QUESTION BANK

EXERCISE - 1

Q.1 Write next two terms of given A.P. : $-3, -5, -7, -9$……..

Q.2 Find 10th term of given A.P. 10, 20, 30, 40……

Q.3 Find 20th term of A.P. Whose first term = 10, C.D = 3

Q.4 Find n, if the given value of x is nth term of A.P. : 17, 22, 27, 32,……..; x = 267

Q.5 Find difference between 20^{th} term and 15^{th} term for the A. P. 3, 14, 25, 36……

Q.6 Third term of an A.P. is 21 and the eighth term is 56.Find A.P. and also find its eleventh term.

Q.7 3 times the tenth term is equal to 5 times the twentieth term. Find twentieth term.

Q.8 Find the sum $2 + 4 + 6 + \ldots\ldots\ldots\ldots + 202$

Q.9 Write sequence with nth term $5 + 2n$. Find sum of first 20 terms.

Q.10 Find sum of all natural numbers between 1 and 98 which are multiples of 6.

Q.11 Sum of terms of A.P. is 36 and product is 1296. Find A.P.

Q.12 Find the sum of all multiples of 9 between 300 and 700.

Q.13 Show that the sequence log a, log(ab), $\log(ab^2)$, $\log(ab^3)$,..... is an A.P. Find its n^{th} term.

Q.14 How many term of the sequence –2, 3, 8, 13, ... make the sum 568.

Q.15 Find the sum of the series $x + (x + y) + (x + 2y) +$ ..... to n terms.

Q.16 A student purchased a pen for Rs. 100. At the end of 8 years, it was valued at Rs. 20. Assuming the yearly depreciation is a constant amount, find the annual depreciation.

Q.17 Which term of the sequence $17, 16\frac{1}{5}, 15\frac{2}{5}, 14\frac{3}{5}$,..... is the first negative term.

Q.18 For what value of n, the n^{th} terms of the following two A.P.s are equal : 23, 25, 27, 29, ... and $-17, -10, -3, 4,$ .....

Q.19 If the three sides of a right angled triangle are in A.P. then prove that they are in the ratio 3 : 4 : 5.

Q.20 If S_n denotes the sum of n terms of an A.P. and if $S_1 = 6$, $S_7 = 105$ then show that $S_n : S_{n-3} = (n + 3) : (n - 3)$

Q.21 If a, b, c are in A.P. show that $(a + 2b - c)(2b + c - a)(c + a - b) = 4abc$

Q.22 Show that the sum of the first n even natural numbers is equal to $\left(1+\frac{1}{n}\right)$ times the sum of first n odd natural numbers.

Q.23 Find the sum of all two digit odd positive numbers.

Q.24 Find the number of terms of A.P. 54, 51, 48, ... so that their sum is 513.

Q.25 The sum of the first n terms of an A.P. is given by $S_n = 3n^2 - 4n$. Determine the A.P. and its 12^{th} term.

Q.26 If the p^{th} term of an A.P. is a and q^{th} term is b, show that the sum of (p + q) terms is $\frac{(p+q)}{2}\left[a + b + \frac{a-b}{p-q}\right]$.

Q.27 If a_1, a_2, a_3 ,....., a_n be an A.P. of non zero terms, then prove that $\frac{1}{a_1a_2} + \frac{1}{a_2a_3} + \ldots + \frac{1}{a_{n-1}a_n} = \frac{n-1}{a_1a_n}$.

Q.28 A the if runs away from a police station with a uniform speed of 100 m/minute. After one minute a policeman runs behind the thief to catch him. He goes at a speed of 100 m/minute in first minute and increases his speed 10 m each succeeding minute. After how many minutes, the policeman will catch the thief.

Q.29 Prove that in an A.P. $a_{m+n} + a_{m-n} = 2a_m$.

Q.30 How many numbers of two digits are divisible by 7 ?

Q.31 If the mth term of an A.P is 1/n and nth term is 1/m, show that the sum of mn terms is 1/2(mn + 1).

Q.32 The sum of n terms of three A.P. are S_1, S_2 and S_3. The first term of each is unity and the common differences are 1, 2 and 3 respectively. Prove that $S_1 + S_3 = 2S_2$.

Q.33 The ratio of the sums of m and n terms of an A.P. is $m^2 : n^2$. Show that the ratio of the mth and nth terms is $(2m - 1) : (2n - 1)$.

Q.34 (i) The nth term of the series is given to be (3 + n)/4, find the sum of 105 terms of this series.
(ii) Find $a_1 + a_6 + a_{11} + a_{16}$ if it is known that a_1, a_2, a_3, ... is an A.P. and $a_1 + a_4 + a_7 + ... + a_{16} = 147$.

Q.35 If $s_n = an^2 + bn$, prove that series is an A.P.

Q.36 The ratio of the sum of n terms of 2 A.P's is (7n + 1) : (4n + 27). Find the ratio of their mth terms.

Q.37 If (b + c – a)/a, (c + a – b)/b, (a + b – c)/c are in A.P., prove that : 1/a, 1/b, 1/c are also in A.P.

Q.38 Along a road lie an odd number of stones placed at interval of 10m. These stones have to be assembled around the middle stone. A person can carry only one stone at a time. A man carried the job with one of the end stones by carrying them in succession. In carrying all the stones he covered a distance of 3 km. Find the number of stones.

Q.39 Show that the sum of an A.P whose first term is a, second term is b and the last term is c is equal to $[(a + c) (b + c – 2a)]/2(b – a)$.

Q.40 Show that the sum of all odd numbers between 1 and 1000, which are divisible by 3 is 83667.

Q.41 Divide 28 into four parts in A.P. so that the ratio of the product of 1^{st} and 3^{rd} with the product of 2^{nd} and 4^{th} is 8 : 15.

Q.42 The sum of two numbers is 13/6. An even number of arithmetic means are being inserted between them and their sum exceeds their number by 1. Find the number of means inserted.

Q.43 Find the 1st four terms of the sequence whose first term is 1 and whose $(n + 1)^{th}$ term is obtained by subtracting n from its n^{th} term. $t_{n+1} = t_n - n$

Q.44 Check whether $t_n = 2n^2 + 1$ is an A.P. or not.

Q.45 Determine the A.P. whose third term is 16 and the difference of 5^{th} term from 7^{th} term is 12.

Q.46 Which term of the sequence 72, 70, 68, 66, ... is 40?

Q.47 Is 184 a term of the sequence 3, 7, 11, ... ?

Q.48 If m times the m^{th} term of an A.P. is equal to n times its n^{th} term. Show that the $(m + n)^{th}$ term of the A.P. is zero.

Q.49 If the p^{th} term of an A.P. is a q and q^{th} term is p, prove that its nth term is (p + q – n).

Q.50 Find the common difference of the A.P. for which 11th term is 5 and 13th term is 79.

Q.51 Find the number of terms of an A.P. if the last term is 43, first term is 7 and common difference is 6.

Q.52 If xth term of an A.P. be 1/y and yth term be 1/x, then show that its (xy)th term is 1.

Q.53 Prove that no matter what the real numbers a and b are, the sequence with nth term a + nb is always an A.P. What will be its common difference ?

Q.54 Find the sum of all natural numbers between 250 and 1000 which are exactly divisible by 3.

Q.55 Sums of the first p, q, r terms of an A.P. are a, b, c respectively. Prove that $\frac{a}{p}(q - r) + \frac{b}{q}(r - p) + \frac{c}{r}(p - q) = 0$

Q.56 If the pth term of an A.P. is $\frac{1}{q}$ and qth term $\frac{1}{p}$. Prove that the sum of the first pq terms is $\frac{1}{2}(pq + 1)$.

Q.57 The sum of n, 2n and 3n terms of an A.P. are x, y, z. Prove that z = 3 (y – x).

Q.58 If in an A.P. the sum of m terms in n and sum of n terms is m, prove that the sum of (m + n) terms is – (m + n).

Q.59 A manufacture of TV sets produced 600 sets in the third year and 700 sets in the seventh year. Assuming that the production increases uniformly by a fixed number every year, find :

(i) The production in the 1st year

(ii) The production in the 10th year

(iii) The total production in first 7 years

Q.60 Find the sum of all numbers divisible by 6 in between 100 to 400.

Q.61 A clock strikes the number of times of the hour. How many strikes does it make in one day?

EXERCISE - 2

Fill in the Blanks :

Q.1 In the following table, given that a is the first term, d the common difference and a_n the nth term of the AP.

	a	d	n	a_n
(i)	7	3	8	.....
(ii)	–18	.....	10	0
(iii)	.....	– 3	18	–5
(iv)	–18.9	2.5	.....	3.6
(v)	3.5	0	105	.....

Q.2 4, 10, 16, 22, ...

Q.3 1, –1, –3, – 5, ... , ...

Q.4 11th terms from last term of AP 10, 7, 4, ...–62, is .....

Q.5 In a flower bed, there are 23 rose plants in the first row, 21 in the second, 19 in the third, and so on. There are 5 rose plants in the last row. Number of rows in the flower bed .....

Q.6 The sum of the 4th and 8th terms of an AP is 24 and the sum of the 6th and 10th terms is 44. The first three terms of the AP are ....., ..., ...

Q.7 Subba Rao started work in 1995 at an annual salary of Rs 5000 and received an increment of Rs 200 each year. In year his income reach Rs .....

Q.8 Ramkali saved Rs 5 in the first week of a year and then increased her weekly savings by Rs 1.75. If in the 10th week, her weekly savings become Rs .....

Q.9 A contract on construction job specifies a penalty for delay of completion beyond a certain date as follows: Rs.200 for the first day, Rs 250 for the second day, Rs 300 for the third day, etc., the penalty for each succeeding day being Rs 50 more than for the preceding day. Money the contractor has to pay as penalty, if he has delayed the work by 30 days .....

True False statements –

Q.10 In an AP with first term a and common difference d, the nth term (or the general term) is given by $a_n = a + (n - 1)\, d$.

Q.11 If ℓ is the last term of the finite AP, say the nth term, then the sum of all terms of the AP is given by :

$$S = \frac{n}{2}(a + \ell)$$

Q.12 The balance money (in Rs) after paying 5 % of the total loan of Rs 1000 every month is 950, 900, 850, 800, . . ., 50. respresened A.P.

Q.13 The total savings (in Rs) after every month for 10 months when Rs 50 are saved each month are 50, 100, 150, 200, 250, 300, 350, 400, 450, 500. represent G.P.

Q.14 2, 4, 8, 16, ... is not an AP.

Q.15 10th term of AP : 2, 7, 12, ... is 45

Q.16 301 is a term of AP 5, 11, 17, 23, ...

EXERCISE - 3

Q.1 If arithmetic mean of a and b is $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ then value of n is

(A) –1 (B) 0 (C) 1 (D) None of these

Q.2 If the n^{th} term of an A.P. be (2n – 1), then the sum of its first n terms will be

(A) $n^2 - 1$ (B) $(2n-1)^2$ (C) n^2 (D) $n^2 + 1$

Q.3 If A_1, A_2 are two arithmetic means between $\frac{1}{3}$ and $\frac{1}{24}$ then their values are

(A) $\frac{7}{72}, \frac{5}{36}$ (B) $\frac{17}{72}, \frac{5}{36}$ (C) $\frac{7}{36}, \frac{5}{72}$ (D) $\frac{5}{72}, \frac{17}{72}$

Q.4 If the first, second and last terms of an A.P. be a, b, 2a respectively, then its sum will be

(A) $\frac{ab}{-a+b}$ (B) $\frac{ab}{2(b-a)}$ (C) $\frac{3ab}{2(b-a)}$ (D) $\frac{3ab}{4(b-a)}$

Q.5 If 2k + 2, 5k – 11, 7k – 13 be the consecutive terms of a G.P. then k =

(A) $\frac{11}{21}$ (B) $\frac{1}{7}$ (C) 7 (D) 14

Q.6 If a, b, c are in A.P. as well as in G.P. then

(A) a = b ≠ c (B) a ≠ b = c (C) a ≠ b ≠ c (D) a = b = c

Q.7 Find the sum to 200 terms of the series 1 + 4 + 6 + 5 + 11 + 6 + ...

(A) 30,200 (B) 29,800 (C) 30,200 (D) None of these

Q.8 If $S_n = nP + \frac{1}{2}n(n-1)Q$, where S_n denotes the sum of the first n terms of an A.P., then the common difference is–

(A) P + Q (B) 2P + 3Q (C) 2Q (D) Q

Q.9 If $\frac{a^{n+1} + b^{n+1}}{a^n + b^n}$ be the A.M. of a and b, then n =

(A) 1 (B) – 1 (C) 0 (D) None of these

Q.10 If a clock strikes once at a one o'clock, twice at two o'clock and twelve times at 12 o'clock and again once at one o'clock and so on, how many times will the bell be struck in the course of 2 days –

(A) 156 (B) 312 (C) 78 (D) 288

Q.11 If the sum of the series 2 + 5 + 8 + 11 ..... is 60100, then the number of terms are –

(A) 100 (B) 200 (C) 150 (D) 250

Q.12 The sum of all terms of the arithmetic progression having ten terms except for the first term, is 99, and except for the sixth term, 89. Find the third term of the progression if the sum of the first and the fifth term is equal to 10 –

(A) 15 (B) 5 (C) 8 (D) 10

Q.13 8^{th} term of the series $2\sqrt{2}, \sqrt{2}, 0, ...$ will be –

(A) $-5\sqrt{2}$ (B) $5\sqrt{2}$ (C) $10\sqrt{2}$ (D) $-10\sqrt{2}$

Q.14 What is the common difference of four terms in AP such that the ratio of the product of the first fourth term to that of the second and third term is 2 : 3 and the sum of all four terms is 20 –

(A) 3 (B) 1 (C) 4 (D) 2

Q.15 30th term of the AP : 10, 7, 4, . . . , is

(A) 97 (B) 77 (C) –77 (D) – 87

Q.16 11th term of the AP: $-3, -\frac{1}{2}, 2, \ldots$, is

(A) 28 (B) 22 (C) –38 (D) – 48½

Q.17 If the p^{th} term of an A.P. be $\frac{1}{q}$ and q^{th} term be $\frac{1}{p}$, then the sum of its pq^{th} terms will he –

(A) $\frac{pq-1}{2}$ (B) $\frac{1-pq}{2}$ (C) $\frac{pq+1}{2}$ (D) $-\frac{pq+1}{2}$

Q.18 If the sum of the series 54 + 51 + 48 + ... is 513, then the number of terms are –

(A) 18 (B) 20 (C) 17 (D) None of these

Q.19 If S_K denotes the sum of first k terms of an arithmetic progression whose first term and common difference are a and b respectively, then S_{kn}/S_n be independent of n if –

(A) 2a – d = 0 (B) a – d = 0 (C) a – 2d = 0 (D) None of these

Q.20 If $a_1, a_2, \ldots\ldots a_{n+1}$ are in A.P, then $\frac{1}{a_1a_2}+\frac{1}{a_2a_3}+\ldots.+\frac{1}{a_na_{n+1}}$ is –

(A) $\frac{n-1}{a_1a_{n+1}}$ (B) $\frac{1}{a_1a_{n+1}}$ (C) $\frac{n+1}{a_1a_{n+1}}$ (D) $\frac{n}{a_1a_{n+1}}$

Q.21 If $\frac{S_n}{S_m}=\frac{n^4}{m^4}$ (where S_k is the sum of first k terms of an A.P. $a_1, a_2, \ldots\ldots\infty$), then the value of $\frac{a_{m+1}}{a_{n+1}}$ in terms of m and n will be–

(A) $\frac{(2m+1)^3}{(2n+1)^3}$ (B) $\frac{(2n+1)^3}{(2m+1)^3}$ (C) $\frac{(2m-1)^3}{(2n-1)^3}$ (D) $\frac{(2m+1)^3}{(2n-1)^3}$

Q.22 The sum of the third and ninth term of an A.P. is 8. Find the sum of the first 11 terms of the progression.

(A) 88 (B) 44 (C) 48 (D) 128

Q.23 If the ratio of the sum of m terms and n terms of an AP be $m^2 : n^2$, then what will be the ratio of its m^{th} and n^{th} terms ?

(A) (2m – 1) : (2n – 1) (B) (2m + 1) : (2n + 1) (C) (2m – 1) : (2n + 1) (D) None of these

Q.24 There are 60 terms in an A.P. of which the first term is 8 and the last term is 185. The 31^{st} term is

(A) 56 (B) 94 (C) 85 (D) 98

Q.25 If the first term of a series in AP is 17, the last term is $-12\frac{3}{8}$ and the sum is $25\frac{7}{16}$, then find the common difference.

(A) –43/18 (B) –45/17 (C) –47/16 (D) None of these

Q.26 There are four arithmetic means between 2 and –18. The means are

(A) –4, –7, –10, –13 (B) 1, –4, –7, –10 (C) –2, –5, –9, –13 (D) –2, –6, –10, –14

Q.27 If the first, second and the last terms of an A.P. are a, b, c respectively, then the sum is –

(A) $\frac{(a+b)(a+c-2b)}{2(b-a)}$ (B) $\frac{(b+c)(a+b-2c)}{2(b-a)}$

(C) $\frac{(a+c)(b+c-2a)}{2(b-a)}$ (D) None of these

Q.28 The maximum sum of the series $20+19\frac{1}{3}+18\frac{2}{3}+18+.....$ is –

(A) 310 (B) 290 (C) 320 (D) None of these

Q.29 If the first and the last terms of an A.P. are – 4 and 146 and the sum of the A.P. is 7171, then the number of the terms in the A.P. and the common difference is –

(A) 101 and 2 (B) 98 and 3/2 (C) 101 and 3/2 (D) None of these

Q.30 The sum of 11 terms of an A.P. whose middle term is 30, is–

(A) 320 (B) 330 (C) 340 (D) 350

Q.31 The first and last term of an A.P. are a and ℓ respectively. If S is the sum of all the terms of the A.P. and the common difference is $\frac{\ell^2-a^2}{k-(\ell+a)}$, then k is equal to –

(A) S (B) 2S (C) 3S (D) None of these

Q.32 The sum of two numbers is $2\frac{1}{6}$. If an even number of arithmetic means are inserted between them and their sum exceeds their number by 1, then numbe of means inserted is –

(A) 12 (B) 8 (C) 6 (D) None of these

Q.33 If the ratio of the sum of n terms of two A.P.s is (3n – 13) : (5n + 21), then the ratio of 24th terms of the two progression is –

(A) 2 : 3 (B) 2 : 1 (C) 1 : 2 (D) None of these

Q.34 If four numbers in A.P. are such that their sum is 50 and the greatest number is 4 times the least, then the numbers are–

(A) 5, 10, 15, 20 (B) 4, 10, 16, 22 (C) 3, 7, 11, 15 (D) None of these

Q.35 The digits of a positive integer having three digits are in A.P. and their sum is 15. If the number obtained by reversing the digits is 594 less than the original number, then the number is –

(A) 352 (B) 652 (C) 852 (D) None of these

Q.36 If $\frac{b+c-a}{a},\frac{c+a-b}{b},\frac{a+b-c}{c}$ are in A.P. then which of the following is in A.P. -

(A) a,b,c (B) a^2, b^2, c^2 (C) $\frac{1}{a},\frac{1}{b},\frac{1}{c}$ (D) none of these

Q.37 If m arithmetic means are inserted between 1 and 31 so that the ratio of the 7^{th} and $(m-1)^{th}$ means is 5 : 9, then the value of m is

(A) 9 (B) 11 (C) 13 (D) 14

Q.38 If A_1, A_2 be two AM's and G_1, G_2 be two GM's between two numbers a and b, then $\frac{A_1+A_2}{G_1G_2}$ is equal to -

(A) $\frac{a+b}{2ab}$ (B) $\frac{2ab}{a+b}$ (C) $\frac{a+b}{ab}$ (D) $\frac{ab}{a+b}$

Q.39 If a,b,c,d are in G.P., then $(a^3+b^3)^{-1}, (b^3+c^3)^{-1}, (c^3+d^3)^{-1}$ are in –

(A) A.P. (B) G.P. (C) H.P. (D) none of these

Q.40 Sum of infinite terms of series $3+5.\frac{1}{4}+7.\frac{1}{4^2}+....$ is –

(A) 33/4 (B) 11/4 (C) 44/9 (D) 44/8

Q.41 If H_1,H_2,H_3 .....H_n be n harmonic means between a and b then $\frac{H_1+a}{H_1-a}+\frac{H_n+b}{H_n-b}=$

(A) 0 (B) n (C) 2n (D) 1

Q.42 If $a_1,a_2,a_3.....a_n$ are in AP where $a_i>0\ \forall$ i then the value of

$$\frac{1}{\sqrt{a_1}+\sqrt{a_2}}+\frac{1}{\sqrt{a_2}+\sqrt{a_3}}+....+\frac{1}{\sqrt{a_{n-1}}+\sqrt{a_n}}=$$

(A) $\frac{1}{\sqrt{a_1}+\sqrt{a_n}}$ (B) $\frac{1}{\sqrt{a_1}-\sqrt{a_n}}$ (C) $\frac{n}{\sqrt{a_1}-\sqrt{a_n}}$ (D) $\frac{n-1}{\sqrt{a_1}+\sqrt{a_n}}$

Q.43 If a,b,c,d and p are distinct real numbers such that
$(a^2+b^2+c^2)p^2-2p(ab+bc+cd)+(b^2+c^2+d^2)\le 0$ then a, b, c, d are in
(1) A.P. (2) G.P. (3) H.P. (4) none of these

Q.44 If the $(m+1)^{th}$, $(n+1)^{th}$, $(r+1)^{th}$ terms of an A.P. are in G.P. and m,n,r, are in H.P. then the ratio of common difference to the first terms in the A.P. is –
(1) n/2 (2) 2/n (3) – n/2 (4) – 2/n

Q.45 If a,b,c,d are in H.P. then which of the following statements is true–
(1) ad < bc (2) a + c > b + d (3) $a^n+c^n>2b^n$ (4) none of these

EXERCISE - 4

MATCH THE COLUMN

Each question contains statements given in two columns which have to be matched. Statements (A, B, C, D) in **column I** have to be matched with statements (p, q, r, s) in **column II**.

Q.1 Column II give common difference for A.P. given in column I, match them correctly.

Column I	**Column II**
(A) $1,\frac{3}{2},2,\frac{5}{2},.....$	(p) – 4
(B) $\frac{1}{3},\frac{5}{3},\frac{9}{3},\frac{13}{3},.....$	(q) 0.2
(C) 1.8, 2.0, 2.2, 2.4	(r) 4/3
(D) 0, – 4, –8. –12	(s) 1/2

Q.2 Column II give n^{th} term for AP given in column I, match them correctly.

Column I	**Column II**
(A) 119, 136, 153, 170	(p) 13 – 3n
(B) 7, 11, 15, 19, ...	(q) 9 – 5n
(C) 4, –1, –6, –11, ...	(r) 3 + 4n
(D) 10, 7, 4, 3	(s) 17n + 102

Q.3 Match them correctly.

Column I	Column II
(A) Sum of the first 20 terms of the AP – 6, 0, 6, 12, ...	(p) 7500
(B) Sum of the first 14 terms of an AP is 1050 and its first term is 10.	(q) 1020
(C) Sum of the AP, 1 + 3 + 5 + 7+ ..... + 1999	(r) 200
(D) Sum of all odd numbers between 100 and 200	(s) 10000

EXERCISE - 5

PREVIOUS YEARS COMPETITIVE PROBLEMS

Q.1 Fourth term of an arithmatic progression is 8. What is the sum of the first 7 terms of the arithmetic progression–

(A) 7 (B) 64 (C) 56 (D) Can't be determined

Q.2 The sum of inegers from 1 to 100 that are divisible by 2 or 5 is –

(A) 3000 (B) 3050 (C) 4050 (D) None of these

Q.3 Let T_r be the r^{th} term of an A.P. for r = 1, 2, 3, ... If for some positive integers m, n we have

$T_m = \frac{1}{n}$ and $T_n = \frac{1}{m}$, then T_{mn} equals–

(A) $\frac{1}{mn}$ (B) $\frac{1}{m}+\frac{1}{n}$ (C) 1 (D) 0

Q.4 The interior angles of a polygon are in A.P. If the smallest angle be 120° and the common difference be 5°, then the number of sides is –

(A) 8 (B) 10 (C) 9 (D) 6

Q.5 If the sum of the first 2n terms of 2, 5, 8, ... is equal to the sum of the first n terms of 57, 59, 61....., then n is equal to –

(A) 10 (B) 12 (C) 11 (D) 13

Q.6 If the sides of a right angled triangle are in A.P., then the sides are proportional to –

(A) 1 : 2 : 3 (B) 2 : 3 : 4 (C) 3 : 4 : 5 (D) 4 : 5 : 6

Q.7 If a, b, c are in A.P., then the straight line ax + by + c = 0 will always pass through the point –

(A) (–1, –2) (B) (1, –2) (C) (–1, 2) (D) (1, 2)

EXERCISE - 6

PREVIOUS YEARS BOARD QUESTIONS

Q.1 The 7th term of an A.P. is 32 and its 13th term is 62. Find the AP.

Q.2 Find the sum of the first 25 terms of an AP. whose nth term is given by $t_n = 2 - 3n$.

Q.3 The 7th term of an AP. is 20 and its 13th term is 32. Find the AP.

Q.4 The 7th term of an AP. is -4 and its 13th term is -16. Find the AP.

Q.5 The 8th term of an Arithmetic Progression (AP.) is 37 and its 12th term is 57. Find the AP.

Q.6 Find the sum of the first 25 terms of an AP. whose nth term is given by $t_n = 7 - 3n$.

Q.7 The 8th term of an Arithmetic Progression (AP.) is -23 and its 12th term is -39. Find the AP.

Q.8 The 8th term of an Arithmetic Progression (AP.) is 32 and its 12th term is 52. Find the AP.

Q.9 If the sum of first n terms of an AP. is given by $S_n = 3n^2 + 2n$, find the nth term of the AP.

Q.10 How many terms of the AP. 3,5,7,..... must be taken so that the sum is 120 ?

Q.11 If the sum of first n terms of an AP. is given by $S_n = 4n^2 - 3n$, find the nth term of the AP.

Q.12 If the sum of first n terms of an AP. is given by $S_n = 2n^2 + 5n$, find the nth term of the AP.

Q.13 Find the sum of first 15 terms of an AP. whose nth term is $9 - 5n$.

Q.14 Find 10th term from end of the AP. 4, 9,14,....., 254.

Q.15 Find the number of terms of the A.P. 54, 51, 48, ... so that their sum is 513.

Q.16 Find the sum of all two digits odd positive numbers.

Q.17 The 8th term of an Arithmetic Progression is zero. Prove that its 38th term is triple of its 18th term.

Q.18 Which term of the A.P. S, 9, 13, ... is 81 ? Also find the sum $5 + 9 + 13 + ... + 81$.

Q.19 The sum of first n terms of an A.P. is given by $(n^2 + 3n)$. Find the 20th term of the progression.

Q.20 Find the sum of the first 51 terms of the A.P. whose 2nd term is 2 and 4th term is 8.

Q.21 The sum of the first n terms of an A.P. is given by $S_n = 3n^2 - n$. Determine the A.P. and its 25th term.

Q.22 The 6th term of an Arithmetic Progression (A.P.) is -10 and the 10th term is -26. Determine the 15th term of the A.P.

Q.23 Find the sum of all the natural numbers less than 100 which are divisible by 6.

Q.24 Using A.P., find the sum of all 3-digit natural numbers which are multiples of 7.

Q.25 In an A.P the sum of first n terms $\frac{5n^2}{2} + \frac{3n}{2}$. Find its 20th term.

Q.26 Find the sum of first 25 terms of an A.P. whose nth term is $1 - 4n$.

Q.27 Which term of the A.P. 3, 15, 27, 39, ... will be 132 more than its 54th term ?

Q.28 In an A.P., the sum of its first n terms is $n^2 + 2n$. Find its 18th term.

Q.29 The first term, common difference and last term of an A.P. are 12, 6 and 252 respectively. Find the sum of all terms of this A.P.