Arithmetic Progressions - Home Practice Worksheet

Class 10 Mathematics | Focus: fixed jump, nth term, position of a term, and real-life AP problems

Name: _____	Class/Section: _____	Date: _____

Core reminder

An AP has a fixed common difference: d = next term - previous term. For the nth term: a_n = a + (n - 1)d. The term n is always a positive integer.

A. Warm-up: recognise the fixed jump

1. For 6, 10, 14, 18, ..., write the first term a and common difference d. [2]

2. For 20, 15, 10, 5, ..., write a and d. Explain why d is negative. [2]

3. Which of these is an AP? Give reason: (i) 3, 6, 12, 24, ... (ii) 7, 7, 7, 7, ... [2]

4. Write the next three terms of 2.5, 3.0, 3.5, 4.0, ... [2]

B. Direct use of a_n = a + (n - 1)d

5. Find the 25th term of the AP: 7, 11, 15, 19, ... [3]

6. Find the 30th term of the AP: 10, 7, 4, 1, ... [3]

7. Which term of the AP: 5, 9, 13, 17, ... is 81? [3]

8. Check whether 200 is a term of the AP: 6, 13, 20, 27, ... [3]

C. Missing terms and two-term information

9. Find the missing terms: 4, __, __, 22. [3]

10. Find the missing terms: __, 38, __, __, __, -22. [4]

11. The 11th term of an AP is 38 and the 16th term is 73. Find the 31st term. [4]

12. An AP has 50 terms. Its 3rd term is 12 and its last term is 106. Find the 29th term. [4]

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D. Real-life AP and counting problems

13. How many three-digit numbers are divisible by 7? [4]

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14. How many multiples of 4 lie between 10 and 250? [4]

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15. A small auditorium has 12 seats in the first row. Every next row has 3 more seats. Which row has 57 seats? [4]

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16. A student saves Rs 20 in the first week and increases the saving by Rs 5 every week. In which week will the saving become Rs 95? [4]

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E. Challenge / extension

17. Design an AP whose 5th term is 30. Write your AP and verify it. [4]

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18. Bonus: In an auditorium, rows have 12, 15, 18, ... seats. Find the total number of seats in the first 20 rows. [5]

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Self-check before submission

For each answer, check: Did I write a? Did I calculate d as next - previous? Did I use n - 1 jumps? If I found n, is it a positive integer?