



GCSE Foundation/Higher 13

Algebra



Questions



22 minutes



19 marks

Sequences

Q1. (a) A sequence starts

2, 7, 17,

The rule for finding the next term in this sequence is to multiply the previous term by 2 and then add on 3

Work out the next term.

.....
.....

Answer

(1)

(b) The rule for finding the next term in a different sequence is to multiply the previous term by 2 and then add on a , where a is an integer.

The first term is 8 and the fourth term is 127

8 127

Work out the value of a .

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.....
.....
.....
.....
.....
.....

Answer $a =$

(4)

(Total 5 marks)

Q2. Here are the n th terms of 3 sequences.

Sequence 1	n th term	$4n + 1$
Sequence 2	n th term	$3n + 3$
Sequence 3	n th term	$3n - 1$

For each sequence state whether the numbers in the sequence are

- A Always multiples of 3
- S Sometimes multiples of 3
- N Never multiples of 3

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.....

.....

Answer Sequence 1

 Sequence 2

 Sequence 3

(Total 3 marks)

Q3. The n th term of a sequence is given by the expression $n^2 - 3$
Write down the first three terms of the sequence.

.....

.....

Answer , ,

(Total 2 marks)

- Q4.** (a) The first term of a sequence is -2 .
The rule for continuing the sequence is

Add 7
then
Multiply by
4

What is the second term of the sequence?

.....
.....
.....

Answer

(1)

- (b) This rule is used to continue a different sequence.

Multiply by
2
then
Add 5

The second term of this sequence is 3.
What is the first term?

.....
.....
.....

Answer

(3)

(Total 4 marks)

- Q5.** (a) The n th term of a sequence is $4n + 1$

- (i) Write down the first three terms of the sequence.

.....
.....
.....

Answer,,

(2)

- (ii) Is 122 a term in this sequence?
Explain your answer.

.....
.....

(1)

- (b) Tom builds fencing from pieces of wood as shown below.

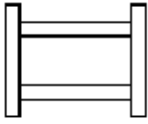


Diagram 1
4 pieces of wood

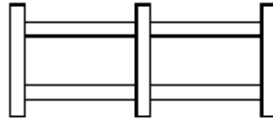


Diagram 2
7 pieces of wood

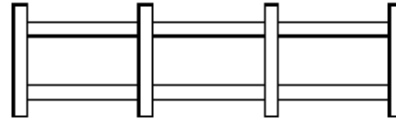


Diagram 3
10 pieces of wood

How many of pieces of wood will be in Diagram n ?

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.....
.....

Answer

(2)

(Total 5 marks)

