Name:

Exam Style Questions

Quadratic Sequences

Corbettmaths

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 nth 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 nth term of $2n^2 + 3n - 1$

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

.....

(2)

---

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

Work out the tenth term in the sequence.

.....

(2)

8. The nth 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 nth term of $n^2 - 6n + 7$

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

.....

(3)

---

10. A sequence has an nth 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 nth 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 nth 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 nth 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 nth 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 nth 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 nth 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 nth term of this quadratic sequence.

.....

(3)

---

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

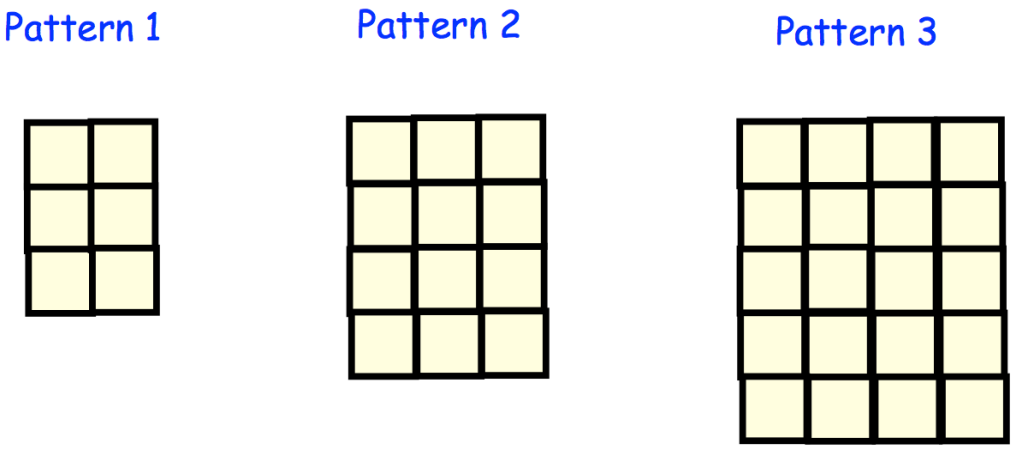
–5 –4 3 16 35

Work out the 100th term in the sequence.

.....

(4)

19. Below is a pattern of tiles.



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

.....

(4)

---

20. The nth term of a sequence is $n^2 + 3n$

Two consecutive terms in the sequence have a difference of 38

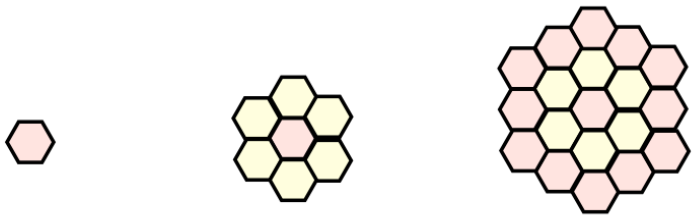
Work out the positions of the two terms.

..... and .....

(4)

21. Here is a tile.

Here is a sequence of patterns made from these tiles.



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

.....

(5)

22. The nth 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 nth 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)