Questions

Q1.

Here are the first four terms of a number sequence.

3 7 11 15

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

.....

(1)

(b) Write down the 10th term of the sequence.

.....

(1)

Ali says that 102 is a term of the sequence.

Ali is wrong.

(c) Explain why.

.....

(1)

(Total for question = 3 marks)

Q2.

Here are the first five terms of a number sequence.

5 17 29 41 53

(a) Work out the next term of the sequence.

.....

(1)

The 40th term of the sequence is 473

(b) Work out the 39th term of the sequence.

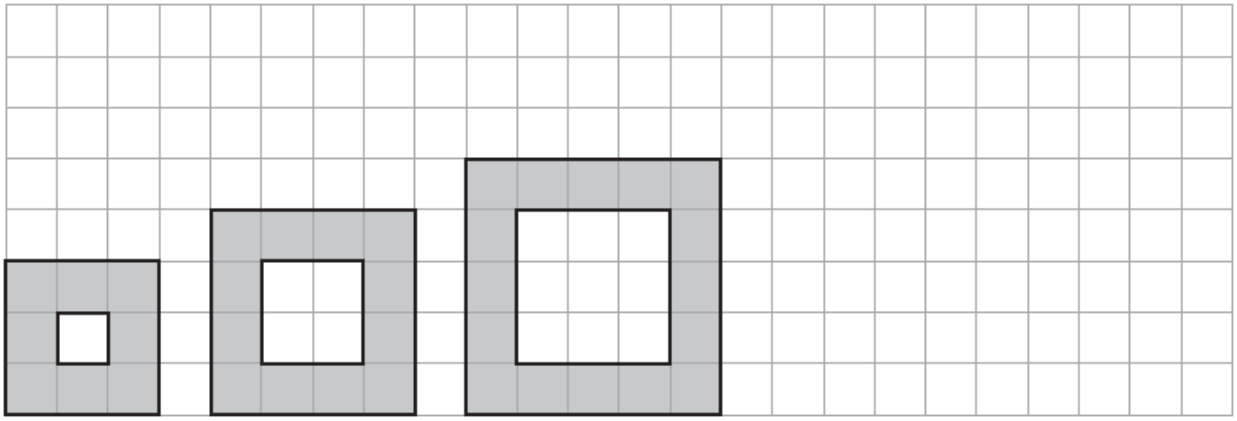
.....

(1)

(Total for question = 2 marks)

Q3.

Here is a sequence of shapes drawn on a square grid.



(a) On the grid, draw Shape number 4

(1)

The table shows the number of shaded squares in the first three shapes.

Shape number	1	2	3	4	5
Number of shaded squares	8	12	16		

(b) Complete the table to show the number of shaded squares in Shape number 4 and Shape number 5

(1)

(c) Work out the number of shaded squares in Shape number 9

.....

(2)

The width of Shape number 1 is 3 squares.
The width of Shape number 2 is 4 squares.

(d) Find the width of Shape number 8

..... squares

(1)

The width of Shape number n is W squares.

(e) Write down a formula for W in terms of n.

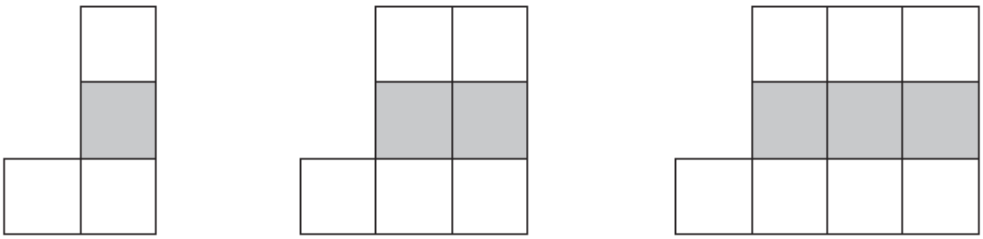
.....

(2)

(Total for question = 7 marks)

Q4.

Here is a sequence of patterns made from white centimetre squares and grey centimetre squares.



Pattern number 1 | Pattern number 2 | Pattern number 3

This rule can be used to find the total number of centimetre squares in each pattern.

Multiply the Pattern number by 3 and then add 1

(a) Work out the total number of centimetre squares in Pattern number 6

.....

(1)

(b) Work out the number of white centimetre squares in Pattern number 20

.....

(1)

A pattern in this sequence has a total of 88 centimetre squares.

(c) Work out the Pattern number of this pattern.

.....

(2)

(Total for Question is 4 marks)

Q5.

Here is a sequence of patterns made from buttons.

Pattern number 1 | Pattern number 2 | Pattern number 3

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

(1)

This rule can be used to find the number of buttons in a pattern.

> Multiply the Pattern number by 3 and then add 1 to the result.

(b) Work out the number of buttons in Pattern number 8

.....

(2)

(c) Work out the Pattern number of the pattern with exactly 55 buttons.

.....

(2)

(Total for question = 5 marks)

Q6.

Here are the first five terms of a number sequence.

7 10 13 16 19

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

.....

(1)

(b) Explain how you found your answer.

.....

(1)

(c) Find the 11th term of the sequence

.....

(1)

(d) Explain why 60 cannot be a term of the sequence.

.....

.....

(1)

(Total for question = 4 marks)

Q7.

Here are the first five terms of a number sequence.

18 22 26 30 34

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

....

(2)

(b) Explain how you found your terms.

.....

(1)

(c) Work out the 20th term of the sequence.

.....

(2)

(Total for question = 5 marks)

Q8.

Here is a sequence of patterns made from dots.

Pattern number 1 Pattern number 2 Pattern number 3

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

(1)

This rule can be used to find the number of dots in a pattern of the sequence.

Multiply the Pattern number by 3 and then add 2

(b) Work out the number of dots in Pattern number 7.

.....

(2)

A pattern has exactly 41 dots.

(c) Work out the Pattern number.

.....

(2)

T is the number of dots in Pattern number n.

(d) Write down a formula for T in terms of n.

.....

(3)

(Total for question = 8 marks)