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 $\dfrac{5}{2}$

(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)

Question 3 continued

(Total for Question 3 is 6 marks)