GCSE MATHEMATICS

Foundation tier

Algebra

Topic test – Sequences

v1.0

Name _____

Materials

For this paper you must have:
- Mathematical instruments
- A calculator.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 27.

Advice
- In all calculations, show clearly how you work out your answer.

For Teacher's Use	
Pages	Mark
2 - 3	
4 - 5	
6 - 7	
TOTAL	

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

[1 mark]

3 5 7 9 11 …

Answer _____

1 (b) Write down the next term of this sequence.

[1 mark]

19 16 13 10 7 …

Answer _____

1 (c) Write down the next term of this sequence.

[1 mark]

4 9 16 25 36 …

Answer _____

1 (d) Write down the next term of this sequence.

[1 mark]

1 1 2 3 5 8 13 …

Answer _____

2 Here is a sequence.

15 13 11 9 7 …

Find an expression for the nth term of the sequence.

[2 marks]

Answer _____

3 The nth term of a sequence is $7n - 3$

3 (a) Work out the first three terms of the sequence.

[2 marks]

Answer _____ _____ _____

3 (b) Which term of the sequence has a value of 109?

[2 marks]

Answer _____

10

4 Here is a linear sequence.

The first **two** terms are missing.

… … 3 9 15 21 27 …

4 (a) Describe how the sequence is building up.

[1 mark]

4 (b) What is the first term of the sequence?

[1 mark]

Answer _____

5 Here are the second and third terms of a linear sequence.

… 12 17 …

Work out the mean of the first four terms of the sequence.

[3 marks]

Answer _____

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

[1 mark]

6 10 16 24 34 …

Answer _____

6 (b) Work out the next term of the geometric sequence.

[1 mark]

3 9 27 81 243 …

Answer _____

6 (c) Work out the next term of the Fibonacci sequence.

[1 mark]

3 4 …

Answer _____

7 The first term of a number sequence is 8.

The term to term rule of the sequence is add 5.

Shaun says,

"there is no number in this sequence that is a multiple of 11".

Give a reason why Shaun is incorrect.

[2 marks]

Reason _____

_____

_____

10

8 The nth term of sequence *A* is $2n + 3$

The nth term of sequence *B* is $5n - 4$

Work out **two** different terms that are in both sequences.

[2 marks]

Answer _____ and _____

9 The nth term of sequence *P* is $an + b$

The nth term of sequence *Q* is $bn + a$

9 (a) Show that the sequences both start with the same term.

[1 mark]

9 (b) The 2nd term of sequence *P* equals the 3rd term of sequence *Q*.

Show that $a = 2b$

[2 marks]

10 A sequence of numbers is formed with one 1, two 2s, three 3s, four 4s and so on.

1 2 2 3 3 3 4 4 4 4 …

Work out the 100th number of the sequence.

[2 marks]

Answer _____

END OF QUESTIONS

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