**1** A number sequence starts 1 2 4

Emma says that the next term is 7

(a) Explain why Emma may be correct.

.....

.....

.....

**(1)**

Here are the first four terms of the sequence of triangle numbers.

1 3 6 10

(b) Find the 8th term of this sequence.

.....

**(2)**

**(Total for Question 1 is 3 marks)**

**2** The first four terms of a Fibonacci sequence are

$$a \qquad 2a \qquad 3a \qquad 5a$$

The sum of the first five terms of this sequence is 228

Work out the value of $a$.

.....

**(Total for Question 2 is 3 marks)**

**3** Here are the first five terms of a number sequence.

3 8 13 18 23

(a) Write down the next two terms of this sequence.

..... .....

**(1)**

Jim says that 50 is a term in this sequence.
Jim is wrong.

(b) Explain why.

.....

.....

.....

**(1)**

**(Total for Question 3 is 2 marks)**

**4** Here are the first five terms of an arithmetic sequence.

7 13 19 25 31

(a) Find an expression, in terms of $n$, for the $n$th term of this sequence.

.....

**(2)**

The $n$th term of a different sequence is $8 - 6n$

(b) Is $-58$ a term of this sequence?
You must show how you get your answer.

**(2)**

**(Total for Question 4 is 4 marks)**

**5** Here are the first three terms of a sequence.

20 16 13

(i) Write down two numbers that could be the 4th and 5th terms of this sequence.

..... , .....

**(1)**

(ii) Write down the rule you used to get your numbers.

.....

.....

.....

**(1)**

**(Total for Question 5 is 2 marks)**

**6** Here are the first five terms of an arithmetic sequence.

–5 3 11 19 27

Find an expression, in terms of $n$, for the $n$th term of this sequence.

.....

**(Total for Question 6 is 2 marks)**

**7** Here are the first five terms of a sequence.

3 8 13 18 23

(a) Write down the next term of this sequence.

.....

**(1)**

(b) Write down the ratio of the second term to the fourth term.
Give your ratio in its simplest form.

.....

**(2)**

**(Total for Question 7 is 3 marks)**

**8** Here are the first four terms of an arithmetic sequence.

1 5 9 13

Find an expression, in terms of $n$, for the $n$th term of this sequence.

.....

**(Total for Question 8 is 2 marks)**