

Name: _____

GCSE (1 – 9)

Quadratic Sequences

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 Write down the next two terms in the following quadratic sequence.

9 13 19 27

..... ,

(Total for Question 1 is 2 marks)

2 Write down the next two terms in the following quadratic sequence.

-5 0 9 22

..... ,

(Total for Question 2 is 2 marks)

3 The n th term of a sequence is

$$2n^2 + 4n - 1$$

Work out the 10th term of the sequence.

.....
(Total for Question 3 is 2 marks)

4 The n th term of a sequence is

$$n^2 + 2n$$

Work out the first 5 terms of the sequence.

.....
(Total for Question 4 is 2 marks)

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

5 11 19 29 41

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

.....
(Total for Question 5 is 4 marks)

6 Here are the first 5 terms of a quadratic sequence.

2 10 22 38 58

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

.....
(Total for Question 6 is 4 marks)

7 Here are the first 5 terms of a quadratic sequence.

15 19 25 33 43

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

.....
(Total for Question 7 is 4 marks)

8 Here are the first 5 terms of a quadratic sequence.

2 10 24 44 70

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

.....
(Total for Question 8 is 4 marks)

9 Here are the first 5 terms of a quadratic sequence.

19 15 9 1 -9

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

.....
(Total for Question 9 is 4 marks)

10 Here are the first 5 terms of a quadratic sequence.

-2 -1 1 4 8

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

.....
(Total for Question 10 is 4 marks)

11 Here are the first 5 terms of a quadratic sequence.

6 10 16 24 34

(a) Show that the n th term is $n^2 + n + 4$

(4)

(b) Hence, determine whether 136 is a term in the sequence.

(2)

(Total for Question 11 is 6 marks)

12 Here are the first 5 terms of a quadratic sequence.

-8 2 16 34 56

(a) Show that the n th term is $2n^2 + 4n - 14$

(4)

(b) Hence, determine whether 272 is a term in the sequence.

(2)

(Total for Question 12 is 6 marks)