



# Bishops Online Tutoring



Education Consultancy

## Edexcel GCSE Mathematics Quadratic Sequences

### Materials Required:

- Pen
- HB Pencil
- Ruler (in centimetres and millimetres)
- Protractor
- Compass

### Information:

- The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
- Questions marked with an asterisk (\*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

### Instructions:

- Use a black ink pen to answer all questions
- Fill your name in the section below
- Answer the questions in the spaces provided
- Show your working out for all answers

### Advice:

- Carefully read the question before attempting to answer it
- Be vary of time and try to answer every question
- If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

## NO CALCULATOR ALLOWED

**NAME:**

1. The first four terms of a quadratic sequence are shown below. Work out the next term.

7      11      17      25

.....  
(2)

2. The first four terms of a quadratic sequence are shown below Work out the next term.

6      12      22      36

.....  
(2)

3. The  $n^{\text{th}}$  term of a quadratic sequence is  $n^2 - 2n + 8$   
Work out the first three terms of this sequence

.....  
(2)

4. A quadratic sequence has an  $n^{\text{th}}$  term of  $2n^2 + 3n - 1$   
Work out the value of the 6<sup>th</sup> term of the sequence

.....  
(2)

5. A sequence has an  $n^{\text{th}}$  term of  $n^2 - 6n + 7$   
Work out which term in the sequence has a value of 23.

.....  
(2)

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

4      11      20      31      44

Find an expression, in terms of  $n$ , for the  $n^{\text{th}}$  term of this quadratic sequence.

.....  
(3)

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

4      10      18      28      40

Find an expression, in terms of  $n$ , for the  $n^{\text{th}}$  term of this quadratic sequence.

.....  
(3)

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

9      17      29      45      65

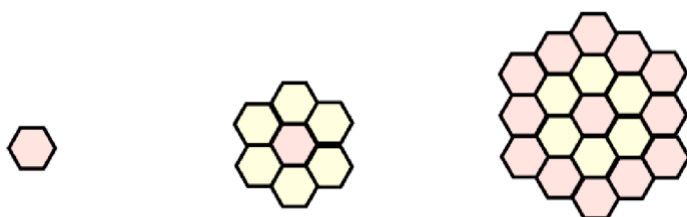
Find an expression, in terms of  $n$ , for the  $n$ th term of this quadratic sequence.

.....  
(3)

9. Here is a tile.



Here is a sequence of patterns made from these tiles.



Pattern 1

Pattern 2

Pattern 3

How many of these tiles are needed to make Pattern number 10?

.....  
(5)

10. The  $n$ th term of a sequence is  $n^2 + 3n$   
Two consecutive terms in the sequence have a difference of 38.

Work out the two terms.

..... and .....  
(4)

11. Prove that every term in the sequence  $n^2 - 4n + 2$  is positive

(4)