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Revision Worksheet

Class Xth Session: 2021-2022

Chapter: Arithmetic Progression

- Find the 9th term from the end (towards the first term) of the A.P 5, 9, 13,185.
- For what value of k will $k + 9$, $2k - 1$ and $2k + 7$ be the consecutive terms of an A.P
- For what value of k will the consecutive terms $2k + 1$, $3k + 3$ and $5k - 1$ form an A.P
- How many terms of the A.P 18, 16, 14,..... be taken so that their sum is zero?
- How many terms of the A.P 27, 24, 21,.... Should be taken so that their sum is zero?
- How many terms of the A.P 65, 60, 55,.... Should be taken so that their sum is zero?
- The 4th term of an A.P is zero. Prove that the 25th term of the A.P is three times its 11th term.
- If the ratio of sum of the first m and n terms of an A.P is $m^2:n^2$, show that the ratio of its mth and nth terms is $(2m - 1) : (2n - 1)$
- If 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 an A.P
- If the ratio of the sum of first n terms of two A.P's is $(7n + 1) : (4n + 27)$, find the ratio of its mth terms.
- 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.
- The sum of first n terms of three arithmetic progression are S_1 , S_2 and S_3 respectively. The first term of each A.P is 1 and their common differences are 1, 2 and 3 respectively. Prove that $S_2 + S_3 = 2S_1$
- Divide 56 in four parts in A.P such that the ratio of the product of their extremes (1st and 4th) to the product of means (2nd and 3rd) is 5 : 6
- The pth, qth and rth terms of an A.P are a, b and c respectively. Show that $a(q - r) + b(r - p) + c(p - q) = 0$
- The sum of first n terms of three arithmetic progression are S_1 , S_2 and S_3 respectively. The first term of each A.P is 5 and their common differences are 2, 4 and 6 respectively. Prove that $S_2 + S_3 = 2S_1$
- 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/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will the thief.
- A thief, after committing a theft, runs at a uniform speed of 50 m/minute. After 2 minutes, a policeman runs to catch him. He goes 60 m in the first minute and increases his speed by 5m/minute every succeeding minute. After how many minutes, the policeman will catch the thief?
- The sum of three numbers in A.P is 12 and sum of their cubes is 288. Find the numbers.
- The houses in a row are numbered consecutively from 1 to 49. Show that there exists a value of X such that sum of number of houses preceding the house numbered X is equal to sum of the number of houses following X
- Reshma wanted to save at least Rs.6500 for sending her daughter to 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 next school next year?
- Find the 25th term of the A.P -5, -5/2, 0, 5/2,.....
- Find the middle term of the A.P 6, 13, 20,....., 216.
- Find the middle term of the A.P 213, 205, 197,....., 37
- In an A.P, if $S_5 + S_7 = 167$ and $S_{10} = 235$, then find the A.P, where S_n denotes the sum of first n terms.
- The fourth term of an A.P is 11. The sum of the fifth and seventh terms of the A.P is 34. Find its common difference.
- The fifth term of an A.P is 20 and the sum of its seventh and eleventh terms is 64. Find the common difference of the A.P
- The ninth term of an A.P -32 and the sum of eleventh and thirteenth terms is -94. Find the common difference of the A.P
- Is S_n denotes the sum of first n terms of an A.P. prove that $S_{12} = 3(S_8 - S_4)$
- The 14th term of an A.P is twice its 8th term. If its 6th term is -8, then find the sum of its first 20 terms.
- The 16th term of an A.P is five times its third term. If its 10th term is 41, then find the sum of its first fifteen terms
- The 13th term of an A.P is four times its 3rd term. If its fifth term is 16, then find the sum of its first ten terms
- In an A.P, if the 12th is -13 and the sum of its four terms is 24, find the sum of its first ten terms
- Ramkali required to save Rs. 2500 after 12 weeks to send her daughter to school. She saves Rs. 100 in the first week and increased her weekly savings by Rs.20 every week. Find whether she will be able to send her daughter to school after 12 weeks or not.
- Find the 60th term of the A.P 8, 10, 12 ..., if it has a total of 60 terms and hence find the sum of its last 10 terms
- An arithmetic progression 5, 12, 19,... has 50 terms. Find its last term. Hence find the sum of its last 15 terms.
- Find the middle term of the sequence formed by all three-digit numbers which leave a remainder 3, when divided by 4. Also find the sum of all numbers on both sides of the middle term separately.
- Find the middle term of the sequence formed by all the numbers between 9 and 95, which leave a remainder 1, when divided by 43. Also find the sum of all numbers on both sides of the middle term separately.
- Find the middle term of the sequence formed by all three-digit numbers which leave a remainder 5, when divided by 7. Also find the sum of all numbers on both sides of the middle term separately.
- The first and the last term of an A.P are 8 and 65 respectively. If sum of all its terms is 730, find its common difference.
- The first and the last term of an A.P are 7 and 49 respectively. If sum of all its terms is 420, find its common difference.
- The first and the last term of an A.P are 5 and 45 respectively. If sum of all its terms is 400, find its common difference.
- Find the number of natural numbers between 101 and 999 which are divisible by both 2 and 5
- The sum of the first n terms of an A.P is $3n^2 + 6n$. find the nth term of this A.P
- The sum of the first n terms of an A.P is $4n^2 + 2n$. find the nth term of this A.P

45. The sum of the 2nd and the 7th terms of an A.P is 30. If its 15th term is 1 less than twice its 8th term, find the A.P
46. The sum of the seven terms of an A.P is 182. If its 4th and the 17th terms are in the ratio 1:5, find the A.P
47. The sum of the 5th and the 9th terms of an A.P is 30. If its 25th term is three times 8th term, find the A.P
48. The sum of the first 7 terms of an A.P is 63 and the sum of its next 7 terms is 161. Find the 28th term of this AP
49. In an AP of 50 terms, the sum of first 10 terms is 210 and the sum of its last 15 terms is 2565. Find the AP
50. In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in the school and each class has two sections, find how many trees were planted by the students.
51. If S_n denotes the sum of the first n terms of an AP, prove that $S_{30} = 3(S_{20} - S_{10})$
52. How many three-digit natural numbers are divisible by 7?
53. Find the number of all three-digit natural numbers which are divisible by 9
54. Find the number of three – digit natural numbers which are divisible by 11
55. Find the number of terms of the AP: $18, 15\frac{1}{2}, 13, \dots, -49\frac{1}{2}$, and find the sum of all its terms.
56. The nth term of an AP is given by $(-4n + 15)$. Find the sum of first 20 terms of this AP
57. The sum of first n-terms of an AP is $3n^2 + 4n$. find the 25th term of this AP
58. The 8th term of an AP is equal to three times its 3rd term. If its 6th term is 22, find the AP
59. The ninth term of an AP is equal to 6 times its 2nd term. If its 5th term is 22, find the AP
60. The 19th term of an AP is equal to three times its 6th term. If its 9th term is 19, find the AP
61. The 18th term of an AP is 30 more than its 8th term. If the 15th term of the AP is 48, find the AP.
62. The 5th term of an AP exceeds its 12th term by 14. If its 7th term is 4, find the AP
63. Find the number of terms of the AP -12, -9, -6, ..., 21. If 1 is added to each term this AP, then find the sum of all terms of the AP thus obtained.
64. The 24th term of an AP is twice its tenth term. Show that its 72th term is 4 times its 15th term.
65. If the sum of first m terms of an AP is $4m^2 - m$. find its nth term. Also, find the 21st term of this AP
66. The sum of first q terms of an AP is $63q - 3q^2$. If its pth term is -60, find the value of p. also find the 11th term of this AP
67. Find the sum of all three- digit natural numbers, which are multiples of 11
68. Find the sum of all three -digit natural numbers, which are multiples of 9
69. Find the sum of all three -digit natural numbers, which are multiples of 7
70. How many three -digit numbers are divisible by 11?
71. How many three -digit numbers are divisible by 12?
72. In an AP, the first term is 12 and the common difference is 6. If the last term of the AP is 252, find its middle term.
73. In an AP, the first term is 8 and the common difference is 7. If the last term of the AP is 218, find its middle term.
74. In an AP, the first term is 5 and the common difference is 2. If the last term of the AP is 53, find its middle term.
75. The 15th term of an AP is 3 more than twice its 7th term. If the 10th term of the AP is 41, then find its nth term.
76. The 17th term of an AP is 5 more than twice its 8th term. If the 11th term of the AP is 43, then find its nth term.
77. The 16th term of an AP is 1 more than twice its 8th term. If the 12th term of the AP is 47, then find its nth term.
78. Find the sum of all multiples of 7 lying between 500 and 900.
79. Find the sum of all multiples of 8 lying between 201 and 950.
80. Find the sum of all multiples of 9 lying between 400 and 800.
81. Find the sum of first 40 positive integers divisible by 6.
82. If 4 times the fourth term of an AP is equal to 18 times its 18th term, then find its 22nd term
83. The sum of the first 15 terms of an AP is 750 and its first term is 15. Find its 20th term.
84. Sum of the first 20 terms of an AP is -240, and its first term is 7. Find its 24th term.
85. Sum of the first 14 terms of an AP is 1505 and its first term is 10. Find its 25th term.
86. Find the common difference of an AP whose first term is 5 and the sum of its four terms is half the sum of the next four terms.
87. If the sum of the first 7 terms of an AP is 119 and that of the first 17 terms is 714, find the the sum of its n terms.
88. A sum of Rs. 1600 is to be used to give ten cash prizes to students of a school for their over all academic performance. If each prize is Rs. 20 less than its preceding prize, find the value of each of the prizes.
89. The sum of 4th and 8th terms of an AP is 24 and the sum of its 6th and 10th terms is 44. Find the sum of first ten terms of the AP
90. The sum of first five terms of an AP is 25 and the sum of its next five terms is -75. Find the tenth term of the AP.
91. The sum of the third and the seventh terms of an AP is 40 and the sum of its sixth and the 14th terms is 70. Find the sum of the first ten terms of the AP
92. Is -150 a term of the AP 17, 12, 7, 2,?
93. Find the number of two-digit numbers which are divisible by 6
94. Which term of the AP 3, 14, 25, 36,..... will be 99 more than its 25th term.
95. How many natural numbers are there between 200 and 500, which are divisible by 7?
96. How many two-digit numbers are divisible by 7?
97. Find the value of the middle term of the following AP: -6, 12, 2, ..., 58
98. Determine the AP whose fourth term is 18 and difference of the ninth term from the fifteenth term is 30.
99. Find an AP, whose fourth term is 9 and the sum of its sixth term and thirteenth term is 40.
100. Find the sum of first n terms of an AP whose nth term is $5n - 1$, hence find the sum of first 20 terms.
101. Find the sum of all odd integers between 1 and 100, which are divisible by 3.
102. If the sum of first 4 terms of an AP is 40 and that of first 14 terms is 280, find the sum of its n terms.
103. Find the sum of the first 30 positive integers divisible by 6

- 104.** The first and last terms of an AP are 8 and 350 respectively. If its common difference is 9, how many terms are there and what is their sum?
- 105.** How many multiples of 4 lie between 10 and 250? Also find their sum
- 106.** In an AP, if the 6th and 13th terms are 35 and 70 respectively, find the sum of its first 20 terms.
- 107.** In an AP, if the sum of its 4th and 10th terms is 40, and the sum of its 8th and 16th terms is 70, then find the sum of its first 20 terms.
- 108.** In an AP, if the sum of 4th and 8th terms is 70 and its 15th term is 80, then find the sum its first 25 terms.
- 109.** If the sum of first p terms of an AP is $ap^2 + bp$, find its common difference
- 110.** If the sum of the first q terms of an AP is $2q + 3q^2$, what is its common difference?
- 111.** If the sum of first m terms of an AP is $2m^2 + 3m$, then what is its second term?
- 112.** In an AP, the first term is -4, the last term is 29 and the sum of all its terms is 150. Find its common difference
- 113.** In an AP, the first term is 2, the last term is 29 and sum of n terms is 155. Find the common difference of the AP
- 114.** Find the common difference of an AP whose first term is 4, the last term is 49 and the sum of all its terms is 265.
- 115.** In an AP, the sum of first ten terms is -150 and the sum of its next ten terms is -550. Find the AP
- 116.** In an AP, the sum of first ten terms is -80 and the sum of its next ten terms is -280. Find the AP
- 117.** The sum of the first sixteen terms of an AP is 112 and the sum of its next fourteen terms is 518. Find the AP.