EduSahara™ Assignment

Name : Arithmetic Progression

Chapter : Progressions

Grade : SSC Grade X

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1. The first term of the A.P. $1, 4, 7, 10, 13, ... =$

   (i) 1 (ii) 10 (iii) 13 (iv) 4 (v) 7

2. The first term of the A.P. $\frac{5}{3}, \frac{28}{15}, \frac{31}{15}, \frac{34}{15}, \frac{37}{15}, ... =$

   (i) $\frac{28}{15}$ (ii) $\frac{37}{15}$ (iii) $\frac{34}{15}$ (iv) $\frac{5}{3}$ (v) $\frac{31}{15}$

3. The common difference of the A.P. $6, 14, 22, ... =$

   (i) 6 (ii) 9 (iii) 10 (iv) 7 (v) 8

4. The common difference of the A.P. $\frac{4}{3}, \frac{13}{9}, \frac{14}{9}, ... =$

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

5. Find t_{25} of the A.P. $1, 10, 19, ... =$

   (i) 220 (ii) 216 (iii) 215 (iv) 217 (v) 218

6. Find t_{24} of the A.P. $\frac{7}{9}, \frac{17}{18}, \frac{10}{9}, ... =$

   (i) $\frac{83}{20}$ (ii) $\frac{83}{16}$ (iii) $\frac{85}{18}$ (iv) $\frac{9}{2}$ (v) $\frac{83}{18}$

7. Find S_{15} of the A.P. $8, 13, 18, ... =$

   (i) 644 (ii) 648 (iii) 642 (iv) 645 (v) 646

8. Find S_{21} of the A.P. $\frac{5}{7}, \frac{17}{14}, \frac{12}{7}, ... =$

   (i) 118 (ii) 119 (iii) 120 (iv) 122 (v) 121

9. Determine t_{11} of an A.P whose t_9 is 71 and common difference is 8

   (i) 89 (ii) 86 (iii) 87 (iv) 84 (v) 88

10. Determine t_6 of an A.P whose t_5 is $\frac{57}{40}$ and common difference is $\frac{1}{5}$

    (i) $\frac{13}{6}$ (ii) $\frac{13}{8}$ (iii) $\frac{13}{10}$ (iv) $\frac{15}{8}$ (v) $\frac{11}{8}$

11. The t_{18} of an A.P. is 56 and the t_{14} is 44 . Find t_{15}.

    (i) 47 (ii) 50 (iii) 44 (iv) 48 (v) 46

12. The t_{11} of an A.P. is $\frac{8}{3}$ and the t_{14} is $\frac{41}{12}$. Find t_{18}.

(i) $\frac{53}{10}$ (ii) $\frac{17}{4}$ (iii) $\frac{55}{12}$ (iv) $\frac{53}{14}$ (v) $\frac{53}{12}$

13. Which term of the A.P. $9, 12, 15, ...$ is 33?

(i) t_8 (ii) t_6 (iii) t_9 (iv) t_{12} (v) t_{10}

14. Which term of the A.P. $\frac{4}{7}, \frac{39}{56}, \frac{23}{28}, ...$ is $\frac{18}{7}$?

(i) t_{16} (ii) t_{18} (iii) t_{14} (iv) t_{17} (v) t_{20}

15. The sum of first three terms of an A.P. is 27 while their product is 585. Find the A.P.

(i) $7, 11, 15, ...$ (ii) $5, 8, 11, ...$ (iii) $6, 10, 14, ...$ (iv) $5, 9, 13, ...$ (v) $5, 6, 7, ...$

16. The sum of first three terms of an A.P. is $\frac{52}{21}$ while their product is $\frac{15340}{27783}$. Find the A.P.

(i) $\frac{5}{9}, \frac{2}{3}, \frac{7}{9}, ...$ (ii) $1, \frac{10}{9}, \frac{11}{9}, ...$ (iii) $\frac{5}{7}, \frac{52}{63}, \frac{59}{63}, ...$ (iv) $\frac{5}{7}, \frac{6}{7}, 1, ...$ (v) $\frac{5}{7}, \frac{38}{63}, \frac{31}{63}, ...$

17. Insert 2 arithmetic means between 6 and 9.

(i) $4, 2$ (ii) $9, 12$ (iii) $8, 10$ (iv) $6, 6$ (v) $7, 8$

18. Insert 3 arithmetic means between $\frac{9}{2}$ and $\frac{13}{2}$.

(i) $\frac{19}{4}, 5, \frac{21}{4}$ (ii) $6, \frac{15}{2}, 9$ (iii) $4, \frac{7}{2}, 3$ (iv) $5, \frac{11}{2}, 6$ (v) $\frac{11}{2}, \frac{13}{2}, \frac{15}{2}$

19. If $a = 1$ and $d = 8$, find t_6 of the A.P.

(i) 38 (ii) 41 (iii) 44 (iv) 42 (v) 40

20. If $a = \frac{5}{2}$ and $d = \frac{1}{5}$, find t_2 of the A.P.

(i) $\frac{9}{4}$ (ii) $\frac{29}{10}$ (iii) $\frac{27}{8}$ (iv) $\frac{5}{2}$ (v) $\frac{27}{10}$

21. How many terms of the A.P. $7, 14, 21, ...$ are needed to make the sum 385?

(i) 13 (ii) 9 (iii) 10 (iv) 11 (v) 7

22. How many terms of the A.P. $\frac{1}{6}, \frac{11}{30}, \frac{17}{30}, ...$ are needed to make the sum $\frac{308}{15}$?

(i) 11 (ii) 14 (iii) 15 (iv) 16 (v) 13

23. If a $=42$ and b $=46$,
the arithmetic mean of a and b =

(i) 43 (ii) 41 (iii) 47 (iv) 45 (v) 44

24. If a = $\frac{97}{30}$ and b = $\frac{109}{30}$,
the arithmetic mean of a and b =

(i) $\frac{101}{30}$ (ii) $\frac{103}{28}$ (iii) $\frac{7}{2}$ (iv) $\frac{103}{32}$ (v) $\frac{103}{30}$

25. Find the sum of first 61 natural numbers

(i) 1892 (ii) 1890 (iii) 1891 (iv) 1888 (v) 1893

26. Find the next 4 terms of the following A.P.
$(6a+5b),(3a-b),(-7b),...$

(i) $(-6a-19b),(-9a-25b),(-12a-31b),(-15a-37b)$ (ii) $(6a-2b),(3a-8b),(-14b),(-3a-20b)$

(iii) $(-9a-18b),(-12a-24b),(-15a-30b),(-18a-36b)$

(iv) $(-3a-13b),(-6a-19b),(-9a-25b),(-12a-31b)$ (v) $(3a-8b),(-14b),(-3a-20b),(-6a-26b)$

27. Find t_n of the A.P $8,14,20,26,32,...$

(i) $(2n+2)$ (ii) $(6n+10)$ (iii) $(7n+2)$ (iv) $(6n+2)$ (v) $(6n+8)$

28. Find t_n of the A.P $\frac{7}{6},\frac{5}{3},\frac{13}{6},\frac{8}{3},\frac{19}{6},...$

(i) $(\frac{1}{2}n+\frac{11}{6})$ (ii) $(\frac{1}{2}n+\frac{7}{6})$ (iii) $(-\frac{5}{2}n+\frac{2}{3})$ (iv) $(\frac{1}{2}n+\frac{2}{3})$ (v) $(\frac{5}{2}n+\frac{2}{3})$

29. The t_3 of an A.P is p and t_4 is q . Find t_{15} and t_n .

(i) $(-8p+10q),(-pn+7p+qn-5q)$ (ii) $(-11p+12q),(-pn+p+qn-q)$

(iii) $(-11p+12q),(-pn+4p+qn-3q)$ (iv) $(-12p+13q),(-pn+3p+qn-2q)$

(v) $(-10p+11q),(-pn+4p+qn-3q)$

30. Determine k so that $(7k+1),(3k+5)$ and
$(6k+4)$ are the consecutive terms of an A.P

(i) 1 (ii) $\frac{3}{7}$ (iii) $\frac{5}{7}$ (iv) $\frac{5}{9}$

31. The product of two numbers is 4307 and their arithmetic mean is 66 .
Find the two numbers.

(i) $(59,72)$ (ii) $(60,74)$ (iii) $(75,61)$ (iv) $(62,73)$ (v) $(59,73)$

32. Find the common difference and next four terms of the
following A.P. $9,11,13,...=$

(i) $3;18,21,24,27$ (ii) $3;15,17,19,21$ (iii) $2;15,17,19,21$ (iv) $3;12,13,14,15$

33. Find the common difference and next four terms of the following A.P. $\frac{3}{8}, \frac{23}{40}, \frac{31}{40}, . . . =$

(i) $\frac{1}{5}; \frac{39}{40}, \frac{47}{40}, \frac{11}{8}, \frac{63}{40}$ (ii) $1\frac{1}{5}; \frac{39}{40}, \frac{47}{40}, \frac{11}{8}, \frac{63}{40}$ (iii) $1\frac{1}{5}; (\frac{-81}{40}), (\frac{-113}{40}), (\frac{-29}{8}), (\frac{-177}{40})$

(iv) $1\frac{1}{5}; \frac{159}{40}, \frac{207}{40}, \frac{51}{8}, \frac{303}{40}$

34. Find the sum of all natural numbers between 1 and 100 which are multiples of 9?

(i) 596 (ii) 595 (iii) 593 (iv) 594 (v) 591

35. Find the sum of all natural numbers between 100 and 200 which are multiples of 6?

(i) 2550 (ii) 2552 (iii) 2548 (iv) 2549 (v) 2551

36. Find the sum of the following A.P. series
$(2x+3y), (-5x+6y), (-12x+9y) . . .$ to 15 terms

(i) $(-724x+318y)$ (ii) $(-705x+360y)$ (iii) $(-616x+318y)$ (iv) $(-728x+312y)$ (v) $(-602x+312y)$

37. Given $a = 3$, $d = 5$, $S_n = 570$, find t_n

(i) 72 (ii) 76 (iii) 73 (iv) 74 (v) 71

38. Given $a = 9$, $d = 8$, $S_n = 296$, find n

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

39. Given $a = 5$, $d = 9$, $n = 12$, find t_n

(i) 107 (ii) 104 (iii) 105 (iv) 102 (v) 103

40. Given $a = 4$, $d = 2$, $n = 16$, find S_n

(i) 304 (ii) 307 (iii) 305 (iv) 302 (v) 303

41. Given $t_n = 31$, $n = 14$, $S_n = 252$, find a

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

42. Given $t_n = 68$, $n = 9$, $S_n = 324$, find d

(i) 5 (ii) 11 (iii) 9 (iv) 8 (v) 7

43. Given $t_n = 65$, $d = 7$, $n = 9$, find a

(i) 10 (ii) 8 (iii) 12 (iv) 7 (v) 9

44. Given $t_n = 45$, $d = 6$, $n = 8$, find S_n

(i) 194 (ii) 193 (iii) 190 (iv) 192 (v) 191

45. Given $t_n = 66$, $a = 6$, $n = 16$, find S_n

(i) 577 (ii) 575 (iii) 578 (iv) 574 (v) 576

46. Given $t_n = 122$, $a = 8$, $n = 20$, find d

(i) 7 (ii) 9 (iii) 5 (iv) 6 (v) 3

47. Find t_n of the A.P $8, 16, 24, \ldots$

(i) $10n$ (ii) $8n$ (iii) $4n$ (iv) $(8n+8)$

48. If S_{30} and S_{70} of an A.P. are 1425 and 7525 respectively, then $S_{100} =$

(i) 15251 (ii) 15248 (iii) 15250 (iv) 15252

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

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

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

51. The sum of first n natural number is

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

52. The measures of the interior angles of a convex polygon are in A.P.
If the smallest angle is 130 and the largest angle is 170,
then the number of sides of the polygon is

(i) 13 (ii) 15 (iii) 12 (iv) 11 (v) 9

53. If the t_n of an A.P is $(6n+4)$, find S_n

(i) $\frac{(4)(n^2+n)}{2} + 6n$ (ii) $\frac{(4)(n^2+n)}{2} + 5n$ (iii) $\frac{(6)(n^2+n)}{2} + 4n$ (iv) $\frac{(8)(n^2+n)}{2} + 6n$

(v) $\frac{(7)(n^2+n)}{2} + 4n$

Assignment Key

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

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