CBSE

ARITHMETIC PROGRESSION WS 2

Class 10 - Mathematics

1. Is the given sequence: $\sqrt{3}, \sqrt{6}, \sqrt{9}, \sqrt{12}, \ldots$ form an AP? If it forms an AP, then find the common difference d and write the next three terms. **[2]**
2. Does this $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}$ ... form an AP? Justify your answer. **[2]**
3. Are the given numbers form an AP? If they form an AP, write the next two terms: 4, 10, 16, 22, ... **[2]**
4. Verify a, 2a + 1, 3a + 2, 4a + 3,...forms an A.P, and then write its next three terms. **[2]**
5. Find the common difference of the A.P. and write the next two terms: 1.8, 2.0, 2.2, 2.4,... **[2]**
6. Write first four terms of the AP, when the first term a = 4 and the common difference d = -3 **[2]**
7. Is 10, $10 + 2^5$, $10 + 2^6$, $10 + 2^7$,... an arithmetic progression. If yes, find out the common difference. **[2]**
8. If the nth term of a progression be a linear expression in n then prove that this progression is an AP. **[2]**
9. Find the first term, common difference and next term of the given series: **[2]**
   $\sqrt{20}, \sqrt{45}, \sqrt{80}, \sqrt{125}, \ldots$
10. Is a + b, (a + 1) + b, (a + 1) + (b + 1), (a + 2) + (b + 1), (a + 2) + (b + 2) an arithmetic progression. If yes, find out the common difference. **[2]**
11. Is the given series $2, \frac{5}{2}, 3, \frac{7}{2}, \ldots$ form an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**
12. Find the common difference of an A.P. whose n^{th} term is given by $a_n = 6n - 5$ **[2]**
13. Are the given numbers form an AP? If they form an AP, write the next two terms: 1, 1, 1, 2, 2, 2, 3, 3, 3, ... **[2]**
14. Write the first three terms of the AP when a and d are a = $\sqrt{2}$, d = $\frac{1}{\sqrt{2}}$ **[2]**
15. Find the first term, common difference and next term of the given series: **[2]**
    9,15,21,27,...
16. What is the next term of an A.P. $\sqrt{18}$, $\sqrt{50}$, $\sqrt{98}$...? **[2]**
17. Is the given sequence a, 2a, 3a, 4a,...forms an AP? If it forms an AP, then find the common difference d and write the next three terms. **[2]**
18. Is the given series: 0, -4, -8, -12, ...forms an AP? If it forms an AP, then find the common difference d and write three more terms. **[2]**
19. Is 12, 2 , - 8 , -18 ,... an arithmetic progression. If yes, find out the common difference. **[2]**
20. Is 0, -4, -8, -12,...an arithmetic progression. If yes, find out the common difference. **[2]**
21. In a given situation, the sequence formed will form an A.P.? **[2]**
    The amount of money in the account every year when ₹100 are deposited annually to accumulate at compound interest of 4% per annum.
22. Is the given series $3, 3 + \sqrt{2}, 3 + 2\sqrt{2}, 3 + 3\sqrt{2}$,..... form an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**
23. Is the given series 2, 4, 8, 16, ... form an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**
24. Is the given series $-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \ldots$ forms an AP? If It forms an AP, then find the common difference d **[2]**

and write the next three terms.

25. Is the given series $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}, \ldots$ forms an AP? If it forms an AP, then find the common difference d and write the next three terms. **[2]**

26. In an AP, if $a_2 = 26$ and $a_{15} = -26$, then write the AP. **[2]**

27. Write the first term and the common difference. -5, -1, 3, 7..... **[2]**

28. Is $\sqrt{3}, \sqrt{6}, \sqrt{9}. \ldots .$ form an AP? **[2]**

29. Is 1.0, 1.7, 2.4, 3.1,... an arithmetic progression. If yes, find out the common difference. **[2]**

30. If the numbers x + 3, 2x + 1 and x - 7 are in A.P., find the value of x. **[2]**

31. Is the given series 1, 3, 9, 27, ... forms an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**

32. If a, b, c,d,e and f are in AP with common difference 3, then find e - c . **[2]**

33. Determine k so that $k^2 + 4k + 8$, $2k^2 + 3k + 6$, $3k^2 + 4k + 4$ are three consecutive terms of an A.P. **[2]**

34. Is p, p + 90, p + 180, p + 270,... where $p = (999)^{999}$ an arithmetic progression. If yes, find out the common difference. **[2]**

35. Verify $0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \ldots$ the AP, and then write its next three terms. **[2]**

36. Verify a + b, (a + 1) + b, (a + 1) + (b + 1), ... is an AP, and then write its next three terms. **[2]**

37. Find out the value of k such that $\frac{2}{3}$, k, $\frac{5}{8}$ are the three consecutive terms of an AP. **[2]**

38. Write first four terms of the AP, when the first term a = -1.25 and the common difference, d = –0.25 **[2]**

39. Write the first four terms of the AP, when the first term a = -2 and the common difference d = 0 **[2]**

40. Is 1^2, 5^2, 7^2, 73 ,.... an arithmetic progression. If yes, find out the common difference. **[2]**

41. Verify $5, \frac{14}{3}, \frac{13}{3}, 4, \ldots$ the AP, and then write its next three terms. **[2]**

42. The n^{th} term of a sequence is given by $a_n = \frac{n(n+1)(2n+1)}{6}$. Write the first three terms of the sequence. Does this sequence from an A.P.? Justify your answer. **[2]**

43. Does this 2, 2^2, 2^3, 2^4, ... form an AP? Justify your answer. **[2]**

44. Is -225, -425, -625, -825,... an arithmetic progression. If yes, find out the common difference. **[2]**

45. Write the next two terms of the A.P.: $\sqrt{5}, \sqrt{20}, \sqrt{45}, \ldots$ **[2]**

46. Are the given numbers form an AP? If they form an AP, write the next two terms: -2, 2, -2, 2, -2, ... **[2]**

47. Write an A.P. having 4 as the first term and -3 as the common difference. **[2]**

48. Find the common difference and write the next four terms of the A.P. 1, - 2, - 5, - 8,... **[2]**

49. Is the given sequence a_1, a_2, a_3, a_4,... forms an AP? If it forms an AP, then find the common difference d and write the next three terms. **[2]**

50. Is the given sequence 1^2, 5^2, 7^2, 73, ... forms an AP? If it forms an AP, then find the common difference d and write the next three terms. **[2]**

51. Write the A.P. when first term a = -1, and common difference $d = \frac{1}{2}$. **[2]**

52. Write the first three terms of the AP when a and d are a = –5, d = –3 **[2]**

53. Find the value of x for which (8x + 4), (6x - 2) and (2x + 7) are in A.P. **[2]**

54. Write the first three terms of the APs where a and d are $a = \frac{1}{2}$, $d = -\frac{1}{6}$ **[2]**

55. Is $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \ldots$ an arithmetic progression. If yes, find out the common difference. **[2]**

56. Is 3, 3, 3, 3, ... an arithmetic progression. If yes, find out the common difference. **[2]**

57. Is 0 a term of the AP 31, 28, 25, …? Justify your answer. **[2]**

58. Are the given numbers form an AP? If they form an AP, write the next two terms: 1, -1, -3, -5, ... **[2]**

59. Is the given series -1.2, -3.2, -5.2, -7.2, ... form an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**

60. For the AP 3, 1, -1, -3,...., write the first term and the common difference. **[2]**

61. Write first four terms of the AP, when the first term a = 10 and the common difference d = 10. **[2]**

62. In a given situation, the sequence formed will form an A.P.? **[2]**

Number of students left in the school auditorium from the total strength of 1000 students when they leave the auditorium in batches of 25.

63. If $\frac{1}{x+2}, \frac{1}{x+3}$ and $\frac{1}{x+5}$ are in A.P., find the value of x, **[2]**

64. Verify the A.P $\sqrt{3}, 2\sqrt{3}, 3\sqrt{3}, \ldots$, and then write its next three terms. **[2]**

65. Find a and b so that the numbers a, 7, b, 23 are in A.P. **[2]**

66. Is the given series -10, -6, -2, 2, ... form an AP? If It forms an AP, then find the common difference d and write the next three terms. **[2]**

67. The amount of money in the account of Varun at the end of every year when Rs 1000 is deposited at simple interest of 10% per annum. Do the lists of numbers involved form an AP? Give reasons for your answer. **[2]**

68. Find the common difference and write the next four terms of the A.P. 0, -3, -6, -9,..... **[2]**