

SNS ACADEMY

Arithmetic Progression

10th Standard

Maths

Date : 02-Feb-23

Exam Time : 00:02:00 Hrs

Reg.No. :

Total Marks : 60

15 x 4 = 60

- 1) Reshma wanted to save at least Rs 6,500 for sending her daughter to school next year (after 12 months). 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? What value is reflected in this questions?
- 2) If S_n denotes the sum of first n terms of an A.P., prove that, $S_{30} = 3(S_{20} - S_{10})$
- 3) A thief runs with a uniform speed of 10 m/minute. After one minute a policeman runs after, the thief to catch him. He goes with a speed of 100 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will catch the thief.
- 4) The minimum age of children to be eligible to participate in a painting competition is 8 years. It is observed that the age of youngest boy was 8 years and the ages of rest of participants are having a common difference of 4 months. If the sum of ages of all the participants is 168 years, find the age of eldest participant in the painting competition.
- 5) The sum of first 20 terms of an A.P. is 400 and sum of first 40 terms is 1600. Find the sum of its first 10 terms.
- 6) An arithmetic progression 5, 12, 19, has 50 terms. Find its last term. Hence find the sum of its last 15 terms.
- 7) The sum of the 3rd and 7th terms of an A.P. is 6 and their product is 8. Find the sum of first 20 terms of the A.P.
- 8) Find the middle terms of the sequence formed by all numbers 9 and 95, which leave a remainder 1 when divided by 3. Also find the sum of the numbers on both sides of the middle term separately.
- 9) If the sum of first n terms of an A.P. is given by $S_n = 3n^2 + 4n$. Determine the A.P. and the n^{th} term.
- 10) A sum of Rs 280 is to be used towards four prizes. If each prize after the first is Rs 20 less than its preceding prize, find the value of each of the prizes.
- 11) In a garden bed, there are 23 rose plants in the first row, 21 are in the 2nd, 19 in 3rd row and so on. There are 5 plants in the last row. How many rows are there of rose plants? Also find the total number of rose plants in the garden.
- 12) If the sum of first m terms of an A.P. is same as the sum of its first n terms ($m \neq n$), show that the sum of its first $(m + n)$ terms is zero.
- 13) A sum of Rs 1890 is to be used to give seven cash prizes to students of a school for their overall academic performance. If each prize is Rs 50 less than its preceding prize, find the value of each of the prizes.
- 14) In an A.P. of 50 terms, the sum of first 10 terms is 210 and sum of its last 15 terms is 2565. Find the A.P.
- 15) A student of class X gets pocket money from his mother everyday. Out of the pocket money, she saves money for poor people in her locality. On 1st day she saves Rs. 36. On each succeeding day she increases her saving by Rs. 4.5.
 - (i) Which mathematical concept and formula is being used here for solving this question.
 - (ii) Find the amount saved by student 22th day.
