

Arithmetic Progressions

Quick Study Guide

HOW TO USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

★ MARKS HIGH-FOCUS TOPICS

📝 INDICATES EXAM TIPS

⚠️ SHOWS COMMON ERRORS

💡 GIVES QUICK TIPS

BASIC CONCEPTS

Mnemonic: "SEQUENCE BOSS"

- S** - Same difference
E - Every term se next
Q - Quick pattern
U - Understand d
E - Each step same
N - Next term +d
C - Common difference
E - Easy pattern

Remember As:

shop prices:
 * Like price increase:
 * As 5, 10, 15, 20...
 * d = 5 (fixed increase)
 * Next = Current + 5

Common Errors

- * Wrong common difference
- * Missing terms
- * Pattern confusion
- * First term mistake

FINDING NTH TERM

Mnemonic: "FORMULA KING"

- F** - First term (a)
O - Observe pattern
R - Remember formula
M - Multiply (n-1)
U - Use common difference
L - Last term find
A - Add properly

Formula: $a_n = a + (n-1)d$

QUICK STEPS:

- MAMA METHOD:**
 1. Mark first term (a)
 2. Add d multiple times
 3. Multiply by (n-1)
 4. Answer = a + result

EXAMPLES:

- * AP: 3, 8, 13, 18...
- * a = 3, d = 5
- * 10th term = $3 + (10-1)5$
- * = $3 + 45 = 48$

SUM OF N TERMS

Mnemonic: "TOTAL BOSS"

- T** - Two formulas
O - Or use either
T - Take easy one
A - Add smart way
L - Learn both

- B** - Better method
O - Observe terms
S - Sum find
S - Smart way

FORMULAS REMEMBER

DO RATS

1. $S_n = n/2 [2a + (n-1)d]$
 * Like class average
 * First + Last × Half

2. $S_n = n/2 (a + a_n)$
 * Like shopping bill
 * First + Last × Count/2

ARITHMETIC MEAN

Mnemonic: "BEECH WALA"

- B** - Between numbers
E - Equal difference
E - Every term se
C - Calculate mean
H - Half way

- W** - Way between
A - Average type
L - Learn formula
A - Apply smart

QUICK FORMULA:

- DOST DOST**
 * $AM = (a + b)/2$
 * Like sharing tiffin:
 * Half each gets
 * Average amount

EXAMPLES:

- * Between 3 and 11
- * $AM = (3 + 11)/2 = 7$

: INSERTING MEANS

Mnemonic: "INSERT KARO"

- I** - In between
N - Number of means
S - Same difference
E - Equal parts
R - Remember formula
T - Total terms

- K** - Keep order
A - Apply formula
R - Right sequence
O - Observe pattern

FORMULA MAGIC:

- DHAGA KHOLO**
 * $d = (l - f)/(n + 1)$
 * Where:
 * l = last number
 * f = first number
 * n = means to insert

- * Between 4 and 19
- * Insert 2 means
- * $d = (19 - 4)/(2 + 1) = 5$
- * AP: 4, 9, 14, 19

WORD PROBLEMS

Mnemonic: "STORY TIME"

- S** - See pattern
T - Take first term
O - Observe difference
R - Remember formula
A - Yes check

- T** - Try values
I - Important data
M - Make sequence
E - Everything verify

PROBLEM TYPES:

- DAILY LIFE**
 1. Money patterns
 * Savings
 * Interest
 * Pocket money

2. Number patterns
 * Natural numbers
 * Odd/Even
 * Multiples



: APPLICATIONS

Mnemonic: "LIFE MEIN AP"

- | | | | |
|----------|----------------------|----------|------------------|
| L | - Look for pattern | A | - Apply formulas |
| I | - In daily life | P | - Practice sums |
| F | - Find sequence | | |
| E | - Easy examples | | |
| M | - Money matters | | |
| E | - Every month saving | | |
| I | - Interest calc | | |
| N | - Number patterns | | |

REAL EXAMPLES:

POCKET MONEY

- * Monthly savings
- * Price increase
- * Population growth
- * Distance covered
- * Monthly installments

QUICK REVISION CHECKLIST

Before Exam:

- ✓ Pattern recognition
- ✓ Common difference
- ✓ nth term formula
- ✓ Sum formula
- ✓ Mean insertion
- ✓ Word problems
- ✓ Applications

Scoring Tips:

1. Show pattern
2. Write proper formulas
3. Show substitutions
4. Check sequence
5. Verify answers

100%

HIGH FOCUS AREAS

1. nth Term (5 marks)
2. Sum of Terms (5 marks)
3. Word Problems (5 marks)
4. Means (4 marks)
5. Applications (4 marks)

PROBLEM SOLVING TIPS

Mnemonic: "SOLVE KARO"

- | | |
|----------|------------------------|
| S | - See the pattern |
| O | - : Observe difference |
| L | - List all formulas |
| V | - Verify sequence |
| E | - Equation form |

- | | |
|----------|-----------------------|
| K | - Keep checking steps |
| A | - All terms included |
| R | - Roots verify |
| O | - Order maintain |

GOOD LUCK!

