

nth Term of Quadratic Sequences

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **24**

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

1 Here are the first five terms of a quadratic sequence.

4 10 18 28 40

(a) Find the next term of the sequence.

.....
(1)

(b) Find an expression, in terms of n , for the n th term of the sequence.

.....
(2)

(Total for Question 1 is 3 marks)

- 2** Here are the first five terms of a quadratic sequence.

1 3 7 13 21

Find an expression, in terms of n , for the n th term of this sequence.

.....
(3)

(Total for Question 2 is 3 marks)

- 3** Find the n th term of the sequence

7 17 33 55 83

.....
(3)

(Total for Question 3 is 3 marks)

- 4 The n th term of a quadratic sequence is $an^2 + bn$
The first term is 5 and the second term is 14
Find the values of a and b .

$$a = \dots\dots\dots b = \dots\dots\dots$$

(3)

(Total for Question 4 is 3 marks)

- 5 The n th term of a sequence is $2n^2 - 3n$
Show that 104 is a term of the sequence.

(2)

(Total for Question 5 is 2 marks)

- 6 Here are the first six terms of a quadratic sequence.

2 9 20 35 54 77

Find an expression, in terms of n , for the n th term of this sequence.

.....

(3)

(Total for Question 6 is 3 marks)

- 7** Kofi makes a sequence of patterns using square tiles.
 The number of tiles in Pattern n is $pn^2 + qn$, where p and q are constants.
 Pattern 2 uses 14 tiles.
 Pattern 5 uses 65 tiles.
 Kofi has 200 tiles.
 What is the number of the largest pattern he can make?

Pattern
 (4)

(Total for Question 7 is 4 marks)

- 8** The n th term of sequence A is $n^2 + 4n$
 The n th term of sequence B is $12n - 7$
 For two values of n , the n th term of sequence A is equal to the n th term of sequence B .
 Find these two values of n .
 You must show all your working.

.....
 (3)

(Total for Question 8 is 3 marks)
