NCERT – GRADE 10 CHEAT SHEET

ARITHMETIC PROGRESSIONS
(nth TERM & NUMBER OF TERMS)



1 CHAPTER SNAPSHOT

This chapter covers:

- Definition of AP
- Common Difference
- nth Term Formula
- Sum (brief mention)

An **Arithmetic Progression** is a sequence of numbers where the difference between consecutive terms is constant.

2 KEY CONCEPTS

First Term (a)
A sequence term (a

Common Difference (d)
Common difference (d)

Terms (a_1, a_2, ..., a_n)
Examples: a_1, a_2, a_2, ..., a_n

Examples:

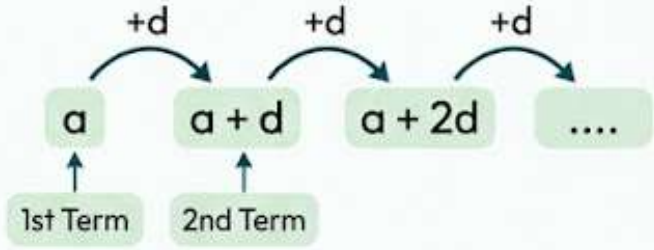
- ★ AP with d > 0
- ★ AP with d < 0
- ★ AP with d = 0

3 FORMULA BOX

$$a_n = \underbrace{a + (n-1)d}_{\text{nth Term}}$$

$$d = a_2 - a_1 = a_n - a_{n-1}$$

4 VISUAL MEMORY AID



5 BOARD EXAM FOCUS & HOTSPOTS

Common Question Types

- ✓ Finding d and a
- ✓ Checking if sequence is AP
- ✓ Finding nth term
- ✓ Finding term number (n)
- ✓ Application-based questions

Example:
Find the n given of n 12 and 19.
n = 2 × 2 × 3
n = 15, z = 4
LCM x = 5

Example:

- Finding if sequence is AP . Finding n b = a.
- Finding term number (questions, n = 1.

6 APPLICATIONS OF A.P.

- Ladder rungs
- Fixed increment salary
- Seating in an auditorium
- Pattern of petals

8 COMMON MISTAKES

- ⚠ Confusing 'n' with 'a_n'
- ⚠ Incorrect 'd' sign
- ⚠ Misapplying the formula
- ⚠ Incorrect order of terms

7 QUICK FORMULA MAP

To Find	Formula/Method
To find d	$a_n - a_{n-1}$
To find d - n	$a_n - a_{n-1}$
To find n-1	$a_n - a_{n-1}$

9 30-SECOND RAPID REVISION

- ➤ AP: constant difference
- ➤ a_n formula is your friend
- ➤ d can be positive, negative, or zero
- ➤ n must be a natural number

10 KEY TAKEAWAY

The 'a_n' formula is the single key to unlocking nth terms, term numbers, and a wealth of real-world progression problems.

★ **Remember:** An A.P. follows a constant difference (d).
Always identify 'a' and 'd' first to build and solve the progression.