

7 The n th term of a geometric series G is u_n

The first term of G is a and the common ratio of G is r , where $r > 0$

Given that $u_3 = 4$ and that $u_7 = 16$

(a) (i) show that $r = \sqrt{2}$

(ii) find the value of a .

(3)

(b) Find the least value of n for which $u_n > 500$

(4)

The sum of the first n terms of G is S_n

(c) Find S_{20}

Give your answer in the form $p(1 + \sqrt{2})$ where p is an integer.

(4)

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Question 7 continued

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(Total for Question 7 is 11 marks)

