



QUESTION WORKBOOK

Arithmetic series

Sequences and series · Year 12–13

7 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

- A1** An arithmetic sequence has first term 7 and common difference 5. Find the 15th term. [2]

- A2** Find the n th term of the sequence 4, 11, 18, ..., and determine whether 200 is a term. [2]

SECTION B · Standard

- B1** The 4th term of an arithmetic sequence is 18 and the 9th term is 38. Find the first term and common difference, and hence the 25th term. [3]

- B2** Find the sum of the first 30 terms of the series $8 + 11 + 14 + \dots$ [3]

- B3** Prove that the sum of the first n natural numbers is $n(n + 1)/2$, and evaluate the sum of the first 200. [4]

- B4** A saver deposits £20 in the first month, then increases the deposit by £4 each month. Find the total saved after 24 months. [3]

SECTION C · Stretch

- C1** Find the smallest number of terms of the series $5 + 9 + 13 + \dots$ whose sum exceeds 1000. [3]