NCERT Solutions for Class 10 Maths Chapter 5 Ex 5.2 | Arithmetic Progressions 2026-27

⚡ **Quick Revision Box — Chapter 5 Ex 5.2: nth Term of an AP**

- **General Term Formula:** a_n = a + (n-1)d where a = first term, d = common difference, n = term number
- **Common Difference:** d = a_2 - a_1 = a_3 - a_2 (constant for any AP)
- **Finding n:** Rearrange to n = (a_n - a)/(d) + 1
- **Check if a value is a term:** If n comes out as a positive integer, it is a term; otherwise it is not
- **Difference between two terms:** a_m - a_n = (m - n) × d
- **Three-digit numbers divisible by 7:** 128 numbers (105 to 994)
- **Exercise 5.2** has 20 questions — all based on the nth term formula
- **CBSE Weightage:** Arithmetic Progressions carries 5–6 marks in the Class 10 board exam

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The **NCERT Solutions for Class 10 Maths Chapter 5 Ex 5.2** on this page cover all 20 questions from the Arithmetic Progressions exercise, updated for the **2026-27** CBSE syllabus. You can find complete step-by-step solutions with LaTeX-rendered formulas, making it easy to follow every calculation. These solutions are part of our comprehensive [NCERT Solutions for Class 10](#) collection. You can also download the official textbook from the [NCERT official website](#).

Exercise 5.2 focuses entirely on the nth term formula a_n = a + (n-1)d. This is one of the most tested formulas in CBSE Class 10 board exams. Browse our full [NCERT Solutions](#) library for solutions to every class and subject.

NCERT Solutions for Class 10 Maths Chapter 5 Ex 5.2 — Chapter Overview

Chapter 5 of the NCERT Class 10 Maths textbook deals with **Arithmetic Progressions (AP)**. Exercise 5.2 specifically covers **Section 5.3 — The nth Term of an AP**. This is the heart of the chapter because almost every other concept (sum of terms, finding position of a term) builds on the nth term formula.

For the **2026-27 CBSE board exam**, Arithmetic Progressions typically carries 5–6 marks. Questions from this exercise appear in the 2-mark and 3-mark sections of the board paper.

Students who master Exercise 5.2 can confidently attempt any AP-based question in the exam.

Detail	Information
Chapter	Chapter 5 — Arithmetic Progressions
Exercise	Exercise 5.2
Textbook	NCERT Mathematics — Class 10
Class	Class 10 (Grade 10)
Subject	Mathematics
Number of Questions	20
Key Formula	a_n = a + (n-1)d
Difficulty Level	Easy to Medium
CBSE Marks Weightage	5–6 marks (entire chapter)

Key Concepts and Formulas — Arithmetic Progressions

What is an Arithmetic Progression?

An **Arithmetic Progression (AP)** is a list of numbers in which each term is obtained by adding a fixed number to the previous term. That fixed number is called the **common difference (d)**. For example, 2, 5, 8, 11, … is an AP with d = 3.

The nth Term Formula

The most important formula in Exercise 5.2 is:

$$a\_n = a + (n-1)d$$

Where a is the first term, d is the common difference, n is the position of the term, and a_n is the value of the nth term.

Finding the Common Difference

For any AP, d = a_2 - a_1. Always verify by checking a_3 - a_2 as well — both should give the same value.

Checking Whether a Value is a Term of an AP

Set a_n equal to the given value and solve for n. If n is a **positive integer**, the value is a term. If n is a fraction or negative, it is not a term of the AP.

Formula Reference Table — Arithmetic Progressions

Formula Name	Formula	Variables
nth Term of AP	$a_n = a + (n-1)d$	a = first term, d = common difference, n = term number
Common Difference	$d = a_2 - a_1$	Any two consecutive terms
Finding n (term position)	$n = (a_n - a)/(d) + 1$	When $a_?$, a, d are known
Difference between two terms	$a_m - a_n = (m-n) \times d$	m, n = positions of two terms
Last term (l) of AP	$l = a + (n-1)d$	Same as nth term formula

Exercise 5.2 Solutions — All 20 Questions Step by Step (NCERT Solutions for Class 10 Maths Chapter 5)
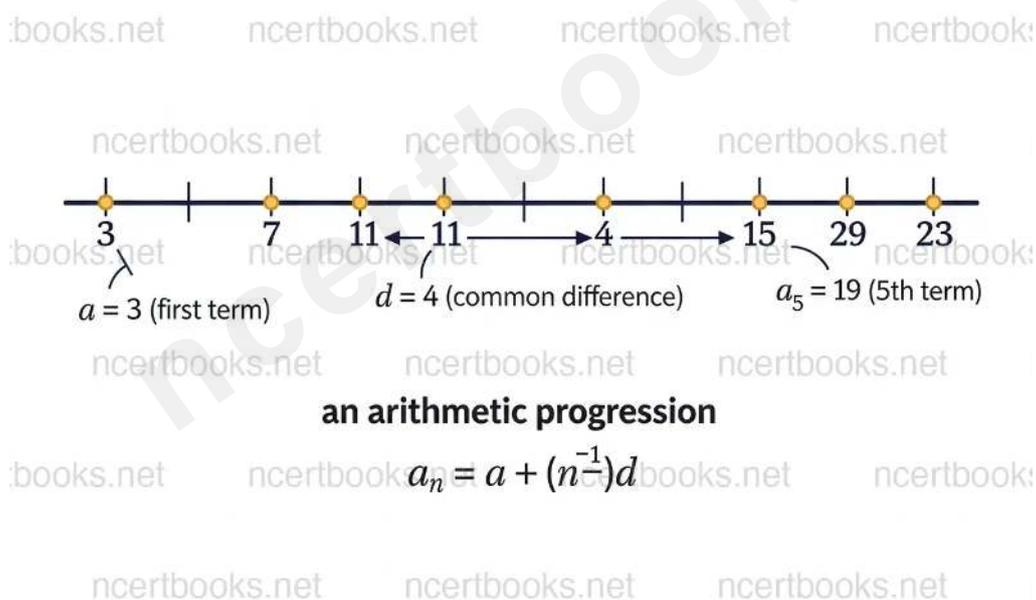

Fig 5.1: AP terms on a number line — equal spacing shows constant common difference

Question 1

Easy

Fill in the blanks in the following table, given that a is the first term, d the common difference and $a_?$ the nth term of the AP:

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

(i) $a = 7,\ d = 3,\ n = 8$

$$a_8 = 7 + (8-1) \times 3 = 7 + 21 = 28$$

∴ **a_8 = 28**

(ii) $a = -18,\ n = 10,\ a_{10} = 0$. Find d.

$$0 = -18 + (10-1)d \Rightarrow 18 = 9d \Rightarrow d = 2$$

∴ **d = 2**

(iii) $d = -3,\ n = 18,\ a_{18} = -5$. Find a.

$$-5 = a + (18-1)(-3) = a - 51 \Rightarrow a = 46$$

∴ **a = 46**

(iv) $a = -18.9,\ d = 2.5,\ a_n = 3.6$. Find n.

$$3.6 = -18.9 + (n-1)(2.5) \Rightarrow 22.5 = (n-1)(2.5) \Rightarrow n-1 = 9 \Rightarrow n = 10$$

∴ **n = 10**

(v) $a = 3.5,\ d = 0,\ n = 105$. Find a_{105}.

$$a_{105} = 3.5 + (105-1) \times 0 = 3.5$$

∴ **a_{105} = 3.5**

Board Exam Note: Table-filling questions appear in 2-3 mark sections. Show the substitution step clearly.

Question 2

Easy

Choose the correct choice in the following and justify:

(i) 30th term of the AP: 10, 7, 4, …

Step 1: Identify a = 10 and d = 7 - 10 = -3.

Step 2: Apply the nth term formula:

$$a_{30} = 10 + (30-1)(-3) = 10 + 29 \times (-3) = 10 - 87 = -77$$

∴ **Answer: (c) −77**

(ii) 11th term of the AP: −3, −1/2, 2, …

Step 1: a = -3, d = -1/2 - (-3) = -1/2 + 3 = 5/2

Step 2:

$$a_{11} = -3 + (11-1) × 5/2 = -3 + 10 × 5/2 = -3 + 25 = 22$$

∴ **Answer: (b) 22**

Board Exam Note: MCQ-style justification questions require you to show working — do not just write the option letter.

Question 3

Medium

In the following APs, find the missing terms:

(i) 2, __, 26

Here a = 2, a_3 = 26. Using a_3 = a + 2d:

$$26 = 2 + 2d ⇒ d = 12$$

$$a_2 = 2 + 12 = 14$$

∴ **Missing term = 14**

(ii) __, 13, __, 3

Let a_1 = a. Then a_2 = 13 and a_4 = 3.

$$a_4 = a + 3d = 3 \text{ and } a_2 = a + d = 13$$

Subtracting: 2d = 3 - 13 = -10 ⇒ d = -5

$$a = 13 - d = 13 - (-5) = 18$$

$$a_3 = 13 + (-5) = 8$$

∴ **Missing terms: 18 and 8. AP: 18, 13, 8, 3**

(iii) 5, __, __, 91/2

a = 5, a_4 = 9.5. Using a_4 = a + 3d:

$$9.5 = 5 + 3d ⇒ 3d = 4.5 ⇒ d = 1.5$$

$$a_2 = 5 + 1.5 = 6.5, \quad a_3 = 6.5 + 1.5 = 8$$

∴ **Missing terms: 6.5 and 8. AP: 5, 6.5, 8, 9.5**

(iv) −4, __, __, __, __, 6

$a = -4$, $a_6 = 6$. Using $a_6 = a + 5d$:

$$6 = -4 + 5d \Rightarrow 5d = 10 \Rightarrow d = 2$$

$$a_2 = -2, \backslash a_3 = 0, \backslash a_4 = 2, \backslash a_5 = 4$$

∴ **AP: −4, −2, 0, 2, 4, 6**

(v) __, 38, __, __, __, −22

$a_2 = 38$, $a_6 = -22$. So $a + d = 38$ and $a + 5d = -22$.

Subtracting: $4d = -60 \Rightarrow d = -15$

$$a = 38 - (-15) = 53$$

$$a_3 = 38 - 15 = 23, \backslash a_4 = 8, \backslash a_5 = -7$$

∴ **AP: 53, 38, 23, 8, −7, −22**

Board Exam Note: Missing term questions appear in 2-3 mark sections. Always write the full AP at the end.

Question 4

Easy

Which term of the AP: 3, 8, 13, 18, …, is 78?

Step 1: $a = 3$, $d = 8 - 3 = 5$, $a\_n = 78$

Step 2: Apply the formula:

$$78 = 3 + (n-1) \times 5$$

$$75 = (n-1) \times 5$$

$$n - 1 = 15 \Rightarrow n = 16$$

∴ **78 is the 16th term of the AP.**

Board Exam Note: This is a classic 2-3 mark question. Show all three steps clearly.

Question 5

Medium

Find the number of terms in each of the following APs:

(i) 7, 13, 19, …, 205

Step 1: a = 7, d = 6, a_n = 205

$$205 = 7 + (n-1) \times 6 \Rightarrow 198 = (n-1) \times 6 \Rightarrow n-1 = 33 \Rightarrow n = 34$$

∴ **There are 34 terms.**

(ii) 18, 151/2, 13, …, −47

Step 1: a = 18, d = 15.5 - 18 = -2.5, a_n = -47

$$-47 = 18 + (n-1)(-2.5)$$

$$-65 = (n-1)(-2.5)$$

$$n - 1 = 26 \Rightarrow n = 27$$

∴ **There are 27 terms.**

Board Exam Note: Always verify your answer by substituting n back into the formula.

Question 6

Medium

Check whether −150 is a term of the AP: 11, 8, 5, 2, …

Step 1: a = 11, d = 8 - 11 = -3, a_n = -150

Step 2: Solve for n:

$$-150 = 11 + (n-1)(-3)$$

$$-161 = (n-1)(-3)$$

$$n - 1 = 161/3 = 53.\overline{6}$$

Step 3: Since n is not a positive integer, −150 is not a term of this AP.

∴ **−150 is NOT a term of the AP: 11, 8, 5, 2, …**

Board Exam Note: Always state the reason — "n is not a positive integer" — for full marks.

Question 7

Medium

Find the 31st term of an AP whose 11th term is 38 and the 16th term is 73.

Step 1: Write the two equations:

$$a_{11} = a + 10d = 38 \ ...(1)$$
$$a_{16} = a + 15d = 73 \ ...(2)$$

Step 2: Subtract (1) from (2):

$$5d = 35 \Rightarrow d = 7$$

Step 3: Substitute into (1):

$$a + 70 = 38 \Rightarrow a = -32$$

Step 4: Find the 31st term:

$$a_{31} = -32 + 30 \times 7 = -32 + 210 = 178$$

∴ **The 31st term is 178.**

Board Exam Note: Two-equation problems appear regularly in long answer sections. Label equations (1) and (2) clearly.

Question 8

Medium

An AP consists of 50 terms of which 3rd term is 12 and the last term is 106. Find the 29th term.

Step 1: $a_3 = a + 2d = 12 \ ...(1)$ and $a_{50} = a + 49d = 106 \ ...(2)$

Step 2: Subtract (1) from (2):

$$47d = 94 \Rightarrow d = 2$$

Step 3: From (1): a = 12 - 4 = 8

Step 4:

$$a_{29} = 8 + 28 \times 2 = 8 + 56 = 64$$

∴ **The 29th term is 64.**

Board Exam Note: This type of question tests simultaneous equations with AP — a favourite in 2-3 mark sections.

Question 9

Medium

If the 3rd and the 9th term of an AP are 4 and −8 respectively, which term of this AP is zero?

Step 1: $a + 2d = 4$ ...(1) and $a + 8d = -8$ ...(2)

Step 2: Subtract (1) from (2):

$$6d = -12 \Rightarrow d = -2$$

Step 3: From (1): $a = 4 - 2(-2) = 4 + 4 = 8$

Step 4: Set $a_n = 0$:

$$0 = 8 + (n-1)(-2) \Rightarrow 2(n-1) = 8 \Rightarrow n-1 = 4 \Rightarrow n = 5$$

∴ **The 5th term of the AP is zero.**

Board Exam Note: Setting $a_n = 0$ to find the zero term is a common exam question type.

Question 10

Easy

The 17th term of an AP exceeds its 10th term by 7. Find the common difference.

Step 1: Write the condition: $a_{17} - a_{10} = 7$

Step 2: Use the property $a_m - a_n = (m - n) \times d$:

$$a_{17} - a_{10} = (17 - 10) \times d = 7d = 7$$

$$d = 1$$

∴ **The common difference d = 1.**

Board Exam Note: This shortcut $a_m - a_n = (m-n)d$ saves time in board exams — memorise it.

Question 11

Medium

Which term of the AP: 3, 15, 27, 39, … will be 132 more than its 54th term?

Step 1: a = 3, d = 12. Find the 54th term:

$$a_{54} = 3 + 53 × 12 = 3 + 636 = 639$$

Step 2: We need a_n = a_{54} + 132 = 639 + 132 = 771.

Step 3: Solve for n:

$$771 = 3 + (n-1) × 12 \Rightarrow 768 = (n-1) × 12 \Rightarrow n-1 = 64 \Rightarrow n = 65$$

∴ **The 65th term is 132 more than the 54th term.**

Board Exam Note: Two-step AP problems like this appear in long answer sections. Break into clear steps.

Question 12

Medium

Two APs have the same common difference. The difference between their 100th terms is 100. What is the difference between their 1000th terms?

Key Concept: Let the two APs have first terms a and b, and the same common difference d.

Step 1: Difference between 100th terms:

$$[a + 99d] - [b + 99d] = a - b = 100$$

Step 2: Difference between 1000th terms:

$$[a + 999d] - [b + 999d] = a - b = 100$$

Why does this work? Because the 999d terms cancel out, leaving only a - b, which is constant.

∴ **The difference between their 1000th terms is also 100.**

Board Exam Note: This conceptual question tests understanding, not just calculation. Explain the reasoning clearly.

Question 13

Medium

How many three-digit numbers are divisible by 7?

Step 1: The smallest three-digit number divisible by 7: 7 × 15 = 105.

Step 2: The largest three-digit number divisible by 7: 7 × 142 = 994.

Step 3: These form an AP: 105, 112, 119, …, 994 with a = 105, d = 7, a_n = 994.

$$994 = 105 + (n-1) × 7 \Rightarrow 889 = (n-1) × 7 \Rightarrow n-1 = 127 \Rightarrow n = 128$$

∴ **There are 128 three-digit numbers divisible by 7.**

Board Exam Note: Always identify the AP clearly (first term, last term, common difference) before applying the formula.

Question 14

Medium

How many multiples of 4 lie between 10 and 250?

Step 1: First multiple of 4 greater than 10: 4 × 3 = 12.

Step 2: Last multiple of 4 less than 250: 4 × 62 = 248.

Step 3: AP: 12, 16, 20, …, 248 with a = 12, d = 4, a_n = 248.

$$248 = 12 + (n-1) × 4 \Rightarrow 236 = (n-1) × 4 \Rightarrow n-1 = 59 \Rightarrow n = 60$$

∴ **There are 60 multiples of 4 between 10 and 250.**

Board Exam Note: "Between" means strictly between — exclude 10 and 250 themselves. Start from 12, not 8.

Question 15

Medium

For what value of n, the nth terms of two APs: 63, 65, 67, … and 3, 10, 17, … are equal?

Step 1: For AP1: a = 63, d = 2. nth term: 63 + (n-1) × 2 = 61 + 2n

Step 2: For AP2: a = 3, d = 7. nth term: 3 + (n-1) × 7 = -4 + 7n

Step 3: Set them equal:

$$61 + 2n = -4 + 7n$$

$$65 = 5n \Rightarrow n = 13$$

∴ **The 13th terms of both APs are equal.**

Board Exam Note: Note that the question states 63, 65, 61 in some versions — the AP is 63, 65, 67,… (d = 2). Always verify d from the given terms.

Question 16

Medium

Determine the AP whose 3rd term is 16 and 7th term exceeds the 5th term by 12.

Step 1: From the second condition: $a_7 - a_5 = 12$

$$(a + 6d) - (a + 4d) = 12 \Rightarrow 2d = 12 \Rightarrow d = 6$$

Step 2: Use $a_3 = 16$:

$$a + 2d = 16 \Rightarrow a + 12 = 16 \Rightarrow a = 4$$

Step 3: The AP is: 4, 10, 16, 22, 28, …

∴ **The AP is 4, 10, 16, 22, 28, …**

Board Exam Note: Always write at least 4–5 terms of the AP in your final answer for full marks.

Question 17

Medium

Find the 20th term from the last term of the AP: 3, 8, 13, …, 253.

Key Concept: The 20th term from the last is the same as the (total − 19)th term from the start. Alternatively, reverse the AP.

Method — Reverse AP: When reversed, the AP becomes 253, 248, 243, … with a = 253, d = -5.

Step 1: Find the 20th term of the reversed AP:

$$a_{20} = 253 + (20-1)(-5) = 253 - 95 = 158$$

∴ **The 20th term from the last is 158.**

Board Exam Note: The reverse AP method is the cleanest approach. Alternatively, find total terms first, then subtract 19.

Question 18

Hard

The sum of the 4th and 8th terms of an AP is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of the AP.

Step 1: Write equations:

$$a_4 + a_8 = (a + 3d) + (a + 7d) = 2a + 10d = 24 \Rightarrow a + 5d = 12 \text{ ...(1)}$$
$$a_6 + a_{10} = (a + 5d) + (a + 9d) = 2a + 14d = 44 \Rightarrow a + 7d = 22 \text{ ...(2)}$$

Step 2: Subtract (1) from (2):

$$2d = 10 \Rightarrow d = 5$$

Step 3: Substitute into (1):

$$a + 25 = 12 \Rightarrow a = -13$$

Step 4: First three terms:

$$a_1 = -13,\backslash a_2 = -13 + 5 = -8,\backslash a_3 = -8 + 5 = -3$$

∴ **The first three terms are −13, −8, −3.**

Board Exam Note: This multi-step problem is common in long answer sections. Dividing the equation by 2 early (to get a + 5d) is the key simplification.

Question 19

Medium

Subba Rao started work in 1995 at an annual salary of ₹5000 and received an increment of ₹200 each year. In which year did his income reach ₹7000?

Step 1: This is an AP with a = 5000, d = 200, a_n = 7000.

Step 2: Solve for n:

$$7000 = 5000 + (n-1) \times 200$$
$$2000 = (n-1) \times 200$$
$$n - 1 = 10 \Rightarrow n = 11$$

Step 3: The 11th year from 1995 is 1995 + 10 = 2005.

∴ **Subba Rao's income reached ₹7000 in the year 2005.**

Board Exam Note: Real-life word problems like this appear regularly. Remember: the 11th term corresponds to year 1995 + 10 = 2005, not 1995 + 11.

Question 20

Medium

Ramkali saved ₹5 in the first week of a year and then increased her weekly saving by ₹1.75. If in the nth week, her weekly saving becomes ₹20.75, find n.

Step 1: AP with a = 5, d = 1.75, a_n = 20.75.

Step 2: Apply the formula:

$$20.75 = 5 + (n-1) \times 1.75$$

$$15.75 = (n-1) \times 1.75$$

$$n - 1 = (15.75)/(1.75) = 9 \Rightarrow n = 10$$

∴ **In the 10th week, Ramkali's saving becomes ₹20.75.**

Board Exam Note: Decimal AP problems are straightforward — just be careful with the division step. 15.75 ÷ 1.75 = 9 exactly.

Solved Examples Beyond NCERT — Arithmetic Progressions

These extra examples will strengthen your understanding of the nth term formula and help you tackle harder CBSE board questions.

Extra Example 1

Medium

The 5th term of an AP is 26 and the 10th term is 51. Find the AP.

Step 1: a + 4d = 26 ...(1) and a + 9d = 51 ...(2)

Step 2: Subtract: 5d = 25 ⇒ d = 5. Then a = 26 - 20 = 6.

AP: 6, 11, 16, 21, 26, …

Extra Example 2

Hard

How many two-digit numbers are divisible by 3?

Step 1: AP: 12, 15, 18, …, 99. a = 12, d = 3, a_n = 99.

$$99 = 12 + (n-1) \times 3 \Rightarrow 87 = 3(n-1) \Rightarrow n = 30$$

There are 30 two-digit numbers divisible by 3.

Extra Example 3

Medium

If the nth term of an AP is 4n - 3, find the first term and common difference.

Step 1: $a_1 = 4(1) - 3 = 1$ and $a_2 = 4(2) - 3 = 5$.

Step 2: $d = a_2 - a_1 = 5 - 1 = 4$.

First term = 1, Common difference = 4. AP: 1, 5, 9, 13, …

Important Questions for CBSE Board Exam — Class 10 Maths Chapter 5

These questions are frequently asked in CBSE board exams and are based on the **cbse class 10 maths ncert solutions** pattern. Practise them thoroughly for 2026-27.

1-Mark Questions

Q1. What is the nth term formula for an AP?
Answer: $a_n = a + (n-1)d$

Q2. Find the common difference of the AP: 5, 8, 11, 14, …
Answer: d = 3

Q3. Is 0 a term of the AP: 31, 28, 25, …?
Answer: Yes. 0 = 31 + (n-1)(-3) ⇒ n = 111/3. No — n is not an integer, so 0 is NOT a term.

3-Mark Questions

Q4. The 4th term of an AP is 11 and the 8th term is 23. Find the AP and its 15th term.
Answer: a + 3d = 11 and a + 7d = 23. Solving: d = 3, a = 2. AP: 2, 5, 8, 11, … a_{15} = 2 + 14 × 3 = 44.

Q5. How many natural numbers between 1 and 1000 are divisible by 5?
Answer: AP: 5, 10, 15, …, 1000. n = (1000-5)/(5) + 1 = 200. There are 200 such numbers.

5-Mark Questions

Q6. The sum of the 5th and 7th terms of an AP is 52 and the 10th term is 46. Find the AP.

Answer: $a_5 + a_7 = (a+4d) + (a+6d) = 2a + 10d = 52 \Rightarrow a + 5d = 26$ ...(1). $a_{10} = a + 9d = 46$ ...(2). Subtract (1) from (2): $4d = 20 \Rightarrow d = 5$. From (1): $a = 1$. AP: 1, 6, 11, 16, 21, …

Common Mistakes Students Make in Arithmetic Progressions

Mistake 1: Writing $a_n = a + nd$ instead of $a_n = a + (n-1)d$.

Why it's wrong: The formula starts counting from the first term, so the first step is n-1, not n.

Correct approach: Always use $a_n = a + (n-1)d$. Verify with n = 1: $a_1 = a$. ✅

Mistake 2: Confusing "between 10 and 250" with "from 10 to 250".

Why it's wrong: "Between" means strictly excluding 10 and 250 themselves.

Correct approach: Start from 12 (first multiple of 4 after 10) and end at 248 (last multiple before 250).

Mistake 3: Saying a value is NOT a term without checking if n is a positive integer.

Why it's wrong: n must be both a positive integer AND greater than zero.

Correct approach: Solve for n and check: is n a positive integer? If yes → it's a term. If no → it's not.

Mistake 4: In year-based problems (like Q19), adding n to the starting year instead of (n−1).

Why it's wrong: The 1st term corresponds to the starting year, so the nth term is (start year + n − 1).

Correct approach: If n = 11 and start = 1995, the year is 1995 + 11 - 1 = 2005.

Mistake 5: Not simplifying the equation before solving (e.g., not dividing 2a + 10d = 24 by 2).

Why it's wrong: It makes the arithmetic harder and increases the chance of errors.

Correct approach: Always simplify equations early — divide by common factors.

Exam Tips for 2026-27 — CBSE Class 10 Maths Chapter 5

Use these tips to maximise your marks in the 2026-27 CBSE board exam:

- **Always write the formula first:** The CBSE 2026-27 marking scheme awards 1 mark for writing $a_n = a + (n-1)d$ correctly before substituting values.
- **Show substitution clearly:** Write $a_n = a + (n-1)d$, then substitute — don't skip to the answer directly.

- **Label your equations:** In two-equation problems, write ...(1) and ...(2) and show the subtraction step. This earns method marks even if the final answer is wrong.
- **Verify your answer:** Substitute n back into the AP formula to confirm. This takes 10 seconds and prevents silly errors.
- **Word problems:** Identify a, d, and what you need to find before writing any equation. Write a one-line statement: "This is an AP with a = ___, d = ___".
- **Chapter weightage:** Arithmetic Progressions typically carries 5–6 marks in the Class 10 board exam. Exercise 5.2 questions (nth term) are more commonly tested than Exercise 5.3 (sum) in 2-mark slots.
- **Revision checklist:** ✅ nth term formula | ✅ Finding n | ✅ Checking if a value is a term | ✅ Two-equation problems | ✅ Real-life AP word problems

Frequently Asked Questions — Arithmetic Progressions Ex 5.2 (NCERT Solutions for Class 10 Maths)

How to find the nth term of an Arithmetic Progression in Class 10?

The nth term of an AP is found using the formula $a_n = a + (n-1)d$, where a is the first term, d is the common difference, and n is the position of the term. First identify a and d from the given AP, then substitute. This formula is the core of Exercise 5.2 in NCERT Class 10 Maths Chapter 5 and is tested every year in CBSE board exams.

Which term of the AP 3, 8, 13, 18 is 78?

For the AP 3, 8, 13, 18, …, a = 3 and d = 5. Setting $a_n = 78$: $78 = 3 + (n-1) \times 5$, so $75 = 5(n-1)$, giving n = 16. Therefore, 78 is the **16th term** of this AP. This is Question 4 of NCERT Exercise 5.2.

How many three-digit numbers are divisible by 7?

The three-digit numbers divisible by 7 form an AP: 105, 112, …, 994. With a = 105, d = 7, and $a_n = 994$, solving gives n = 128. So there are **128** three-digit numbers divisible by 7. This is Question 13 of NCERT Class 10 Maths Chapter 5 Exercise 5.2.

Is NCERT Exercise 5.2 Class 10 Maths important for the 2026-27 CBSE board exam?

Yes, Exercise 5.2 is very important for the 2026-27 CBSE Class 10 board exam. The nth term formula $a_n = a + (n-1)d$ is tested almost every year. Questions on finding a specific term, counting terms in an AP, and real-life word problems (like salary increments and savings) regularly appear in 2-mark and 3-mark sections of the paper.

How do I check if a given number is a term of an AP?

To check if a number k is a term of an AP, set $a_n = k$ and solve for n using $n = (k - a)/(d) + 1$. If n is a positive integer, then k is a term of the AP. If n is negative, zero, or a fraction, then k is not a term. For example, in Q6, −150 gives $n = 54.\overline{3}$, which is not an integer, so −150 is not a term.

Where can I download the NCERT Class 10 Maths Chapter 5 Exercise 5.2 PDF?

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