Exercise 11D

Question 6:

$$n^{th} \text{ term of AP} = T_n = 7 - 4n$$

$$\text{put } n = 1, \quad T_1 = 7 - 4 = 3$$

$$\text{put } n = 2, \quad T_2 = 7 - 4 \times 2 = 7 - 8 = -1$$

$$\text{Common difference} = T_2 - T_1 = -1 - 3 = -4$$

Question 7:
First term of AP = a = p
Common difference = d = q
n^{th} term = a + (n - 1)d
10^{th} term = p + (10 - 1)q
= p + 9q

Question 8:

$$\text{The term AP is } \sqrt{8}, \sqrt{18}, \sqrt{32} \ldots$$

$$\text{or } 2\sqrt{2}, 3\sqrt{2}, 4\sqrt{2} \ldots$$

$$\text{common difference} = 3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$$

$$\text{Next term} = 4\sqrt{2} + \sqrt{2} = 5\sqrt{2} = \sqrt{25 \times 2} = \sqrt{50}$$

Question 9:

$$\text{The given AP is } \sqrt{2}, \sqrt{8}, \sqrt{18}, \ldots \text{ or } \sqrt{2}, 2\sqrt{2}, 3\sqrt{2} \ldots$$

$$\text{Common difference } d = 2\sqrt{2} - \sqrt{2} = \sqrt{2}$$

$$\text{Term next to } 3\sqrt{2} - 3\sqrt{2} + d - 3\sqrt{2} + \sqrt{2} - 4\sqrt{2} - \sqrt{16 \times 2} - \sqrt{32}$$

Question 10:
The given AP is 21, 18, 15, ...
First term = 21, common difference = 18 - 21= - 3
Let n^{th} term be zero
a + (n - 1)d = 0 or 21 + (n - 1)(-3) = 0
21 - 3n + 3 = 0
3n = 24
or n = 8
Hence, 8^{th} term of given series is 0

********** END **********