

- 3 A geometric series has first term  $a$  and common ratio  $r$ , where  $r > 0$

Given that the 3rd term of the series is 5 and that the 5th term of the series is  $\frac{5}{2}$

(a) find

(i) the exact value of  $r$

(ii) the value of  $a$

(4)

(b) Find the sum to infinity of this series.

Give your answer in the form  $p + q\sqrt{2}$  where  $p$  and  $q$  are integers.

(2)

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**Question 3 continued**

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**(Total for Question 3 is 6 marks)**

