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SEQUENCES & SERIES (Q 5, PAPER 1)

2005

5 (a) The first term of an arithmetic sequence is 9 and the second term is 13.

(i) Find the common difference.

(ii) Find the third term.

(b) The sum of the first n terms of an arithmetic series is given by

$S_n = n^2 + n$.

(i) Find a, the first term.

(ii) Find S_2, the sum of the first two terms.

(iii) Find d, the common difference.

(iv) Write down the first five terms of the series.

(c) In a geometric sequence of positive terms, the third term is $\frac{1}{4}$ and the fifth term is $\frac{1}{16}$.

(i) Find r, the common ratio.

(ii) Find a, the first term.

(iii) How many terms of the sequence are greater than 0·01?

ANSWERS

5 (a) (i) 4 (ii) 17

(b) (i) 2 (ii) 6 (iii) 2 (iv) 2, 4, 6, 8, 10

(c) (i) $\frac{1}{2}$ (ii) 1 (iii) 7