

## Exercise 1(A)

### Type I

#### Problems Based on Sequence

1. Write the sequence whose  $n$ th term is  $\frac{n}{n+1}$ .
2. If  $n$ th terms of a sequence is  $2na + b$ , where  $a, b$  are constants, is this sequence an A.P. ?
3. Show that  $(a - b)^2, (a^2 + b^2), (a + b)^2$  are in A.P.
- 3A. The  $n$ th term of a sequence is  $3n - 2$ . Is the sequence an A.P. ? If so, find its 10th term.

### Type II

#### Problems Based on $t_n = a + (n - 1)d$

4. Find the 10th term of the sequence 10, 5, 0, -5, -10, .....
5. Find the 10th term of the sequence 3, 5, 7, 9, .....
6. How many terms are there in A.P. 1, 3, 5, 7, ....., 99 ?
7. Which term of the A.P. 1, 3, 5, 7, 9, ..... is 65 ?
8. Find the A.P. whose 7th and 12th terms are 34 and 64 respectively. Also find its 10th term.
9. How many terms are identical in the two A.P. if each of the A.P. 3, 5, 7, and 4, 7, 10, ..... is continued to 100 terms?
10. Is 254 a term of the A.P. 4, 9, 14, 19, ..... ?
11. If  $(x + 2), 3x$  and  $(4x + 1)$  are in A.P. then find  $x$ .
12. Which term of the A.P. 1, 4, 7 is 55 ?
13. If 24th term of an A.P. is twice the 10th term, prove that 72th term is twice the 34th term.
14. If 3rd term of an A.P. is four times the first term and 6th term is 17, find the A.P.
15. Find the value of  $k$ , if 5,  $k$ , 11 are in A.P.
16. In a certain A.P. 11th and 16th terms are 44 and 19 respectively, then find the A.P. Also find its 20th term.

### Type III

#### Problems Based on Three, Four or Five Numbers in A.P When Their sum is Given

17. If the sum of three numbers in A.P. is 12 and sum of their cubes is 408, find the numbers.
18. If the sum of three consecutive terms of an A.P. is 51 and the product of two extremes is 273, find the numbers.
19. Divide 24 into four parts which are in A.P. such that the sum of their squares is 164.
20. The sum of three no. in A.P. is -24 and their product is 288. Find the numbers.
21. The sum of three no. in A.P. is 15 and the product of 1st and the last is 21. Find the numbers.
22. Divide 20 into 4 parts which are in A.P. and such that the product of first and fourth is to product of the second and third in the ratio 2 : 3.
23. The sum of digits of a three digit number is 12 and the digits are in A.P. If the digits are reversed, then the number is diminished by 396. Find the number.
24. The three nos. are in the ratio of 3 : 7 : 9. If 5 subtracted from the second, the resulting number form an A.P. Find the original numbers.

#### Miscellaneous Problems

25. Which term of the sequence 72, 70, 68, 66, ..... is 40 ?
26. Is 184 a term of the sequence 3, 7, 11, ..... ?
27. How many numbers of two digits are divisible by 7 ?