MATHS

BOOKS - NAVBODH MATHS (HINGLISH)

ARITHMETIC PROGRESSION

3 1 1 Mark Each

1. Which of the following is the sum of the first 30 natural nambers?

A. 464

B. 465

C. 462

D. 461

Answer: B

2. If for an A.P., d=10 , what is the value of $t_6 - t_2$?

A. 10

B. 20

C. 30

D. 40

Answer: D

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3. For an A.P. if $t_8 = 6, d = -2$, then what is the value of a ?

A. 18

B. 14

C. 16

D. 20

Answer: D

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4. What is the sum of the first seven multiples of 5 ?

A. 35

B. 140

C. 280

D. 49

Answer: B

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5. If the first two terms of an A.P. Are -3 and 4, then what is the 21st term of this A.P. ?

A. -143

B. 143

C. 137

D. 17

Answer: C

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6. If for an A.P., a= 10.5 , d= 0 , dn = 101, then what is the value of t_n ?

A. 0

B. 10.5

C. 111.5

D. 110.5

Answer: B

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7. What is the common difference (d) of the A.P. 2,-2,-6,-10..... ?

A. -4

B. 2

C. -2

D. 4

Answer: A

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8. What is the sume of the first 10 terms of an A.P. 41,36,31,26,"....." ?

A. 635

B. 600

C. 200

D. 185

Answer: D

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9. The first term of an A.P. is 2 and the nth term is 41. What is the value of n, if $S_n = 860$?

A. 30

B. 31

C. 40

D. 41

Answer: C

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10. What is the sum of first n natural numbers

?

A. $\frac{n(n-1)}{2}$

B. $\frac{n}{2}(n-2)$

C. $\frac{n(n+1)}{2}$

D. $\frac{n(n+2)}{2}$

Answer: C

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3 2 1 Mark Each

1. Write t_2 and t_3 for the A.P., if

(i) a=11,d=2 (ii) a= -7, d= - 5

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2. Write the next two terms of the following sequences :

(i) 3,5,8,12,17 (ii) -25, -23, - 21, -19

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3. Write the second term of the sequence $t_n = 2n + 1.$

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4. Find S_3 for the A.P. 3,5,7,9.....

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5. Find the common difference (d) for an A.P., if $t_3 = 8$ and $t_4 = 12.$

A.

B.

C.

D.

Answer:

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6. What is the sum of first six terms of an A.P. whose first term is 3 and the sixth term is 27.

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7. For an A.P. if a= 100, d = 100, what is t_{10} ?

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8. What is the common difference (d) of the A.P. 410, 360, 310.....

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3 3 1 Mark Each

1. Is the sequence $\frac{3}{2}, \frac{1}{2}, -\frac{1}{2}, -\frac{3}{2}, \ldots$ an A.P.? Justify

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2. Find the 19th term of the A.P. 7,13,19,25,....

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3. The fitst term and the common difference of an A.P. are 12 and 4 respectively . If $t_n = 96$

find n .

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4. Which term in the A.P. 3,8,13,18, ... Is 148 ?

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5. Complete the following activity to find the number of terms in the A.P. 1,3,5,...., 149.

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6. The first term of an A.P. is 5 and the common difference is 4. Complete the following activity to find the sum of first 12 terms of the A.P.

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7. Complete the following activity to find the 19th term of the A.P. 10,15,20,....

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8. There are 25 rows of seats in an auditorium. The first row is of 20 seats, the second of 22 seats, the third of 24 seats and so on . How many seats are there in the 21st row ?

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9. क्या संख्याओं की सूची 5, 11, 17, 23,.. का कोई पद 301 है? क्यों ?

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3 4 1 Mark Each

1. The 11th term of an A.P. is 16 and the 21st term is 29 . Find the 16th term of this A.P.

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2. Find the sum of all natural numbers between 1 and 145 which are divisible by 4.

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3. The sum of the third and seventh terms of an A.P. s 6 and their product is 8. Find the first term and the common difference of the A.P.

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4. Amit saves certain amount every month in a specific way. In the first month he saves Rupees 200, in the second month Rupees 250. In the third month Rupees 300 and so on . How much will be his total saving in 17 months ?

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5. The sum of the first 45 terms of an A.P. is 3195. Complete the following activity to find the 23rd term.

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6. Mr Parekh got a job with salary Rupees 1,80,000 per year. His employer agreed to give Rupees 10,000 per year as increment. In how

many years will his annual salary be Rupees 2,50,000 ?

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7. In an A.P. the sum of three consecutive terms is 27 and their product is 504. Find the terms. (Consider the terms to be in ascending order.)

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8. Find the sum of all numbers from 150 to 200 which are divisible by 7.

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9. Open Ended Questions :

(i) Write the A.P. in which a = 10 and d is any natural number.

(ii) Find the sum of the first ten terms usiing formula.

(iii) Can -80 be a term of this A.P.? Justify .

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Assignment 3 1

1. What is the value of x, if $x-1, x+2, 2x-1, \_\_\_\_\_$ is an A.P?

A. 4

B. -4

C. -6

D. 6

Answer: D

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2. For an A.P., $t_3 = 12$and $t_7 = 24$. What is the value of t_5 ?

A. 18

B. 17

C. 16

D. 15

Answer: A::B::C

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3. What is the sum of first 10 terms of the A.P.

15, 10 ,5 ....?

A. -75

B. -125

C. 75

D. 125

Answer: A

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4. If for an A.P. $t_{24} - t_{17} = -28$, then what is the common difference ?

A. 4

B. -4

C. 8

D. -8

Answer: B

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5. For an A.P., if $S_{10} = 150$ and $S_9 = 125$, find t_{10}

A. 20

B. 22

C. 24

D. 26

Answer: $[S_n - S_{n-1} = t_n]$

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6. The sequence -10,-6,-2,2,.... Is

A. not an A.P.

B. and A.P. with d = - 16

C. an A.P.with d= - 4

D. an A.P. with d= 4

Answer: D

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7. What is the common difference of an A.P. $-5, -\frac{4}{3}, \frac{7}{3}, 6, \ldots$?

A. $\frac{11}{3}$

B. $-\frac{11}{3}$

C. $\frac{10}{3}$

D. $-\frac{10}{3}$

Answer: A

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8. Find t_{11} for the A.P. $70, 68.5, 67, 65.5, \ldots$

A. 55.5

B. 55

C. 54.5

D. 54

Answer: B

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9. What is the sum of the first five natural numbers divisible by 3 ?

A. 54

B. 45

C. 57

D. 75

Answer: B

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10. The first term of an A.P. is 2 and the nth term is 29 . If $S_n = 465$, then what is the value of n ?

A. 32

B. 16

C. 30

D. 15

Answer: C

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Assignment 3 2

1. Write the first two terms of the sequence

(i) $t_n = 3n - 6$ (ii) $t_n = \frac{1}{n^2} - 1$

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2. Write the next two terms of the A.P., if

(i) $a = -7, d = 4$ (ii) a= 101, d= - 5

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3. Find d for an A.P. if (i) $t_{10} = 20, t_9 = 18$ (ii) $t_n = 7, t_{n-1} = 10$

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4. Find the 10th term of the A.P., if a=1 and d=1

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5. Find S_5 of the A.P. 8,6,4,....

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6. What is the sum of first ten terms of the A.P., if the first term is 1 and the last term is 19 ?

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7. What is the 99th term of the A.P. 2,2,2,.... ?

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8. If for an A.P. $t_{10} = 25, t_{18} = 45$, what is the value of t_{14}?

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Assignment 3 3

1. Is the sequence $3, 3+\sqrt{2}, 3+2\sqrt{2}, 3+3\sqrt{2}, \ldots.$ an A.P. ? Justify.

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2. Write an A.P. whose first term is 0..6 and the common difference 0.3.

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3. Show that t_n for the A.P. 13,18,23,28,.... Is 5n+8.

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4. Find the sum of the first 10 terms of the A.P. 6,4,2,.....

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5. Find the 24th term of the A.P. 12,16,20,24,....

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6. Which term of the A.P. 2,11,20,29,... is 560 ?

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7. The 1st term and the common difference of an A.P. are 10,000 and 2000 respectively . Find the sum of the first 12 terms.

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8. For an A.P. $t_6 = -10$ and $t_{14} = -34$. Find the value of t_{10}.

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9. For an A.P., $t_1 = 25$ and $t_{20} = 405$. Find the common difference.

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10. Complete the following activity , to find the two-digit numbers which are divisible by 4.

The two -digit numbers divisible by 4 are 12,16,20,..., 96.

Here, a = 12, d= 4, $t_n = 96$.

$t_n = a + (n-1)d$ ...(Formula)

$\therefore \square = 12 + (n-1) \times \square$

$\therefore \square = 12 + 4n - 4$

$\therefore 4n = \square$

$\therefore n = 22$

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11. The first term and the common difference of an A.P. are 10 and 5 respectively. Complete the following activity to find the sum of the first 30 terms of the A.P.

$S_n = \frac{n}{2}[\square + (n-1)d]$

$\therefore S_{30} = \frac{30}{2}[20 + (30-1) \times \square]$

$= 15[20 + \square]$

$= 15 \times 165$

$= \square$

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Assignment 3 4

1. If the 9th and 21st terms of an A.P. are 75 and 183 respectively, then find the 15th term.

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2. The 11th term of an A.P. is 60 less than the 31st term of an A.P. . Find the common difference.

3. How many three-digit numbers are divisible by 5 ?

4. The sum of how many terms of the A.P. 10,12,14,... will be 190 ?

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5. Find the value of n , if the sum of the first n even naturalnumbers is 462.

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6. The sum of how many terms of the A.P. 22,20,18,.. Will be zero ?

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7. In a rose garden, there are 32 rose plants in the first row, 29 in the second row, 26 in the third row and so on. There are 5 rose plants in the last row. How many rows of rose plants are there in the rose garden ?

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8. On 1st Jan 2018, Sanikadecides to save Rupees 10,Rupees 11 on the second day, Rupees 12 on the third day . She decides to save like this . What would be her total savings at the end of the year ?

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9. The 9th term of the A.P. is 499 and the 499th term is 9. Which term of this A.P. is zero ?

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10. Complete the following activity to find the sum of all natural numbers between 1 and81 divisible by 8.

The number between 1 and 81 divisible by 8 are 8,16,24,... , 80.

Here,

$a = t_1 = 8, d = 8, t_n = 80, n = ?, S_n = ?$

t_n □ ...(Formula)

$\therefore 80 = 8 +$ □ ....(Substituting the values)

$\therefore 80 =$ □

$\therefore n = 10$

Now, we find S_{10}.

$S_n = \frac{n}{2} \square$ ...(Formula)

$\therefore S_{10} = \frac{10}{2} \times \square$ ....(Substituting the values)

$\therefore S_{10} = \square$

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11. To draw a figure from the given information :

Sequence : 1,3,6,10....

Pattern					------	------	------
Terms in the sequence	1	3	6	10	------	------	------

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