

Class 10 Mathematics Worksheet

Chapter: Arithmetic Progressions (AP)

Name: _____ Date: _____ Class: _____

Section A: Multiple Choice Questions (MCQs)

- Which of the following is an AP?
 - 1, 3, 6, 10,...
 - 2, 4, 6, 8,...
 - 1, 5, 9, 14,...
 - 5, 10, 20, 30,...
- What is the common difference in the AP: 9, 12, 15, 18,...?
 - 2
 - 3
 - 4
 - 6
- Find the sum of the first 10 terms of the AP: 5, 10, 15, 20,...
 - 200
 - 150
 - 275
 - 100
- The 12th term of an AP is 32 and the first term is 5. What is the common difference?
 - 3
 - 2.5
 - 2
 - 1.5

Section B: Short Answer Questions (2 marks each)

- Find the number of terms in the AP: 3, 8, 13, ..., if the last term is 78.
- The sum of the first 7 terms of an AP is 77, and the first term is 3. Find the common difference.
- Determine the 25th term of the AP: 7, 10, 13,...

Section C: Short Answer Questions (3 marks each)

- If the sum of the first 6 terms of an AP is 30, and the sum of the first 10 terms is 80, find the first term and the common difference.
- The 4th term of an AP is 20, and the 9th term is 35. Find the AP.

10. The sum of the first n terms of an AP is given by $S_n = 5n^2 - 2n$. Find the n th term of the AP.

Section D: Long Answer Questions (4 marks each)

11. The 3rd term of an AP is 15 and the 6th term is 27. Find the sum of the first 25 terms of the AP.

12. The sum of the first 30 terms of an AP is 600. If the first term is 8, find the common difference and the 30th term.

13. The sum of the first n terms of an AP is given by $S_n = 3n^2 + n$. Find the 10th term and the sum of the first 10 terms.

Section E: Case Study-Based Question (5 marks)

Case Study:

A group of students decides to plant trees in their school. The number of trees planted in the first week is 10. In the following weeks, 5 more trees are planted than in the previous week.

14.1. Write the AP representing the number of trees planted each week.

14.2. How many trees will be planted in the 8th week?

14.3. Find the total number of trees planted by the end of the 10th week.