

Class 10 Mathematics Worksheet

Chapter: Arithmetic Progressions (AP)

Name: _____ Date: _____ Class: _____

Section A: Multiple Choice Questions (MCQs)

1. What is the common difference of the arithmetic progression: 7, 10, 13, 16,...?
a) 2 b) 3 c) 4 d) 5
2. The 15th term of an AP is 3. The first term is 6 and the common difference is:
a) -1 b) -2 c) -3 d) 0
3. If the sum of the first 20 terms of an AP is 210, and the first term is 5, what is the 20th term?
a) 21 b) 16 c) 10 d) 20
4. For an AP, the sum of the first 5 terms is 30 and the first term is 3. What is the common difference?
a) 1 b) 2 c) 3 d) 4

Section B: Short Answer Questions (2 marks each)

5. Find the 10th term of the AP: 2, 7, 12, 17,...
6. Determine the number of terms in the AP: 5, 10, 15,... if the last term is 105.
7. The sum of the first 8 terms of an AP is 100, and the first term is 7. Find the common difference.

Section C: Short Answer Questions (3 marks each)

8. If the sum of the first 5 terms of an AP is 25 and the sum of the first 10 terms is 100, find the AP.
9. In an AP, if the 4th term is 8 and the 7th term is 20, find the first term and the common difference.
10. The sum of the first n terms of an AP is given by $S_n = 3n^2 + 4n$. Find the n th term of the AP.

Section D: Long Answer Questions (4 marks each)

11. The 6th term of an AP is 12 and the 8th term is 22. Find the sum of the first 20 terms of this AP.
12. If the sum of the first 24 terms of an AP is 300, and its first term is 7, find the 24th term and the common difference.

13. The sum of the first n terms of an AP is given by $S_n = 2n^2 + 5n$. Find the 15th term and the sum of the first 15 terms.

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

Case Study:

A construction company is building a staircase for a new shopping mall. Each step in the staircase is 10 cm higher than the previous one. The height of the first step is 15 cm.

14.1. Write the AP formed by the heights of the steps.

14.2. How high will the 12th step be?

14.3. If the total height of the staircase is to be 495 cm, how many steps will there be?