A sequence is defined by $u_{n+1} = 3u_n + 4$ with $u_1 = 2$.

What is the value of u_3?

A   34

B   21

C   18

D   13

A sequence is generated by the recurrence relation $u_{n+1} = 0 \cdot 7u_n + 10$.

What is the limit of this sequence as $n \to \infty$?

A $\dfrac{100}{3}$

B $\dfrac{100}{7}$

C $\dfrac{17}{100}$

D $\dfrac{3}{10}$

A sequence is defined by the recurrence relation

$$u_{n+1} = 0 \cdot 3u_n + 6 \text{ with } u_{10} = 10.$$

What is the value of u_{12}?

A   6·6

B   7·8

C   8·7

D   9·6

A sequence is generated by the recurrence relation $u_{n+1} = 0{\cdot}4u_n - 240$.

What is the limit of this sequence as $n \to \infty$?

A -800

B -400

C 200

D 400

A sequence is defined by the recurrence relation
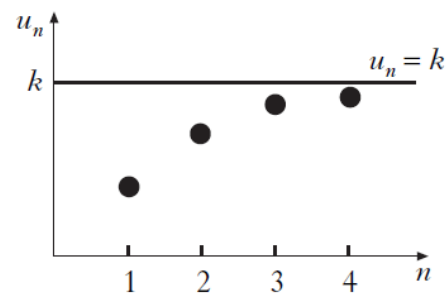
$$u_{n+1} = \frac{1}{4}u_n + 16, \ u_0 = 0.$$

(a) Calculate the values of u_1, u_2 and u_3.   **3**

Four terms of this sequence, u_1, u_2, u_3 and u_4 are plotted as shown in the graph.

As $n \to \infty$, the points on the graph approach the line $u_n = k$, where k is the limit of this sequence.

(b) (i) Give a reason why this sequence has a limit.

     (ii) Find the exact value of k.   **3**