Exercise 11A

Question 21:
First AP is 63, 65, 67....
First term = 63, common difference = 65 - 63 = 2
∴ nth term = 63 + (n - 1) 2 = 63 + 2n - 2 = 2n + 61
Second AP is 3, 10, 17 ....
First term = 3, common difference = 10 - 3 = 7
nth term = 3 + (n - 1) 7 = 3 + 7n - 7 = 7n - 4
The two nth terms are equal
∴ 2n + 61 = 7n - 4 or 5n = 61 + 4 = 65
⇒ n = 65/4 = 13.

Question 22:
Three digit numbers which are divisible by 7 are 105, 112, 119,....994
This is an AP where a= 105, d = 7 and l = 994
Let n^{th} term be 994
∴ a + (n - 1)d =994 or 105 + (n - 1)7 = 994
⇒ 105 + 7n - 7 = 994 or 7n = 94 - 98 = 896
∴ n = 896/7 = 128.
Hence, there are 128 three digits number which are divisible by 7.

Question 23:
Here a = 7, d = (10 - 7) = 3, l = 184
And n = 8
Now, nth term from the end = [l - (n-1) d]
= [184 - (8-1) 3]
= [184 - 7 x 3]
= 184-21
= 163
Hence, the 8^{th} term from the end is 163

Question 24:
Here a = 17, d = (14 - 17) = -3, l = -40
And n = 6
Now, n^{th} term from the end = [l - (n - 1) d]
= [-40 - (6-1)(-3)]
= [-40 + 5 x 3]
= -40+15
= -25
Hence, the 6^{th} term from the end is - 25

Question 25:
The given AP is 10, 7, 4, ... (-62)
a = 10, d = 7 - 10 = -3, l = -62
Now, 11^{th} term from the end = [l - (n - 1) d]
= [-62 - (11-1)(-3)]
= -62 + 30
= -32

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