

Sequences

ANSWERS

Calculator | 30 minutes | Total marks: 26

Name Class

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

4 11 18 25

Answer 32 and 39 (1) [1 mark]

- (b) Write down the rule for continuing the sequence in part (a).

Answer add 7 (1) [1 mark]

- (c) Write down the next two terms of this sequence.

80 40 20 10

Answer 5 and 2.5 (1) [1 mark]

- 2 Write the two missing terms in this sequence.

3 7 11 15 19 (1)(1)

[2 marks]

3

Here are the first three patterns in a sequence made from sticks.



Pattern 1



Pattern 2



Pattern 3

- (a) How many sticks are needed for Pattern 5?

Answer 16 (1)

[1 mark]

- (b) Write an expression for the number of sticks in Pattern n .

goes up in 3s, so $3n$ (1)

Answer $3n + 1$ (1)

[2 marks]

- (c) Which pattern needs 61 sticks?

$$3n + 1 = 61 \text{ (1)}$$

Pattern 20 (1)

[2 marks]

4

Work out the n th term of each sequence.

- (a) 5 9 13 17

$$4n \text{ (1)}$$

Answer $4n + 1$ (1)

[2 marks]

- (b) 20 17 14 11

$$-3n \text{ (1)}$$

Answer $23 - 3n$ (1)

[2 marks]

5

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

(a) Write down the first three terms.

Answer 1, 7, 13 (1)(1) [2 marks]

(b) Work out the 50th term.

Answer 295 (1) [1 mark]

(c) Is 100 a term in this sequence?

You **must** show your working.

$$6n - 5 = 100, \text{ so } n = 17.5 \text{ (1)}$$

No, n is not a whole number (1)

[2 marks]

6

(a) What name is given to the numbers in this sequence?

1 4 9 16 25

Answer square numbers (1) [1 mark]

(b) What name is given to the numbers in this sequence?

1 3 6 10 15

Answer triangular numbers (1) [1 mark]

(c) In this sequence, each term is the sum of the two terms before it.

1 1 2 3 5 8

Write down the next two terms.

Answer 13 and 21 (1) [1 mark]

7

Here is a sequence.

3 6 12 24

(a) Write down the next term.

Answer 48 (1) [1 mark]

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

Answer multiply by 2 (1) [1 mark]

8

The n th term of a sequence is $n^2 + 2$

Write down the first three terms.

Answer 3, 6, 11 (1)(1)

[2 marks]

Question	Topic	RAG
1	I can continue a sequence and give its rule	
2	I can find missing terms	
3	I can find and use a rule for a pattern	
4	I can find the n th term of a sequence	
5	I can use an n th term and test whether a number is in a sequence	
6	I can recognise square, triangular and Fibonacci sequences	
7	I can continue a sequence that multiplies	
8	I can use an n th term with a square	