RAVI MATHS TUITION CENTER , CHENNAI- 82. WHATSAPP - 8056206308

Arithmetic Progressions

10th Standard

Maths

10 x 1 = 10

1) 30th term of the AP: 10, 7, 4, . . . , is

(a) 97 (b) 77 (c) - 77 (d) - 87

2) 11th term of the AP: – 3 ,$-\frac{1}{2}$,2 , ..., is

(a) 28 (b) 22 (c) - 38 (d) $-48\frac{1}{2}$

3) The first term of an A.P. is 12, the last term is -8, the common difference is -2. Find the sum of the A.P.

(a) 18 (b) 16 (c) 22 (d) 20

4) The nth term of the AP 9, 13, 17, 21, 25, ... is:

(a) 3n+2 (b) 4n+5 (c) 5n+3 (d) 4n-5

5) What is the sum of the first 50 multiples of 3?

(a) 4325 (b) 3255 (c) 3825 (d) 4455

6) Which term of the A.P 10,8,6,... will be the first negative term?

(a) 6 (b) 7 (c) 5 (d) 4

7) Which term of the following A.P. would be 0? 36,33,30,27....

(a) 9 (b) 12 (c) 13 (d) 10

8) For an A.P t_n =2n+3 what is the formula for s_n ?

(a) n(n-4) (b) n(n+1) (c) n(n+4) (d) n(n-1)

9) If a- b, 0 and a + b are consecutive terms of an AP then

(a) a can take any real value and b = 0 (b) a = 0 and b can take any real value (c) a = 1 and b= 0

(d) a = 0 and b = 1

10) 20^{th} term from the end of the A.P.3,8,13,18,....,253 is

(a) 158 (b) 112 (c) 124 (d) 164

4 x 1 = 4

11) **Assertion** The first term of an AP is m and its common difference is p, then the 13th term is a + 10p.

Reason In an AP $S_n - S_{n-1} = a_n$.

Codes:

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect.

(d) If Assertion is incorrect but Reason is correct.

12) **Assertion** In an Ap,$S_n = n^2 + n$, then $T_{20} = 40$.

Reason In an Ap, $a_n - a_{n-1} = d$.

Codes:

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.

(c) If Assertion is correct but Reason is incorrect.

(d) If Assertion is incorrect but Reason is correct.

13) **Assertion** If the nth term of an AP be ($2n^2$ - 1),then the sum of its first n terms is n^3.

Reason If a,l and n are first term, last term and number of terms of an Ap, respectively then $S_n = \frac{n}{2}(a + l)$

Codes:

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
(c) If Assertion is correct but Reason is incorrect.
(d) If Assertion is incorrect but Reason is correct.

14) **Assertion** Sum of first 10 even natural number is 120.

Reason If a is the first term, l is the last term and d is the common difference of an Ap, then nth term from the end is given by 1- (n -1) d.

Codes:

(a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
(c) If Assertion is correct but Reason is incorrect.
(d) If Assertion is incorrect but Reason is correct.

10 x 2 = 20

15) Write first four terms of the AP, when the first term a and the common difference d are given as follows: a = - 1.25, d = - 0.25

16) Find the number of terms in each of the following APs.
7, 13, 19,...., 205

17) Check whether -150 is a term of the AP: 11, 8, 5, 2,...

18) How many multiples of 4 lie between 10 and 250?

19) In an AP: given a = 5, d = 3, a_n = 50, find n and S_n.

20) In an AP: given a = 8, a_n = 62, S_n = 210, find n and d.

21) For what value of p, are 2p + 1, 13, 5p - 3 three consecutive terms of an AP?

22) Find the number of terms in the AP 17, $14\frac{1}{2}$, 12, ..., -32.

23) Find a_{30} - a_{20} for the AP -9, -14, -19, -24,.....

24) The first term of an AP is 5 and its 100th term is -292. Find the 50th term.

6 x 3 = 18

25) How many terms of AP : 9, 17, 25,..... must be taken to give a sum of 636?

26) If 9th term of an AP is zero, prove that its 29th term is double of its 19th term.

27) The 6th and 17th terms of an A.P. are 19 and 41 respectively, find the 40th term.

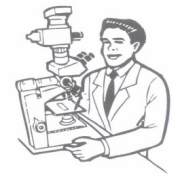
28) If the sum of first 4 terms of an A.P. is 16 and that of 23 terms is 529, find the sum of first n terms.

29) Find the sum of all multiples of 9 typing between 300 and 700.

30) Sum of the first n terms of an AP is $5n^2 - 3n$ Find the AP and also find its 16th term.

2 x 4 = 8

31) In a pathology lab, a culture test has been conducted. In the test, the number of bacteria taken into consideration in various samples is all3-digit numbers that are divisible by 7, taken in order.



On the basis of above information, answer the following questions.

(i) How many bacteria are considered in the fifth sample?

(a) 126(b) 140(c) 133(d) 149

(ii) How many samples should be taken into consideration?

(a) 129(b) 128(c) 130(d) 127

(iii) Find the total number of bacteria in the first 10 samples.

(a)	(b)	(c)	(d)
1365	1335	1302	1540

(iv) How many bacteria are there in the 7^{th} sample from the last?

(a) 952(b) 945(c) 959(d) 966

(v) The number of bacteria in 50^{th} sample is

(a) 546(b) 553(c) 448(d) 496

32) Anuj gets pocket money from his father everyday. Out of the pocket money, he saves Rs 2.75 on first day, Rs 3 on second day, Rs 3.25 on third day and so on.

On the basis of above information, answer the following questions .

(i) What is the amount saved by Anuj on 14^{th} day?

(a) Rs	(b)	(c) Rs	(d) Rs
6.25	Rs 6	6.50	6.75

(ii) What is the total amount saved by Anuj in 8 days?

(a) Rs	(b) Rs	(c) Rs	(d) Rs
18	33	24	29

(iii) What is the amount saved by Anuj on 30^{th} day?

(a) Rs 10	(b) Rs 12.75	(c) Rs 10.25	(d) Rs 9.75

(iv) What is the total amount saved by him in the month of June, if he starts savings from 1^{st} June?

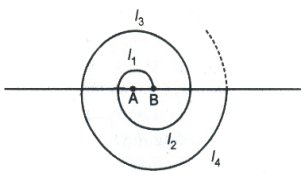
(a) Rs	(b) Rs	(c) Rs	(d) Rs
191	191.25	192	192.5

(v) On which day, he save tens times as much as he saved on day-I?

(a)	(b)	(c)	(d)
9^{th}	99^{th}	10^{th}	100^{th}

4 x 5 = 20

33) A spiral is made up of successive semicircles, with centres alternately at A and B, starting with centre at A, of radii 0.5 cm, 1.0 cm, 1.5 cm, 2.0 cm, ... as show in fig. What is the total length of such a spiral made-up of 13 consecutive semicircles? (Take $\pi = \frac{22}{7}$)

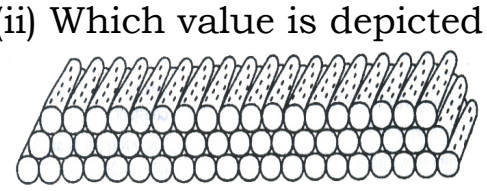


(Length of successive semicircles is l_1, l_2, l_3, l_4, . . . with centres at A, B,. . ., respectively.]

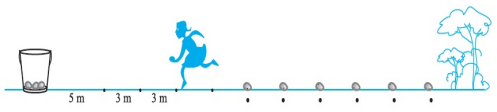
34) 200 logs are stacked in the following manner: 20 logs in the bottom row, 19 in the next row, 18 in the row next to it and so on.

(i) In how many rows are the 200 logs placed and how many logs are in the top row?

(ii) Which value is depicted in the pattern of log?



35) In a potato race, a bucket is placed at the starting point, which is 5 m from the first potato, and the other potatoes are placed 3 m apart in a straight line. There are ten potatoes in the line (see Fig)



A competitor starts from the bucket, picks up the nearest potato, runs back with it, drops it in the bucket, runs back to pick up the next potato, runs to the bucket to drop it in, and she continues in the same way until all the potatoes are in the bucket. What is the total distance the competitor has to run? [To pick up the first potato and the second potato, the total distance (in metres) run by a competitor is 2 x 5 + 2 x (5 + 3)]

36) 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 catch the thief?

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