Name:

Date:

Finding n^{th} term of a Sequence

GCSE

Edexcel Mathematics Grade (9-1)

Mark	Score (%)
60	

Materials

For this paper you must have:

- Ruler
- Pencil, Rubber, Protractor and Compass
- Scientific calculator, which you are expected to use when appropriate

Instructions

- Answer all questions
- Answer questions in the space provided
- All working must be shown
- Do all rough work in this book. Cross out any rough work you don't want to be marked

Information

- The marks for the questions are shown in brackets

1 Consider the sequence 4, 6, 8, 10, …

(a) Calculate the 5th and 6th term of the sequence.

5^{th} term: .....

6^{th} term: .....

(2)

(b) Give the n^{th} term for this sequence.

.....

(2)

(Total for question 1 is 4 marks)

Leave blank

2 Find the n^{th} term of the following sequence and hence find the 100th term of the sequence.

$1, 8, 15, 22, \ldots$

n^{th} term: .....

100^{th} term: .....

(Total for question 2 is 4 marks)

Leave blank

3 The n^{th} term of a sequence is given by $1.8 + 0.5n$.

Find the 25^{th} term in the sequence.

.....

(Total for question 3 is 2 marks)

4 The first 5 term of a sequence are:

1, 5, 9, 13, 17 …

Find the n^{th} term of the sequence.

.....

(Total for question 4 is 3 marks)

Leave blank

5 The first 5 terms of the Fibonacci sequence are:

1, 1, 2, 3, 5 …

Work out the next 2 terms of the sequence.

NOTE: This has a slightly different pattern to the previous questions.

..... , ...

(Total for question 5 is 2 marks)

6 These are the first four patterns in a sequence made using counters

Pattern 1

Pattern 2

Pattern 3

Pattern 4

Complete the table for the patterns in this sequence.

Pattern number	1	2	3	4	5
Number of counters	3	8	15		

NOTE: You don't have to count the amount of circles for pattern 4 and 5, there's a pattern in the number of counters.

(Total for question 6 is 2 marks)

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Leave blank

7 The first term of the sequence is 5.
The term to term rule is to add 3 to the previous term.

Work out if 38 is a term of the sequence.

.....

(Total for question 7 is 3 marks)

8 Here is a sequence:

$$-5, -11, -17, -23 \ ...$$

Work out the 8^{th} term of the sequence.

.....

(Total for question 8 is 3 marks)

Leave blank

9 The n^{th} term of a sequence is given by $14 - 5n$

Which term is the first negative term of the sequence?

.....

(Total for question 9 is 3 marks)

10 A sequence is given below:

$$-41, -38, -35, -32, ...$$

Which term is the first positive term of the sequence?

.....

(Total for question 10 is 5 marks)

Leave blank

11 A sequence is given below:

1, 15, 29, 43, …

Work out the difference between the 100^{th} and the 101^{st} term of the sequence.

.....

(Total for question 11 is 2 marks)

12 The n^{th} term of sequence is given by $30 - 2n$.
The last term of the sequence is -60.

Find the number of terms in the sequence.

.....

(Total for question 12 is 3 marks)

Leave blank

13 1, 7, 13, 19, 25, …

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

.....

(2)

(b) Explain why 251 is not a term in this sequence.

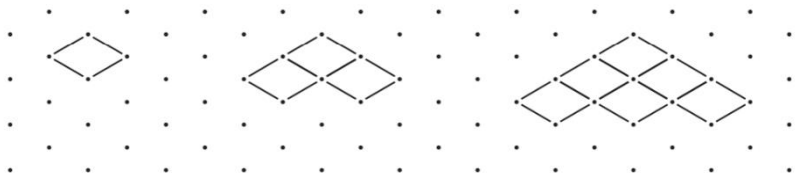
.....

.....

(2)

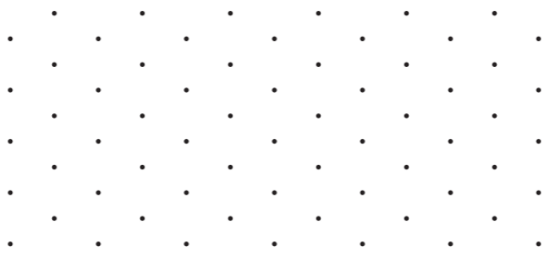
(Total for question 13 is 4 marks)

14 The diagrams below show the first three patterns in a sequence.
The patterns are made from short diagonal lines.



Pattern 1 Pattern 2 Pattern 3

Draw Pattern 4 on the dotty grid below.



(Total for question 14 is 3 marks)

Leave blank

15 The nth term of a sequence is $4n - 2$

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

1st term .....

2nd term .....

(2)

(b) Which term of the sequence is equal to 210?

.....

(2)

(Total for question 15 is 4 marks)

16 The n^{th} term of a sequence is $32.5 - 0.5n$

Work out the first three terms of the sequence.

1st term: .....

2nd term: .....

3rd term: .....

(Total for question 16 is 3 marks)

Leave blank

17 A sequence's n^{th} term is given by $9(n+3)$

Given that the last term of the sequence is 252, find the number of terms in the sequence.

.....

(Total for question 17 is 2 marks)

18 Here are the first four terms of a number sequence.

0, 36, 72, 108, …

The rule to continue the sequence is to add 36 to the previous term to obtain the next term.
Work out the 5th term of this sequence.

.....

(Total for question 18 is 1 mark)

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Leave blank

19 A sequence is given by $45 + 15n$.

Work out the first 3 term of the sequence.

1st term: .....

2nd term: .....

3rd term: .....

(Total for question 19 is 3 marks)

20 Here are the first 5 terms of a sequence.

9, 14, 19, 24, 29, …

Find an expression, in terms of n, for the n^{th} term of this sequence.

.....

(Total for question 20 is 2 marks)

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