



Exercise 11A

Question 5:

The given AP is $6, 7\frac{3}{4}, 9\frac{1}{2}, 11\frac{1}{4}, \dots$

$$\begin{aligned}\text{First term} &= 6, \text{ common difference} = \left(7\frac{3}{4} - 6\right) \\ &= \left(\frac{31}{4} - 6\right) = \frac{7}{4}\end{aligned}$$

$$\therefore a = 6, d = \frac{7}{4}$$

The n^{th} term is given by

$$T_n = a + (n - 1)d$$

$$T_{37} = 6 + (37 - 1)\frac{7}{4} = 6 + 63 = 69$$

Hence, 37^{th} term is 69

Question 6:

The given AP is $5, 4\frac{1}{2}, 4, 3\frac{1}{2}, 3, \dots$

The first term = 5,

$$\text{common difference} = \left(4\frac{1}{2} - 5\right) = \left(\frac{9}{2} - 5\right) = \frac{-1}{2}$$

$$\therefore a = 5, d = \frac{-1}{2}$$

The n^{th} term is given by

$$T_n = a + (n - 1)d$$

$$T_{25} = 5 + (25 - 1)\left(\frac{-1}{2}\right) = 5 - 12 = -7$$

Hence the 25^{th} term is -7

Question 7:

In the given AP, we have $a = 6$ and $d = (10 - 6) = 4$

Suppose there are n terms in the given AP, then

$$T_n = 174 \Rightarrow a + (n - 1)d = 174$$

$$\Rightarrow 6 + (n - 1)4 = 174$$

$$\Rightarrow 6 + 4n - 4 = 174$$

$$\Rightarrow 2 + 4n = 174 \Rightarrow n = 172/4 \Rightarrow 43$$

Hence there are 43 terms in the given AP

Question 8:

In the given AP we have $a = 41$ and $d = 38 - 41 = -3$

Suppose there are n terms in AP, then

$$T_n = 8 \Rightarrow a + (n-1)d = 8$$

$$\Rightarrow 41 + (n-1)(-3) = 8$$

$$\Rightarrow 41 - 3n + 3 = 8$$

$$\Rightarrow -3n = -36 \Rightarrow n = 12$$

Hence there are 12 terms in the given AP

Question 9:

In the given AP, we have $a = 3$ and $d = 8 - 3 = 5$

Suppose there are n terms in given AP, then

$$T_n = a + (n-1)d = 88$$

$$\Rightarrow 3 + (n-1)5 = 88$$

$$\Rightarrow 3 + 5n - 5 = 88$$

$$\Rightarrow 5n = 90$$

$$\Rightarrow n = 18$$

Hence, the 18th term of given AP is 88

Question 10:

In the given AP, we have $a = 72$ and $d = 68 - 72 = -4$

Suppose there are n terms in given AP, we have

$$T_n = 0 \Rightarrow a + (n-1)d = 0$$

$$\Rightarrow 72 + (n-1)(-4) = 0$$

$$\Rightarrow 72 - 4n + 4 = 0$$

$$\Rightarrow 4n = 76$$

$$\Rightarrow n = 19$$

Hence, the 19th term in the given AP is 0

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