EduSahara™ Assignment

Name : Arithmetic Progression

Chapter : Progressions

Grade : SSC Grade X

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1. The first term of the A.P. $5, 11, 17, 23, 29, \ldots =$

   (i) 29 (ii) 11 (iii) 17 (iv) 23 (v) 5

2. The first term of the A.P. $\frac{2}{3}, \frac{19}{24}, \frac{11}{12}, \frac{25}{24}, \frac{7}{6}, \ldots =$

   (i) $\frac{25}{24}$ (ii) $\frac{7}{6}$ (iii) $\frac{19}{24}$ (iv) $\frac{2}{3}$ (v) $\frac{11}{12}$

3. The common difference of the A.P. $8, 13, 18, \ldots =$

   (i) 5 (ii) 4 (iii) 3 (iv) 8 (v) 6

4. The common difference of the A.P. $\frac{1}{2}, \frac{11}{18}, \frac{13}{18}, \ldots =$

   (i) $(\frac{-1}{9})$ (ii) $\frac{1}{11}$ (iii) $\frac{1}{7}$ (iv) $\frac{1}{9}$ (v) $\frac{1}{3}$

5. Find t_{15} of the A.P. $4, 11, 18, \ldots =$

   (i) 102 (ii) 103 (iii) 101 (iv) 99 (v) 105

6. Find t_7 of the A.P. $\frac{8}{3}, \frac{35}{12}, \frac{19}{6}, \ldots =$

   (i) $\frac{25}{6}$ (ii) $\frac{23}{6}$ (iii) $\frac{9}{2}$ (iv) $\frac{25}{4}$ (v) $\frac{25}{8}$

7. Find S_{22} of the A.P. $8, 13, 18, \ldots =$

   (i) 1332 (ii) 1331 (iii) 1330 (iv) 1329 (v) 1334

8. Find S_{14} of the A.P. $\frac{6}{7}, \frac{19}{14}, \frac{13}{7}, \ldots =$

   (i) $\frac{117}{2}$ (ii) $\frac{113}{2}$ (iii) $\frac{115}{4}$ (iv) $\frac{115}{2}$ (v) 115

9. Determine t_{11} of an A.P whose t_{14} is 118 and common difference is 9

   (i) 92 (ii) 91 (iii) 90 (iv) 89 (v) 94

10. Determine t_8 of an A.P whose t_{17} is $\frac{25}{3}$ and common difference is $\frac{1}{2}$

    (i) $\frac{23}{8}$ (ii) $\frac{23}{6}$ (iii) $\frac{25}{6}$ (iv) $\frac{23}{4}$ (v) $\frac{7}{2}$

11. The t_{18} of an A.P. is 162 and the t_{16} is 144 . Find t_8.

    (i) 72 (ii) 69 (iii) 73 (iv) 75 (v) 71

12. The t_{11} of an A.P. is $\frac{29}{12}$ and the t_5 is $\frac{17}{12}$. Find t_{15}.

(i) $\frac{13}{4}$ (ii) $\frac{37}{10}$ (iii) $\frac{37}{12}$ (iv) $\frac{35}{12}$ (v) $\frac{37}{14}$

13. Which term of the A.P. $1, 8, 15, \ldots$ is 127?

(i) t_{18} (ii) t_{16} (iii) t_{19} (iv) t_{20} (v) t_{21}

14. Which term of the A.P. $\frac{5}{9}, \frac{8}{9}, \frac{11}{9}, \ldots$ is $\frac{47}{9}$?

(i) t_{15} (ii) t_{16} (iii) t_{14} (iv) t_{17} (v) t_{12}

15. The sum of first three terms of an A.P. is 6 while their product is 6. Find the A.P.

(i) $1, 2, 3, \ldots$ (ii) $1, 0, -1, \ldots$ (iii) $2, 3, 4, \ldots$ (iv) $4, 5, 6, \ldots$ (v) $1, 1, 1, \ldots$

16. The sum of first three terms of an A.P. is $\frac{111}{20}$ while their product is $\frac{777}{125}$. Find the A.P.

(i) $2, \frac{9}{4}, \frac{5}{2}, \ldots$ (ii) $\frac{8}{5}, \frac{37}{20}, \frac{21}{10}, \ldots$ (iii) $\frac{8}{5}, \frac{27}{20}, \frac{11}{10}, \ldots$ (iv) $\frac{8}{5}, \frac{21}{10}, \frac{13}{5}, \ldots$ (v) $\frac{8}{7}, \frac{39}{28}, \frac{23}{14}, \ldots$

17. Insert 2 arithmetic means between 1 and 22.

(i) $7, 13$ (ii) $6, 11$ (iii) $9, 17$ (iv) $11, 21$ (v) $8, 15$

18. Insert 2 arithmetic means between $\frac{3}{2}$ and $\frac{5}{2}$.

(i) $\frac{11}{6}, \frac{13}{6}$ (ii) $\frac{5}{2}, \frac{7}{2}$ (iii) $\frac{17}{10}, \frac{19}{10}$ (iv) $\frac{7}{6}, \frac{5}{6}$

19. If $a = 4$ and $d = 8$, find t_4 of the A.P.

(i) 27 (ii) 29 (iii) 30 (iv) 26 (v) 28

20. If $a = \frac{8}{7}$ and $d = \frac{1}{6}$, find t_2 of the A.P.

(i) $\frac{19}{14}$ (ii) $\frac{11}{8}$ (iii) $\frac{5}{4}$ (iv) $\frac{55}{42}$ (v) $\frac{53}{42}$

21. How many terms of the A.P. $9, 18, 27, \ldots$ are needed to make the sum 405?

(i) 10 (ii) 9 (iii) 7 (iv) 11 (v) 8

22. How many terms of the A.P. $\frac{9}{5}, 2, \frac{11}{5}, \ldots$ are needed to make the sum 27?

(i) 10 (ii) 7 (iii) 11 (iv) 12 (v) 9

23. If $a = 30$ and $b = 44$,
the arithmetic mean of a and b =

(i) 38 (ii) 40 (iii) 37 (iv) 36 (v) 35

24. If $a = \frac{31}{5}$ and $b = \frac{103}{15}$,
the arithmetic mean of a and b =

(i) $\frac{98}{15}$ (ii) $\frac{32}{5}$ (iii) $\frac{20}{3}$ (iv) $\frac{98}{13}$ (v) $\frac{98}{17}$

25. Find the sum of first 79 natural numbers

(i) 3158 (ii) 3161 (iii) 3160 (iv) 3159 (v) 3163

26. Find the next 4 terms of the following A.P.
$(-6a+4b),(-2a-b),(2a-6b),...$

(i) $(-4a-2b),(-7b),(4a-12b),(8a-17b)$ (ii) $(12a-15b),(16a-20b),(20a-25b),(24a-30b)$

(iii) $(-7b),(4a-12b),(8a-17b),(12a-22b)$ (iv) $(10a-16b),(14a-21b),(18a-26b),(22a-31b)$

(v) $(6a-11b),(10a-16b),(14a-21b),(18a-26b)$

27. Find t_n of the A.P $2,9,16,23,30,...$

(i) $(4n-5)$ (ii) $(7n-3)$ (iii) $(10n-5)$ (iv) $(7n-5)$ (v) $(7n+2)$

28. Find t_n of the A.P $\frac{3}{4},\frac{5}{4},\frac{7}{4},\frac{9}{4},\frac{11}{4},...$

(i) $(-\frac{7}{2}n+\frac{1}{4})$ (ii) $(\frac{1}{2}n+\frac{3}{4})$ (iii) $(\frac{5}{2}n+\frac{1}{4})$ (iv) $(\frac{1}{2}n+\frac{1}{4})$ (v) $(\frac{1}{2}n+1)$

29. The t_8 of an A.P is p and t_9 is q. Find t_{10} and t_n.

(i) $q,(-pn+9p+qn-8q)$ (ii) $(-2p+3q),(-pn+8p+qn-7q)$ (iii) $(-p+2q),(-pn+9p+qn-8q)$

(iv) $(7p-5q),(-pn+17p+qn-15q)$ (v) $(-p+2q),(-pn+p+qn-q)$

30. Determine k so that $(6k+8),(9k+6)$ and
$(6k+7)$ are the consecutive terms of an A.P

(i) $\frac{1}{4}$ (ii) $(\frac{-1}{2})$ (iii) 1 (iv) $\frac{3}{2}$ (v) $\frac{1}{2}$

31. The product of two numbers is 30195 and their arithmetic mean is 174.
Find the two numbers.

(i) $(165,183)$ (ii) $(185,167)$ (iii) $(166,184)$ (iv) $(165,182)$ (v) $(167,183)$

32. Find the common difference and next four terms of the
following A.P. $3,12,21,... =$

(i) $10;27,35,43,51$ (ii) $9;30,39,48,57$ (iii) $10;30,39,48,57$ (iv) $10;33,43,53,63$

33. Find the common difference and next four terms of the following A.P. $\frac{9}{5}, \frac{41}{20}, \frac{23}{10}, \ldots =$

(i) $\frac{1}{4}; \frac{51}{20}, \frac{14}{5}, \frac{61}{20}, \frac{33}{10}$ (ii) $1\frac{1}{4}; \frac{51}{20}, \frac{14}{5}, \frac{61}{20}, \frac{33}{10}$ (iii) $1\frac{1}{4}; \frac{111}{20}, \frac{34}{5}, \frac{161}{20}, \frac{93}{10}$

(iv) $1\frac{1}{4}; (\frac{-9}{20}), (\frac{-6}{5}), (\frac{-39}{20}), (\frac{-27}{10})$

34. Find the sum of all natural numbers between 1 and 100 which are multiples of 3?

(i) 1682 (ii) 1685 (iii) 1681 (iv) 1684 (v) 1683

35. Find the sum of all natural numbers between 100 and 200 which are multiples of 4?

(i) 3597 (ii) 3600 (iii) 3601 (iv) 3599 (v) 3602

36. Find the sum of the following A.P. series
$(7x+8y), (11x+17y), (15x+26y) \ldots \text{to} 14 \text{terms}$

(i) $(360x+810y)$ (ii) $(462x+931y)$ (iii) $(399x+797y)$ (iv) $(407x+815y)$ (v) $(374x+826y)$

37. Given $a = 2$, $d = 5$, $S_n = 119$, find t_n

(i) 33 (ii) 30 (iii) 34 (iv) 32 (v) 31

38. Given $a = 5$, $d = 5$, $S_n = 390$, find n

(i) 12 (ii) 14 (iii) 11 (iv) 9 (v) 13

39. Given $a = 9$, $d = 5$, $n = 19$, find t_n

(i) 98 (ii) 100 (iii) 96 (iv) 101 (v) 99

40. Given $a = 7$, $d = 4$, $n = 6$, find S_n

(i) 103 (ii) 105 (iii) 99 (iv) 101 (v) 102

41. Given $t_n = 58$, $n = 8$, $S_n = 240$, find a

(i) 1 (ii) 2 (iii) 3 (iv) 4 (v) 0

42. Given $t_n = 76$, $n = 15$, $S_n = 615$, find d

(i) 6 (ii) 7 (iii) 2 (iv) 4 (v) 5

43. Given $t_n = 158$, $d = 9$, $n = 18$, find a

(i) 3 (ii) 5 (iii) 6 (iv) 4 (v) 8

44. Given $t_n = 180$, $d = 9$, $n = 20$, find S_n

(i) 1892 (ii) 1889 (iii) 1890 (iv) 1887 (v) 1891

45. Given $t_n = 96$, $a = 6$, $n = 16$, find S_n

(i) 816 (ii) 818 (iii) 815 (iv) 814 (v) 817

46. Given $t_n = 44$, $a = 8$, $n = 5$, find d

(i) 12 (ii) 8 (iii) 9 (iv) 6 (v) 10

47. Find t_n of the A.P $7, 9, 11, \ldots$

(i) $(2n+5)$ (ii) $(2n+7)$ (iii) $(-2n+5)$ (iv) $(2n+12)$ (v) $(6n+5)$

48. If S_{90} and S_{80} of an A.P. are 36495 and 28840 respectively, then $S_{170} =$

(i) 130135 (ii) 130136 (iii) 130137 (iv) 130132

49. If $x \neq y$ and the sequences x, a_1, a_2, y and x, b_1, b_2, y each are in A.P., then $\frac{a_2 - a_1}{b_2 - b_1} =$

(i) $\frac{4}{3}$ (ii) $\frac{2}{3}$ (iii) $\frac{3}{2}$ (iv) $(\frac{-3}{4})$ (v) 1

50. If there are n arithmetic means between a and b, the common difference d =

(i) $\frac{(a-b)}{(n+1)}$ (ii) $\frac{(a+b)}{(n+1)}$ (iii) $\frac{(b-a)}{(n-1)}$ (iv) $\frac{(n-1)}{(a+b)}$ (v) $\frac{(b-a)}{(n+1)}$

51. The sum of first n natural number is

(i) $\frac{(n)(n+1)(2n+1)}{6}$ (ii) $\frac{(n)(n-1)}{2}$ (iii) $\frac{(n-1)(n+1)}{2}$ (iv) $\frac{n^2(n+1)^2}{4}$ (v) $\frac{(n)(n+1)}{2}$

52. The measures of the interior angles of a convex polygon are in A.P. If the smallest angle is 129 and the largest angle is 141, then the number of sides of the polygon is

(i) 8 (ii) 10 (iii) 9 (iv) 5 (v) 7

53. If the t_n of an A.P is $(7n+2)$, find S_n

(i) $\frac{(7)(n^2+n)}{2} + 2n$ (ii) $\frac{(5)(n^2+n)}{2} + 6n$ (iii) $\frac{(2)(n^2+n)}{2} + 6n$ (iv) $\frac{(9)(n^2+n)}{2} + 8n$

(v) $\frac{(6)(n^2+n)}{2} + 7n$

Assignment Key

1) (v)	2) (iv)	3) (i)	4) (iv)	5) (i)	6) (i)
7) (ii)	8) (iv)	9) (ii)	10) (ii)	11) (i)	12) (iii)
13) (iii)	14) (i)	15) (i)	16) (ii)	17) (v)	18) (i)
19) (v)	20) (iv)	21) (ii)	22) (i)	23) (iii)	24) (i)
25) (iii)	26) (v)	27) (iv)	28) (iv)	29) (iii)	30) (v)
31) (i)	32) (ii)	33) (i)	34) (v)	35) (ii)	36) (ii)
37) (iv)	38) (i)	39) (v)	40) (v)	41) (ii)	42) (v)
43) (ii)	44) (iii)	45) (i)	46) (iii)	47) (i)	48) (i)
49) (v)	50) (v)	51) (v)	52) (i)	53) (i)	