3 Every term of a convergent geometric series is positive. The difference between the third term and the fourth term is twice the fifth term.

(a) Show that the common ratio of the series is $\frac{1}{2}$

(3)

The sum to infinity of this convergent series is 400

Find

(b) the first term of the series,

(2)

(c) the sum of the first 10 terms of the series, writing down all the digits on your calculator display.

(2)

Question 3 continued

(Total for Question 3 is 7 marks)