Higher Maths
SQA 2024 Paper 1
Question 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 $n \to \infty$. **1**

(ii) Calculate this limit. **2**

Answers:

(a) 16

(b) (i) a limit exists as $-1 < \frac{1}{5} < 1$

(ii) 15

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