

16 The n th term of a geometric sequence, u_n , is given by

$$u_n = \frac{e^{1-n}}{2^n}$$

16 (a) Find the value of u_1

[1 mark]

16 (b) (i) Show that

$$\frac{u_{n+1}}{u_n} = \frac{1}{2e}$$

[3 marks]

16 (b) (ii) Explain why the sum to infinity of this sequence exists.

[1 mark]

16 (c) Show that the sum to infinity of the sequence is

$$\frac{e}{Ae-1}$$

where A is an integer to be found.

[3 marks]