7 A geometric series has first term $(x - 3)$, second term $(x + 1)$ and third term $(4x - 2)$.

(a) Find the two possible values of x.

(5)

Given that $x < 1$,

(b) show that the series is convergent.

(2)

The sum to infinity of the series is S.

(c) Find the value of S.

(2)

The sum of the first n terms of the series is S_n

Given that $\frac{S}{S_n} = \frac{256}{255}$

(d) find the value of n.

(3)

Question 7 continued

Question 7 continued

Question 7 continued

(Total for Question 7 is 12 marks)