

2. A sequence is defined by the recurrence relation  $u_{n+1} = \frac{1}{5}u_n + 12$  with  $u_1 = 20$ .

(a) Calculate the value of  $u_2$ . 1

(b) (i) Explain why this sequence approaches a limit as  $n \rightarrow \infty$ . 1

(ii) Calculate this limit. 2