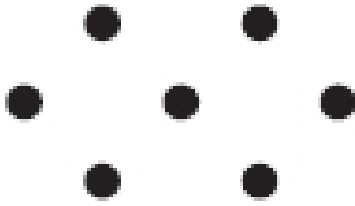# Sequences (Nth Term) Past Paper Questions

Q1.

Here are some patterns made from dots.

Pattern number 1   Pattern number 2   Pattern number 3

(a) Draw Pattern number 4 in the space below.

(1)

(b) How many dots are needed for Pattern number 15?

....

(2)

(Total for Question is 3 marks)
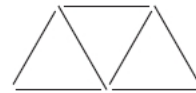
Q2.

Here are some patterns made from sticks.

Pattern number 1   Pattern number 2   Pattern number 3

(a) In the space below, draw Pattern number 4

(1)

(b) Complete the table.

Pattern number	1	2	3	4	5
Number of sticks	3	5	7		

(1)

(c) How many sticks make Pattern number 15?

....

(1)

Maria wants to work out how many sticks make Pattern number 50

(d) Write down a method she can use.

....

....

....
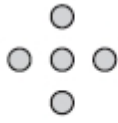
(1)

(Total for Question is 4 marks)
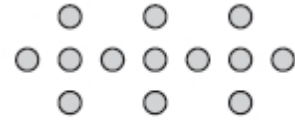
Q3.

Here is a sequence of patterns made with counters.

pattern number 1   pattern number 2   pattern number 3

(a) In the space below, draw pattern number 4

(1)

(b) Complete the table.

Pattern number	1	2	3	4	5
Number of counters	5	9	13		

(1)

(c) Find an expression, in terms of *n*, for the number of counters in pattern number *n*.

....

(2)

Habeeb has 50 counters.
He wants to use as many of his counters as possible to make a pattern in the sequence.

(d) What is the number of the pattern he can make using the greatest number of his counters?

....

(2)

(Total for Question is 6 marks)

Q4.

Here is a sequence of patterns made with grey square tiles and white square tiles.

pattern number 1   pattern number 2   pattern number 3
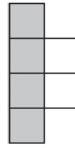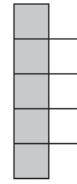
(a) In the space below, draw pattern number 4

(1)

(b) Find the total number of tiles in pattern number 20

....

(2)

(c) Write an expression, in terms of n, for the number of grey tiles in pattern number n.

....

(2)

(Total for question is 5 marks)

Q5.

Here are the first five terms of an arithmetic sequence.

$$3 \quad 5 \quad 7 \quad 9 \quad 11$$

Write down, in terms of n, an expression for the nth term of the sequence.

....

(Total for Question is 2 marks)

Q6.

The first term of a sequence of numbers is 18
The term-to-term rule for this sequence is "add 6"

(a) Is 603 a term of the sequence?

You must explain your answer.

....

....

(1)

(b) Rizvi says,

"No terms of the sequence are multiples of 7"

Give an example to show Rizvi is wrong.

....

(1)

(Total for question = 2 marks)

Q7.

Here are the first four terms of an arithmetic sequence.

<div align="center">11   17   23   29</div>

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

....

(2)

(b) Is 121 a term of this arithmetic sequence?
You must explain your answer.

....

....

....

(2)

(Total for question = 4 marks)

Q8.

Here are the first five terms of an arithmetic sequence.

<div align="center">7   13   19   25   31</div>

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

....

(2)

The nth 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 marks)

<div align="center">

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</div>

Q9.

Here are the first 5 terms of an arithmetic sequence.

3	9	15	21	27

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

....

(2)

Ben says that 150 is in the sequence.

(b) Is Ben right?
You must explain your answer.

....

....

....

(1)

(Total for Question is 3 marks)

Q10.

Here are the first five terms of an arithmetic sequence.

–3	1	5	9	13

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

....

(Total for question = 2 marks)