14 **(a)** These are the first four terms of a sequence.

29 , 22 , 15 , 8 (−7, −7, −7)

Write down the next two terms.

1 , −6 [2]

8 For this sequence

1 , 6 , 11 , 16 , 21 , … (+5, +5, +5)

(a) find the next term

26 [1]

(b) find an expression for the *n*th term.

5n − 4 [2]

8 Find an expression for the *n* th term of each sequence.

(a) 1, 7, 13, 19, 25, … (+6, +6, +6)

6n − 5 [2]

(b) These are the first four terms of another sequence.

7 , 10 , 13 , 16 (+3, +3, +3)

Find an expression for the *n*th term of this sequence.

3n + 4 [2]

10 22, 17, 12, 7, 2, …

-5 -10 -15 -20 -25

-5 -5 -5

(a) Find the next term of the sequence.

-3 [1]

(b) Find the *n*th term of the sequence.

-5n + 27 [2]

4 23, 17, 11, 5, ...

-6 -12 -18 -24

-6 -6 -6

(a) Write down the next number in this sequence.

-1 [1]

(b) Find the *n*th term of this sequence.

-6n + 29 [2]

(b) These are the first five terms of a different sequence.

25 18 11 4 −3

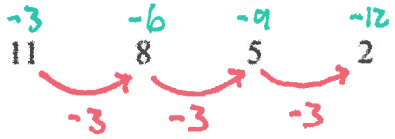
-7 -14 -21 -28 -35

-7 -7 -7 -7

Find the *n*th term of this sequence.

-7n + 32 [2]

7 These are the first 4 terms of a sequence.



(a) Find the next term of this sequence.

-1 [1]

(b) Find the *n*th term of this sequence.

-3n + 14 [2]

3 These are the first four terms in a sequence.

27 19 11 3

(a) Write down the next term.

-5 [1]

(b) Find an expression, in terms of n, for the nth term of the sequence.

$-8n + 35$ [2]

19 Find the nth term of each sequence.

(a) 11, 8, 5, 2, −1, ...

$-3n + 14$ [2]

(b) 13, 17, 21, 25, ...

Find the nth term of this sequence.

$4n + 9$ [2]

10 These are the first four terms of a sequence.

3 −1 −5 −9

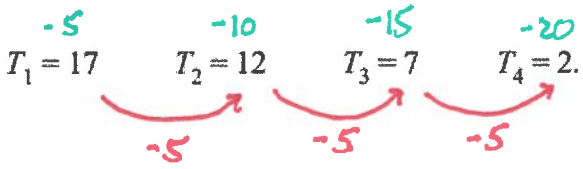
(a) Find the next term in this sequence.

−13 [1]

(b) Find the nth term.

$-4n + 7$ [2]

9 In a sequence



Find

(a) T_5

-3 [1]

(b) T_n.

-5n + 22 [2]

5 **(a)** The nth term of a sequence is $60 - 8n$.

Find the largest number in this sequence.

n=1: 60 - 8(1) = 52

n=2: 60 - 8(2) = 44

... etc.

52 [1]

(b) Here are the first five terms of a different sequence.

Find an expression for the nth term of this sequence.

7n + 5 [2]

6 **(a)** A sequence has nth term $\frac{n}{2n+3}$.

(i) Find the first three terms of this sequence.

Give your answers as fractions.

$\frac{1}{5}$, $\frac{2}{7}$, $\frac{3}{9}$ $(=\frac{1}{3})$ [2]

(ii) The kth term of this sequence is $\frac{12}{25}$.

Find the value of k.

$$\frac{n}{2n+3} = \frac{12}{25}$$

$$25n = 12(2n+3)$$

$$25n = 24n + 36$$

$$-24n \quad -24n$$

$$n = 36$$

$k =$ 36 [2]

11 **(a)** These are the first four terms of a sequence.

11	7	3	−1
	−4	−4	−4

(i) Write down the next term.

−5 [1]

(ii) Write down the term to term rule for this sequence.

−4 [1]

(iii) Find the nth term of this sequence.

$-4n + 15$ [2]

(b) The nth term of a different sequence is $\frac{2n}{n+1}$.

(i) Find the difference between the 5th term and the 6th term of this sequence.
Give your answer as a fraction.

$n=5$: $\frac{2(5)}{5+1} = \frac{10}{6} = \frac{5}{3}$

$n=6$: $\frac{2(6)}{6+1} = \frac{12}{7}$

difference: $\frac{12}{7} \times \frac{3}{3} - \frac{5}{3} \times \frac{7}{7}$

$\frac{36}{21} - \frac{35}{21} = \frac{1}{21}$

$\frac{1}{21}$ [2]

(ii) Is $\frac{3}{4}$ a term in this sequence?
Show how you decide.

$\frac{2n}{n+1} = \frac{3}{4}$

$8n = 3(n+1)$

$8n = 3n + 3$

$-3n \quad -3n$

$5n = 3$

$\div 5 \quad \div 5$

$n = 0.6$

n is not a whole number, so no $\frac{3}{4}$ is not in the sequence.

[3]