1 Here are the first five terms of a sequence.

$$-1 \qquad 0 \qquad 3 \qquad 8 \qquad 15$$

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

.....

(Total for Question 1 is 2 marks)

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

$$-1 \quad 5 \quad 15 \quad 29 \quad 47 \quad 69$$

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

.....

(Total for Question 2 is 3 marks)

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

10 21 38 61 90

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

.....

(Total for Question 3 is 3 marks)

4 Here are the first five terms of a sequence.

4 11 22 37 56

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

.....

(Total for Question 4 is 3 marks)

5 The nth term of a sequence is given by $an^2 + bn$ where a and b are integers.

The 2nd term of the sequence is –2
The 4th term of the sequence is 12

(a) Find the 6th term of the sequence.

.....

(4)

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

0 2 6 12 20

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

.....

(2)

(Total for Question 5 is 6 marks)

6 Here are the first five terms of a geometric sequence.

$$\sqrt{5} \qquad 10 \qquad 20\sqrt{5} \qquad 200 \qquad 400\sqrt{5}$$

(a) Work out the next term of the sequence.

.....

(2)

The 4th term of a different geometric sequence is $\frac{5\sqrt{2}}{4}$

The 6th term of this sequence is $\frac{5\sqrt{2}}{8}$

Given that the terms of this sequence are all positive,

(b) work out the first term of this sequence.
You must show all your working.

.....

(3)

(Total for Question 6 is 5 marks)

7 The 2nd term of a geometric sequence is $3 + 2\sqrt{2}$
The 3rd term of the sequence is $13 + 9\sqrt{2}$

Find the value of the common ratio of the sequence.
Give your answer in the form $a + \sqrt{b}$ where a and b are integers.
You must show all your working.

.....

(Total for Question 7 is 4 marks)