5 A geometric series G has first term 12 and common ratio $\frac{3}{8}$

(a) Find the sum to infinity of G

(2)

(b) Show that the 6th term of G can be written as $\frac{3^6}{2^{13}}$

(3)

The nth term of G is u_n

(c) By finding an expression for u_n in terms of n, show that

$$\log_2 u_n = n\log_2 3 - 3n + 5$$

(5)

Question 5 continued

Question 5 continued

Question 5 continued

(Total for Question 5 is 10 marks)