

## Arithmetic Progressions

1. Write down the next three terms of the sequence: 2,5,8, .....
2. Find the first three terms of the sequence in which  $T_n = 3n$
3. Determine whether or nor the following numbers form an arithmetic sequence:
  - (i) 18, 25, 32,
  - (ii) -3, 1, 5,
  - (iii) -1, 1, 2,
  - (iv) -1, -2, -3,
  - (v) -2, 0, 2
4. Find the 24<sup>th</sup> member of the sequence: 8, 10, 12, .....
5. Find the 18<sup>th</sup> member of the sequence: 24, 21, 18, .....
6. Is 242 a member of the sequence: 2, 5, 8, .....? If so, which term is it?
7. Is 584 a member of the sequence: 2, 9, 16, .....? If so, which term is it?
8. Find the sum of the first 10 terms of the arithmetic sequence in which the first term is 8 and the common difference is 3.
9. Find the sum of the first 16 terms of the sequence: 3, 8, 13, .....
10. Find  $\sum_{n=2}^8 2n$
11. The 12<sup>th</sup> term of an A.P. is 38 and the 20<sup>th</sup> term is 62. Find the first term and the common difference.
12. Find the sum of all the integers from 1 to 100 inclusive.
13. Amanda was starting a bird sanctuary. She bought 14 swans in January, 18 in February, 22 in March and so on, with the number increasing by 4 swans every month for the year.
  - (i) How many swans did she buy in December?
  - (ii) How many swans did she buy throughout the year?
14. Samantha's parents opened a bank account for her when she was born and deposited \$200 in it. They deposited \$250 on her first birthday, \$300 on her second birthday and so on, with the amounts increasing by \$50 each year until her 21<sup>st</sup> birthday.
  - (i) How much is deposited into her account on her 21<sup>st</sup> birthday?
  - (ii) What is the total amount deposited into her account up to and including her 21<sup>st</sup> birthday?

### Answers:

1. 11, 14, 17,
2. 3, 6, 9,            Since  $9-6 = 6-3$  then it is an A.P.
3. (i) yes (ii) yes (iii) no (iv) yes (v) yes
4. 54                    5. -27                    6. Yes. 81<sup>st</sup> term
7. No.  $84\frac{1}{7}$  term. n is not an integer  $\therefore$  584 not a member of the series.
8. 215                    9. 648                    10. 70
11. a = 5, d = 3            12. 5050                    13. (i) 58                    (ii) 432
14. (i) \$1250            (ii) \$15 950