

1. (a) A sequence of numbers begins 40, 37, 34, 31,.....

(i) What is the next number in the sequence?

Answer

(1)

(ii) Describe in words the rule for continuing the sequence.

.....

(1)

(b) The rule for another sequence is

Next number = Multiply the previous number by 3 then subtract 3

(i) A sequence begins 2, 3, 6, 15,

What is the next number in the sequence?

.....

Answer

(1)

(ii) Another sequence, using the same rule, starts with 4.
What is the next number in this sequence?

.....

Answer

(1)

(iii) Another sequence, using the same rule, starts with -6.
What is the next number in this sequence?

.....

Answer

(1)

(Total 5 marks)

2. Here is a sequence of numbers.

3 5 9 17

The rule for continuing this sequence is

Multiply by 2 and subtract 1

The same rule is used for a sequence that starts with the number -5.
What are the next **two** numbers in this sequence?

.....

Answer

(Total 2 marks)

3. (a) Here is a sequence of numbers.

31 27 23 19 15

(i) Write down the next two numbers in the sequence.

Answer and

(2)

(ii) Write down the rule for continuing the sequence.

.....

(1)

(b) Another sequence of numbers begins

3 5 9 17

The rule for continuing this sequence is

Multiply by 2 and subtract 1

(i) What is the next number in the sequence?

.....

Answer

(1)

(ii) The same rule is used for a sequence that starts with the number 7.

What is the second number in this sequence?

.....

Answer

(1)

(iii) The same rule is also used for a sequence that starts with the number -5 . What is the second number in this sequence?

.....

Answer

(1)

(Total 6 marks)

4. (a) A sequence has n th term $4n + 1$

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

.....

.....

Answer 1st term, 2nd term, 3rd term

(Total 2 marks)

5. Here is a sequence of numbers.

128 64 32 x 8 4 y 1

(a) Write down the values of x and y .

Answer $x = \dots\dots\dots$, $y = \dots\dots\dots$

(2)

(b) Write down the rule for continuing the sequence.

.....

(1)

(Total 3 marks)

6. (a) The n th term of a sequence is $5n - 5$

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

.....

Answer,,

(2)

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

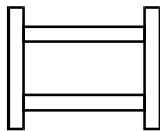


Diagram 1
4 pieces of wood

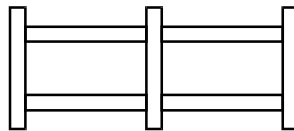


Diagram 2
7 pieces of wood

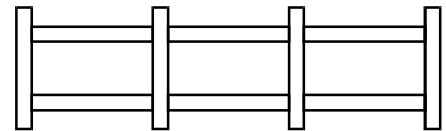


Diagram 3
10 pieces of wood

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

.....

Answer

(2)

(Total 4 marks)

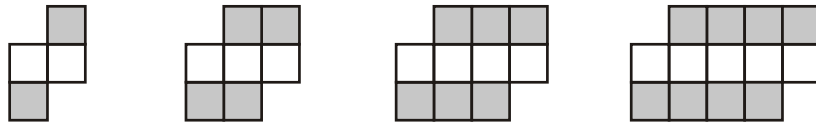
7. The n th term of a sequence is given by the expression $n^2 - 3$
 Write down the first three terms of the sequence.

.....

Answer,,

(Total 2 marks)

8. Patterns are made from shaded and unshaded squares.



1st pattern 2nd pattern 3rd pattern 4th pattern

(a) How many shaded squares are there in the n th pattern?

.....

Answer

(1)

(b) How many unshaded squares are there in the n th pattern?

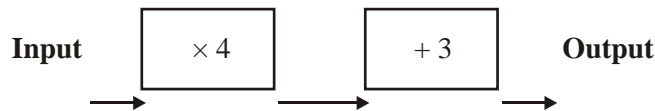
.....

Answer

(1)

(Total 2 marks)

9. Here is a number machine.

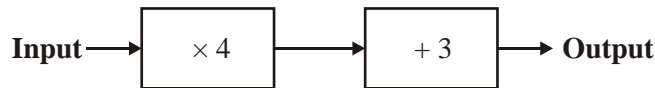


Use the number machine to complete the table.

Input	2	5	8	10	n
Output	11				

(Total 4 marks)

10. Here is a number machine.



Use the number machine to complete the table.

Input	2		n	
Output	11	35		x

.....

(Total 6 marks)