ಎಸ್ಎಸ್ಎಲ್ಸಿ–ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ

MATHEMATICS Chapter–5

Arithmetic Progression

To find nth term of an A.P

EXERCISE 5.2

1. Fill in the blanks in the following table, given that *a* is the first term, *d* the common difference and *a n* the *n* th term of the AP:

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

Soln : ***(…..Contd)***

(i) $a_n = a + (n-1)d$

$= 7 + (8-1)3$

$= 7 + (7)3$

$= 7 + 21$

$a_n = 28$

(ii) $a_n = a + (n-1)d$

$0 = -18 + (10-1)d$

$18 = 9d$

$d = \frac{18}{9} = 2$

(iii) $a_n = a + (n-1)d$

$-5 = a + (18-1)\ (-3)$

$-5 = a - 51$

$a = 51 - 5$

$a = 46$

(iv) $a_n = a + (n-1)d$

$3.6 = -18.9 = (n-1)25$

$3.6 + 18.9 = (n-1)(2.5)$

$22.5 = (n-1)(2.5)$

$n - 1 = \frac{22.5}{2.5}$

$= n - 1 = 9$

$n - 1 = 9 + 1$

$n = 10$

(v) $a_n = a + (n-1)d$

$= 3.5 + (105-1)0$

$a_n = 3.5$

	a	d	n	*an*
(i)	7	3	8	**28**
(ii)	– 18	**2**	10	0
(iii)	**46**	– 3	18	– 5
(iv)	– 18.9	2.5	**10**	3.6
(v)	3.5	0	105	**3.5**

2. Choose the correct choice in the following and justify :

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

(A) 97 (B) 77

(C) –77 (D) – 87

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

(A) 28 (B) 22

(C) -38 (D) $-48\frac{1}{2}$

Soln:- (i) The given AP is 10, 7, 4……..

Here a=10 D= 7-10=-3 n=30

we have $a_n = a + (n-1)d$

So, $a_{30} = 10 + (30-1)(-3)$

$= 10 - 87$

$a_{30} = -77$

Hence, the correct choice is (c) – 77

(ii) The given AP is $-3, -\frac{1}{2}, 2$.....

Here a=-3 n=11

$$d = -\frac{1}{2} - (-3) = -\frac{1}{2} + 3 = \frac{5}{2}$$

we have $a_n = a + (n-1)d$

So, $a_{11} = -3 + (11-1)\left(\frac{5}{2}\right)$

$= -2 + 25 = 22$

Hence, the correct choice is (B) 22

3. In the following APs, find the missing terms in the boxes :

(i) 2, ☐, 26

(ii) ☐, 13, ☐ 3

(iii) 5, ☐, ☐ , 91/2

(iv) – 4, ☐ , ☐ , ☐ , ☐ , 6

(v) ☐ , 38, ☐ , ☐ ☐ 22

Soln:

(i) Let the common difference of the given A P be d

Then,

Third term = $2 + d + d = 2 + 2d$

According to the question

$2 + 2d = 26$

$2d = 26 - 2$

$2d = 24 \Rightarrow d = 24/2 = 12$

So, Second term $= 2 + d = 2 + 12 = 14$

Hence, the missing term in the box is 14

(ii) Let the 1st term and common difference of the given A P be a and d respectively

Then,

2nd term = 13

$a + d = 13$.....(1)

4th term = 3

$a + (4-1)d = 3$

$a + 3d = 3$.....(2)

Solving (1) and (2), we get

$a = 18 \quad d = -5$

$\therefore$ 3rd term $= a + (3-1)d$

$= a + 2d$

(Contd…….)