CBSE CLASS 10 MATHS · CHAPTER 5 · 2026-27

Arithmetic Progressions Class 10 Important Questions

10 questions · 27 marks · no calculator · step-marked answers

Name _____ Date _____ Score / 27

- Original questions in the board paper's question types, from 1-mark MCQs to a case study. Try every question before you look at the answers.
- No calculator: as in the CBSE board exam, everything works by hand.
- Worked answers with step marks for 5 questions start after the questions. The other 5 open free on the chapter page with a free account (no card): the link is next to each one.
- Online, with more practice: cbsemathrevision.com/class-10/arithmetic-progressions

Section A · Multiple choice and assertion–reason (1 mark each)

1. **1 mark · nth term of an AP**

The 15th term of the AP $7, 11, 15, \ldots$ is

(a) 59 (b) 67

(c) 63 (d) 60

2. **1 mark · Sum of first n terms of an AP**

The sum $1 + 3 + 5 + \ldots + 49$ equals

(a) 576 (b) 625

(c) 600 (d) 650

3. **1 mark · Arithmetic progressions and common difference**

In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

Assertion (A): $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}, \ldots$ is an arithmetic progression.

Reason (R): Every term of an arithmetic progression must be a rational number.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

Section B · Short answer (2 marks each)

4. **2 marks · nth term of an AP**

Which term of the AP $5, 11, 17, \ldots$ is 185?

5. **2 marks · Sum of first n terms of an AP**

The nth term of an AP is $a_n = 3n + 2$. Find the sum of its first 25 terms.

Section C · Short answer (3 marks each)

6. **3 marks · nth term of an AP**

In an AP, $a_3 = 11$ and $a_{10} = 39$. Find a, d and a_{18}.

7. **3 marks · Sum of first n terms of an AP**

How many three-digit numbers are divisible by 6? Find their sum.

Section D · Long answer (5 marks each)

8. **5 marks · Sum of first n terms of an AP**

The sum of the first n terms of an AP is $S_n = 3n^2 + 5n$. Find (a) the first term, (b) the common difference, (c) the 16th term, and (d) which term of the AP is 152.

9. **5 marks · Situational problems**

Riya saves ₹200 in the first week of the year and then ₹50 more each week than the week before. (a) In which week does she save ₹1000? (b) How much does she save in the 20th week? (c) How much has she saved in all after 20 weeks?

Section E · Case study (4 marks)

10. **4 marks · Situational problems**

Tree-planting drive. In a tree-planting drive, a volunteer group plants 20 saplings on the first day and then 4 more each day than on the day before, for 25 days.

i. How many saplings are planted on day 10? *[1 mark]*

ii. On which day are 100 saplings planted? *[1 mark]*

iii. How many saplings are planted in the whole drive? *[2 marks]*

Answers and worked solutions

Question 1

1 mark

$a = 7$, $d = 4$: $a_{15} = 7 + 14 \times 4 = 63$ **A1**

Correct option: (c) 63

Question 2

1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/arithmetic-progressions#iq-2

Question 3

1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/arithmetic-progressions#iq-3

Question 4

2 marks

Answer: the 31st term

$a = 5$, $d = 6$: $5 + (n-1)6 = 185$ **M1**

$(n-1)6 = 180 \Rightarrow n = 31$: the 31st term **A1**

Question 5

2 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/arithmetic-progressions#iq-5

Question 6

3 marks

Answer: $a = 3$, $d = 4$, $a_{18} = 71$

$a + 2d = 11$ and $a + 9d = 39$; subtracting, $7d = 28 \Rightarrow d = 4$ **M1**

$a = 11 - 8 = 3$ **A1**

$a_{18} = 3 + 17 \times 4 = 71$ **A1**

Question 7

3 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/arithmetic-progressions#iq-7

Question 8

5 marks

Answer: 8; 6; 98; the 25th term

(a) $a_1 = S_1 = 3 + 5 = 8$ **A1**

(b) $S_2 = 12 + 10 = 22$, so $a_2 = 22 - 8 = 14$ and $d = 6$ **A1**

$a_n = S_n - S_{n-1} = 6n + 2$ **M1**

(c) $a_{16} = 6(16) + 2 = 98$ **A1**

(d) $6n + 2 = 152 \Rightarrow n = 25$: the 25th term **A1**

Question 9

5 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/arithmetic-progressions#iq-9

Question 10

4 marks

i. $a_{10} = 20 + 9 \times 4 = 56$ **A1**

ii. $20 + (n-1)4 = 100 \Rightarrow n = 21$: day 21 **A1**

iii. Day 25: $a_{25} = 20 + 24 \times 4 = 116$ **M1**

$S_{25} = \frac{25}{2}(20 + 116) = 25 \times 68 = 1700$ saplings **A1**

More on this chapter, free: revision notes, a Route to 95 and practice with instant feedback at cbsemathrevision.com/class-10/arithmetic-progressions

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