CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-X

Subject: MATHEMATICS

Chapter Name : Arithmetic Progression (Chap : 5)

Total : 6 Marks (expected)

SA-I(1)-2 Mark, CBQ(1)-4]

Level - 1

SA-I Type :

1. In S_n, the sum of the first n terms of an AP is given by $S_n = 2n^2 + n$, then find its n^{th} term.

Hints : Use $t_n = S_n - S_{n-1}$

2. If the 17th term of an AP exceeds its 10th term by 7, find the common difference.

Hints : $a_{17} = a_{10} + 7$

3. Which term of the arithmetic progression 3, 15, 27, 39 ... will be 120 more than its 21st term?

Hints : $a_n = 120 + a_{21}$

4. How many terms of the AP : 9, 17, 25, ... must be taken to give a sum of 636?

Hints : Use sum formula.

5. The first term of an AP is 5, the last term is 45 and the sum is 400. Find the number of terms and the common difference.

Hints : Use sum formula and n-th term formula.

6. Which term of the progression $20, \ 19\frac{1}{4}, 18\frac{1}{2}, 17\frac{3}{4}$ ... is the first negative terms?

Hints : Use $a_n < 0$.

7. The ratio of the sum of first n terms of two different AP's is (7n + 1) : (4n+ 27), find the ratio of their mth terms.

Hints : Replace n by 2m – 1.

CBQ Type :

8. Aditya is a fitness freak and great athlete. He always wants to make his nation proud by winning medals and prizes in the athletic activities.

An upcoming activity for athletes was going to be organised by Railways. Aditya wants to participate in 200 m race. He can currently run that distance in 51 seconds. But he wants to increase his speed, so to do it in 31 secondes. With each day of practice, it takes him 2 seconds less.

(i) He wants to makes his best time as 31 sec. In how many days will be able to achieve his target? (2)

(ii) What will be the difference between the time taken on 5th day and 7th day? (2)

OR

(ii) Which term of the arithmetic progression 3, 15, 27, 39 .... will be 120 more than its 21st term?

9. In the month of April to June 2022, the exports of passenger cars from India increased by 26% in the corresponding quarter of 2021–22, as per a report. A car manufacturing company planned to produce 1800 cars in 4th year and 2600 cars in 8th year. Assuming that the production increases uniformly by a fixed number every year.

Based on the above information answer the following questions.

(i) Find the production in the 1st year. (1)

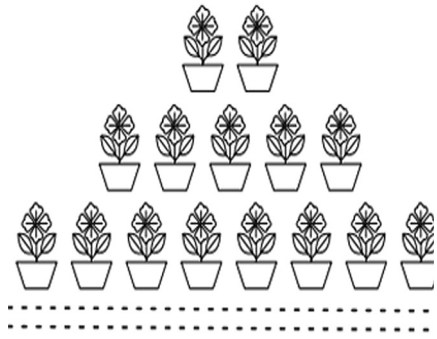
(ii) Find the production in the 12th year. (1)

(iii) Find the total production in first 10 years. (2)

OR

(iii) In how many years will the total production reach 31200 cars? (2)

10. Aahana being a plant lover decides to convert her balcony into beautiful garden full of plants. She bought few plants with pots for her balcony. She placed the pots in such a way that number of pots in the first row is 2, second row is 5, third row is 8 and so on.



Based on the above information, solve the following questions.

(i) Find the number of pots placed in the 10th row. (1)

(ii) Find the difference in the number of pots placed in 5th row and 2nd row. (1)

(iii) If Aahana wants to place 100 pots in total, then find the total number of rows formed in the arrangement.

OR

(iii) If Aahana has sufficient space for 12 rows, then how many total number of pots are placed by her with the same arrangement?

ANSWER

1. 4n–1
2. 1
3. 31
4. 12
5. 16, $\frac{8}{3}$
6. 28
7. (14m – 6) : (8m + 3)
8. (i) 11, (ii) 4 sec (ii) or 31st term
9. (i) 1200, (ii) 3400, (iii) 21000, (iii) OR n = 13.
10. (i) 29, (ii) 9, (iii) 8, (iii) OR 222.