Mathematics

Practice Test Paper 10

(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. For the AP 12, 8, 4, …, the sixth term is:

(A) −4 (B) 0

(C) −8 (D) 8

2. The arithmetic mean of −7 and 13 is:

(A) 3 (B) 10

(C) −3 (D) 6

3. If each term of an AP is increased by 6, its common difference:

(A) increases by 6

(B) decreases by 6

(C) is multiplied by 6

(D) stays unchanged

4. If an AP has $a = 4$, $d = 3$ and $n = 5$, its last term is:

(A) 19 (B) 16

(C) 15 (D) 20

5. For an AP, the correct relation between a term and partial sums is:

(A) $a_n = S_n + S_{n-1}$

(B) $a_n = S_{n-1} - S_n$

(C) $a_n = S_n - S_{n-1}$

(D) $a_n = \frac{S_n}{n}$

SECTION B

(4 questions × 2 marks = 8 marks)

6. The bead pattern shown grows by four beads per stage. Find its nth-term rule and the number of beads in stage 25.



Stage 1

7 beads



Stage 2

11 beads



Stage 3

15 beads

7. If x − 3, 2x + 1 and 5x − 1 are consecutive terms of an AP, find x and the common difference.

8. Find the sum of the first 18 terms of the AP −4, 3, 10, ….

9. A student uses $a_n = a + nd$ to find the fourth term when a = 5 and d = 3. Explain the error and find the correct term.

SECTION C

(3 questions × 3 marks = 9 marks)

10. In an AP, $a_{10} : a_{30} = 1 : 3$ and $S_6 = 42$. Find the first term a and common difference d.

11. Derive the formula for the sum of the first n terms of an AP with first term a and common difference d.

12. Annual TV output forms an AP: 600 sets in year 3 and 700 in year 7. Find the output in year 10 and the total for years 1 to 7.

SECTION D

(Application Based Question - 3 marks)

13. Ten potatoes lie in a straight line. The first is 5 m from a bucket and the rest are 3 m apart. A runner brings back one potato at a time, returning to the bucket after each trip.

(i) Write the first three round-trip distances.

(ii) Find the tenth round-trip distance.

(iii) Find the runner's total distance for all ten potatoes.