

nth Term of Quadratic Sequences

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **23**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Here are the first four terms of a sequence.

2 5 10 17

Circle the expression for the n th term of the sequence.

[1 mark]

$3n - 1$

$n^2 + 1$

$n^2 + 2$

$2n^2$

2 Here are the first four terms of a quadratic sequence.

31 29 25 19

Work out the 6th term of the sequence.

[2 marks]

Answer _____

3 Work out an expression for the n th term of the sequence

3 6 11 18 27

[2 marks]

Answer _____

- 4 Work out an expression for the n th term of the sequence

5 10 19 32 49

[3 marks]

Answer _____

- 5 Here are the first four terms of a quadratic sequence.

10 8 4 -2

Work out an expression for the n th term.

[3 marks]

Answer _____

- 6 The n th term of a sequence is $n^2 + 4n$
Is 140 a term in the sequence? Tick a box.
You must show your working.

[2 marks]

☐ Yes

☐ No

- 7 Three facts about a quadratic sequence are given below.

The 1st term is 5

The 4th term is 47

The second difference is 6

Work out an expression for the n th term of the sequence.

[4 marks]

Answer _____

- 8 The n th term of a sequence is $n^2 + 5n + 6$
Show that every term of the sequence is an even number.

[3 marks]

- 9 The n th term of a sequence is $n^2 - 24n + 155$
By completing the square, show that all the terms of the sequence have two or more digits.

[3 marks]