

Name:

Exam Style Questions

Quadratic Sequences



Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 388



Answers and Video Solutions



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. Circle the quadratic sequence



1, 1, 2, 3, 5, ...

1, 3, 9, 27, 81, ...

1, 5, 11, 19, 29, ...

1, 11, 21, 31, 41, ...

.....
(1)

4. The first five terms of a quadratic sequence are shown below



Work out the next two terms in the sequence

4 9 18 31 48

..... ,,
(2)

5. The n^{th} term of a quadratic sequence is $n^2 - 2n + 8$



Work out the first three terms of this sequence

.....
.....
.....
(2)

6. A quadratic sequence has an n^{th} term of $2n^2 + 3n - 1$



Work out the value of the 6th term of the sequence

.....
(2)

7. The n^{th} term of a quadratic sequence is $3n^2 - 8n - 20$



Work out the tenth term in the sequence.

.....
(2)

8. The n th term of a sequence is $n^2 + 6n - 8$



Work out the position of the first term in the sequence with a value greater than 100.

.....
(2)

9. A sequence has an n th term of $n^2 - 6n + 7$



Work out which term in the sequence has a value of 23

.....
(3)

10. A sequence has an n th term of $n^2 + n - 3$



Work out which term in the sequence has a value of 87

.....
(3)

11. 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 th term of this quadratic sequence.

.....
(3)

12. 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 th term of this quadratic sequence.

.....
(3)

13. 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)

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



-3 3 13 27 45

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

.....
(3)

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



-3 -2 1 6 13

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

.....
(3)

16. Here are the first 4 terms of a quadratic sequence



10 20 38 64

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

.....
(3)

17. Here are the first 4 terms of a quadratic sequence



7 5 1 -5

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

.....
(3)

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



-5 -4 3 16 35

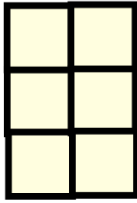
Work out the 100th term in the sequence.

.....
(4)

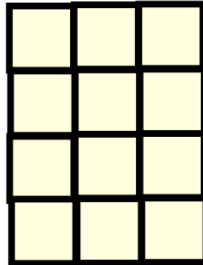
19. Below is a pattern of tiles.



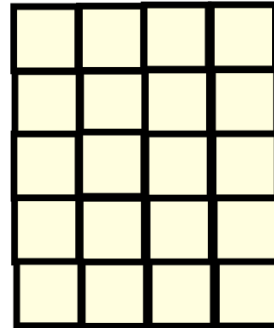
Pattern 1



Pattern 2



Pattern 3



Write down an expression for the number of tiles in Pattern n

.....
(4)

20. 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)

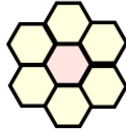
21. Here is a tile.



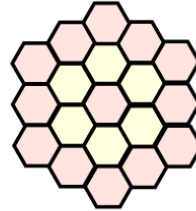
Here is a sequence of patterns made from these tiles.



Pattern 1



Pattern 2



Pattern 3

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

.....
(5)

22. The n th term of a quadratic sequence is $an^2 + c$ where a and c are integers.



The second term is 16 and the fifth term is 163.

Find the values of a and c .

.....
(4)

23. The n th term of a quadratic sequence is $an^2 + bn$ where a and b are integers.



The second term is -4 and the sixth term is 60

Find the values of a and b .

.....
(4)

24. Prove that every term in the sequence $n^2 - 4n + 21$ is positive



(4)