



## Quadratic Sequence Exam Practice

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

3, 7, 13, 21, 31,

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)

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

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

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)



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

5, 8, 13, 20, 29,

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)

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

$$n^2 + 9$$

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)



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

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

Answer: \_\_\_\_\_  
(2 marks)

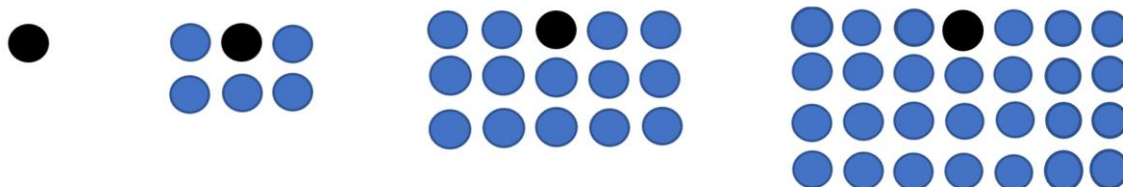
b) Is the term 336 in the sequence? You must show your reasoning.

Answer: \_\_\_\_\_  
(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  $n^{\text{th}}$  pattern.

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)

c) Work out which pattern has 435 dots.

Answer: \_\_\_\_\_  
(3 marks)



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

Answer: \_\_\_\_\_  
(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 6<sup>th</sup> month.

Answer: \_\_\_\_\_  
(1 mark)

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

Answer: \_\_\_\_\_  
(5 marks)



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

Answer: \_\_\_\_\_  
(4 marks)



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

Answer: \_\_\_\_\_  
(4 marks)