Determine the AP and its fifteenth term.

12. Find the sum of the integers strictly between 100 and 200 that are not divisible by 9.

SECTION D

(Application Based Question - 3 marks)

13. A school has three sections in each of Classes I to XII. Each section plants as many trees as its class number: one in Class I, two in Class II and so on.

(i) Write the first three class totals and their common difference.

(ii) How many trees does Class VIII plant?

(iii) How many trees does the whole school plant?