

8 The sum of the first and second terms of a geometric series G is 400

The sum of the second and third terms of G is 100

(a) Show that the common ratio of G is $\frac{1}{4}$ (4)

(b) Show that the first term of G is 320 (2)

(c) Find the sum to infinity of G (2)

The sum to n terms of G is S_n

(d) Find, using logarithms, the least value of n such that

$$S_n > 426.6 \quad (4)$$

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(Total for Question 8 is 12 marks)

