

4.3 Geometric Sequences & Series

Question Paper

Course	Edexcel IAL Maths: Pure 2
Section	4. Sequences & Series
Topic	4.3 Geometric Sequences & Series
Difficulty	Hard

Time allowed: 50

Score: /42

Percentage: /100

Question 1

The first three terms of a geometric sequence are given by x + 12, 3x, and x^2 respectively, where x is a non-zero real number.

Find the value of the 102nd term in the sequence.

[5 marks]

Question 2

A geometric series has first term 14 and common ratio $\frac{99}{100}$.

Given that the sum of the first k terms of the series is less than 1000, find the largest possible value of k.

[5 marks]

Question 3

The sum of the first three terms in a geometric series is 8.75. The sum of the first six terms in the same series is 13.23.

Find the common ratio, r, of the series.

[4 marks]

Question 4

A geometric series has first term a and common ratio $\sqrt{5}$.

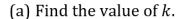
Show that the sum of the first ten terms of the series is equal to $ka(\sqrt{5}+1)$, where k is a positive integer to be determined.

[4 marks]

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Question 5

The first three terms in a geometric series are (2k + 3), k, (k - 2), where k < 0 is a constant.



[5 marks]

Question 5

(b) Find the sum of the first 12 terms in this series.

[3 marks]

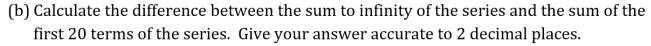
Question 6

The second and fifth terms of a geometric series are 13.44 and 5.67 respectively. The series has first term a and common ratio r.

(a) By first determining the values of a and r, calculate the sum to infinity of the series.

[6 marks]

Question 6



[2 marks]

Question 7

A geometric series has first term 9, and the sum of the first three terms of the series is 19. The common ratio of the series is *r*.

(a) Show that
$$9r^2 + 9r - 10 = 0$$
.

[3 marks]

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(b) Find the two	o possible val	lues of r .
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[2 marks]

Question 7

(c) Given that the series converges, find the sum to infinity of the series.

[3 marks]