

Exercise 2023-12 ED-00003(1) Arithmetic series

(1) Calculate:

(a)  $5 + 8 + 11 + 14 + \dots$  to 16 terms

(b)  $36 + 31 + 26 + 21 + \dots$  to 34 terms

(c)  $9 + 12 + 15 + 18 + \dots + 264$

(d)  $\sum_{k=1}^7 (4k - 1)$

(e)  $-7 - 2 + 3 + 8 + \dots + 123$

(f)  $\sum_{n=3}^{12} (3 - n)$

(g)  $-66 - 64 - 62 - 60 - \dots - 22$

(h)  $n$  if  $\sum_{k=1}^n (3k - 2) = 92$

(i)  $\sum_{i=1}^{300} \left(\frac{i}{2}\right)$

(j)  $n$  if  $0,3 + 1,1 + 1,9 + 2,7 + \dots$  (to  $n$  terms) = 24,8

(2) The  $n^{\text{th}}$  term of an AS is  $2n + 3$ . Determine:

(a) the first three terms of the sequence.

(b) the 18<sup>th</sup> term of the sequence.

(c) how many terms in the sequence have a sum of 4 352.

(3) The following is given:  $\sum_{t=2}^{11} (3 - 3t)$

(a) Write down the first three terms.

(b) Determine the sum of the series.