



Quadratic Sequences Exam Practice

Q1. a) Write down the next two terms in the quadratic sequence:

3, 7, 13, 21, 31,

(2 marks)

b) Find an expression for the n^{th} term of this sequence.

(2 marks)

Q2. a) Write down the next two terms in the quadratic sequence:

13, 10, 2, -11, -29,

(2 marks)

b) Find an expression for the n^{th} term of this sequence.

(2 marks)

Q3. a) Write down the next two terms in the quadratic sequence:

5, 8, 13, 20, 29,

(2 marks)

b) Find an expression for the n^{th} term of this sequence.

(2 marks)

Q4. a) Write down the 1st, 2nd and 10th terms of the quadratic sequence which has n^{th} term given by:

$$n^2 + 9$$

(2 marks)

b) Is the term 729 in the sequence? You must show your reasoning.

(2 marks)

Q5. a) Write down the 3rd, 5th and 20th terms of the quadratic sequence which has n^{th} term given by:

$$n^2 - 12n + 9$$

(2 marks)

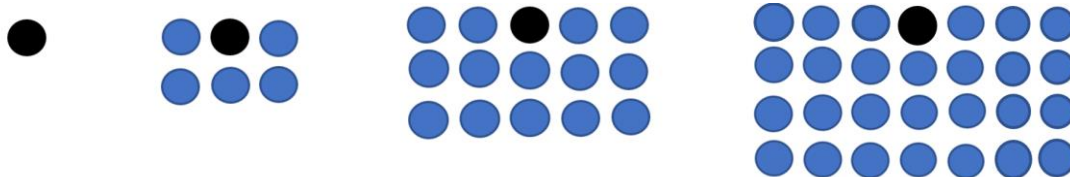
b) Is the term 336 in the sequence? You must show your reasoning.

(2 marks)



Applied Mixed Practice Problems

Q6. Here is a pattern made from circular dots:



a) Find an expression for the number of dots in the n^{th} pattern.

(2 marks)

b) How many dots will there be in pattern 40?

(2 marks)

c) Work out which pattern has 435 dots.

(3 marks)

Q7. A sequence has n^{th} term given by $n^2 - 6n$. Two terms in the sequence have a difference of 75. Find which two terms these are.

(4 marks)

Q8. Mark, an amateur mathematician, saves money each month. The amounts he saves follow the sequence 15p, 18p, 27p, 42p, 63p ...

a) State how much Mark will save in the 6th month.

(1 mark)

b) Work out how many months it will take before he is saving more than £50 a month.

(5 marks)

Q9. Prove that every term of the sequence $n^2 - 10n + 40$ is positive.

(4 marks)

Q10. Work out which is the smallest term of the sequence $2n^2 - 8n + 13$

(4 marks)