

**7 In this question you must show detailed reasoning.**

A sequence  $u_1, u_2, u_3 \dots$  is defined by  $u_n = 25 \times 0.6^n$ .

Use an algebraic method to find the smallest value of  $N$  such that  $\sum_{n=1}^{\infty} u_n - \sum_{n=1}^N u_n < 10^{-4}$ . **[8]**