SEQUENCES & SERIES (Q 5, PAPER 1)

2002

5 (a) Write down the next three terms in each of the following arithmetic sequences

(i) $-10,\ -8,\ -6, \ldots\ldots$

(ii) $4.1,\ 4.7,\ 5.3, \ldots\ldots$

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

$S_n = \frac{3n}{2}(n+3)$.

(i) Calculate the first term of the series.

(ii) By calculating S_9 and S_{10}, find T_{10} (the tenth term of the series).

(c) The first three terms of a geometric sequence are

$k-3,\ 2k-4,\ 4k-3, \ldots\ldots$

where k is a real number.

(i) Find the value of k.

(ii) Hence, write down the value of each of the first four terms of the sequence.

ANSWERS

5 (a) (i) $-4,\ -2,\ 0$ (ii) $5.9,\ 6.5,\ 7.1$

(b) (i) 6 (ii) 33

(c) (i) $k = 7$ (ii) $4,\ 10,\ 25,\ \frac{125}{2}$