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**Class: X Mathematics**

**Answer the following :**

**1.** Find the 9th term from the end (towards the first term) of the A.P 5, 9, 13,...185.

2. For what value of k will k+9, 2k – 1 and 2k + 7 are the consecutive terms of an A.P?

3. For what value of k will the consecutive terms 2k +1, 3k + 3 and 5k -1 form an A.P?

4. How many terms of the A.P 18, 16, 14, ... be taken so that their sum is zero?

5. How many terms of the A.P 27, 24, 21,... should be taken so that their sum is zero?

6. How many terms of the A.P 65, 60, 55,... be taken so that their sum is zero?

7. The 4th term of an A.P is zero. Prove that the 25th term of the A.P is three times its 11th term.

8. If the ratio of sum of the first m and n terms of an A.P is :, show that the ratio of its mth and nth terms is (2m -1 ): (2n -1).

9. The sum of first 7 terms of an A.P is 49 and that of its first 17 terms is 289, find the sum of first n terms of the A.P.

10. If the ratio of the sum of first n terms of two A.P’s is

(7n+1) :( 4n+27), find the ratio of their m-th terms.

11. The digits of a positive number of three digits are in A.P. and their sum is 15. The number obtained by reversing the digits is 594 less than the original number. Find the number.

12. The sum of first n terms of three arithmetic progressions are respectively. The first term of an A.P is 1 and their common differences are 1, 2, and 3 respectively. Prove that .

13. Divide 56 in four parts in an A.P such that the ratio of the product of their extremes to the product of means is 5:6.

14. Find the 25th term of the A.P 

15. A thief runs with a uniform speed of 100 m / minute. After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m / min in the first minute and increases his speed by 10 m/ min every succeeding minute. After how many minutes the policeman will catch the thief?

16. A thief, after committing a theft, runs at a uniform speed of 50m/min. After 2 minutes, a policeman runs to catch him. He goes 60 m in first minute and increases his speed by 5 m/min every succeeding minute. After how many the policeman will catch the thief?

17. The sum of three numbers in A.P is 12 and sum of their cubes is 288. Find the numbers.

18. The houses in a row are numbered consecutively from 1 to 49. Show that there exist a value X such that sum of numbers of houses preceding the house numbered X is equal to the sum of the numbers of houses following X.

19. Reshma wanted to save at least Rs.6500 for sending her daughter to school next year. She saved Rs. 450 in the first month and raised her savings by Rs.20 every next month. How much will she be able to save in next 12 months? Will she be able to send her daughter to the school next year?