

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...

..... (2)

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

-5, 0, 9, 22...

..... (2)

3. The  $n$ th term of a sequence is

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

Work out the 10th term of the sequence

..... (2)

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4. The  $n$ th term of a sequence is

$$n^2 + 2n$$

Work out the first 5 terms in the sequence

..... (2)

5. Work out the formula for the  $n$ th term of the quadratic sequence:

5, 11, 19, 29...

..... (4)

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6. Work out the formula for the  $n$ th term of the quadratic sequence:

2, 10, 22, 38...

..... (4)

7. Work out the formula for the  $n$ th term of the quadratic sequence:

15, 19, 25, 33...

..... (4)

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8. Work out the formula for the  $n$ th term of the quadratic sequence:

2, 10, 24, 44...

..... (4)

9. Work out the formula for the  $n$ th term of the quadratic sequence:

19, 15, 9, 1...

..... (4)

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10. Work out the formula for the  $n$ th term of the quadratic sequence:

-2, -1, 1, 4...

..... (4)

11. A quadratic sequence starts:

6, 10, 16, 24...

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

..... (4)

b) Hence find the term that has value 136

..... (2)

12. A quadratic sequence starts:

$$-8, 2, 16, 34\dots$$

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

..... (4)

b) Hence find the term that has value 272

..... (2)