Name:

Exam Style Questions

Sequences: nth term

Corbettmaths

Equipment needed: Pen and Calculator

Guidance

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

Video Tutorial

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Video 288

Answers and Video Solutions

1. Here are the first five terms in a number sequence.

   7   10   13   16   19

   (a) Find the 10th term in this number sequence.

   ....
   (2)

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

   ....
   (2)

2. A number sequence has nth term of $6n + 3$

   (a) Write down the first four terms of this sequence.

   1st term ...., 2nd term ...., 3rd term ...., 4th term ....
   (3)

   (b) Sara says that 1008 is a term in this sequence.
   Explain why she is wrong.

   ....

   ....

   ....
   (1)

3. A sequence of numbers is shown below.

      1   5   9   13   17   ...   ...

(a) Find an expression for the nth term of the sequence.

....

(2)

(b) Explain why 95 will not be a term in this sequence.

....

....

(2)

4. The nth term of a number sequence is given by $5n + 2$

(a) Work out the first three terms of the number sequence.

1st term ...., 2nd term ...., 3rd term ....

(2)

Here are the first five terms of another number sequence.

     5   11   17   23   29

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

....

(2)

5.   A sequence of numbers is shown.

   2   9   16   23   30   ...   ...

   (a) Find an expression for the nth term of the sequence.

   ....
   (2)

   (b) Find the 100th term in the sequence.

   ....
   (2)

6.   Here is the linear sequence

         10   16   22   28

   Circle the nth term of the sequence

         $4n + 6$ $n + 6$ $6n + 4$ $6n$

   (2)

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

(a) Find the first three terms of this sequence.

1st term ...., 2nd term ...., 3rd term ....

(2)

(b) Work out the difference between the 5th and 10th terms in the sequence.

....

(3)

8. The first 5 terms in a number sequence are

10   7   4   1   −2   ...   ...

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

....

(2)

(b) Find the 50th term of the sequence.

....

(2)

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9. Work out the *n*th term for this sequence

12   22   32   42   52   ...   ...

....

(2)

10. The *n*th term of a sequence is   3n – 2

(a) Write down the first two terms of this sequence.

1st term ...., 2nd term ....

(2)

(b) Which term of the sequence is equal to 70?

....

(2)

(c) Explain why 101 is not a term in the sequence.

....

....

....

(2)

11. Here are the *n*th terms of 4 sequences.

Sequence 1   nth term $3n + 1$
Sequence 2   nth term $5n + 10$
Sequence 3   nth term $10n$
Sequence 4   nth term $5n - 1$

For each sequence state whether the numbers in the sequence are

A   Always multiples of 5
S   Sometimes multiples of 5
N   Never multiples of 5

Sequence 1 ....

Sequence 2 ....

Sequence 3 ....

Sequence 4 ....

(4)

12. The first four terms of an arithmetic sequence are

$$-25 \qquad -37 \qquad -49 \qquad -61$$

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

....
(2)

---

13. The nth term of a sequence is   5 – 3n

Write down the first three terms of the sequence.

1st term ...., 2nd term ...., 3rd term ....
(2)

14. The *n*th term of a sequence is   4n – 7

(a) Write down the first three terms of the sequence.

1st term ...., 2nd term ...., 3rd term ....

(2)

(b) What is the difference between the 150th and 151st terms?

....

(1)

The last term of this sequence is 393

(c) How many terms are there in this sequence?

....

(2)

15. Find the nth term of the sequences

(a) 1, 4, 9, 16, 25, ...

....
(1)

(b) 3, 6, 11, 18, 27, ...

....
(1)

(c) –3, 0, 5, 12, 21, ...

....
(1)

(d) 2, 8, 18, 32, 50, ...

....
(1)

16. The nth term of a sequence is $9n + 7$

Write down all the numbers from the sequence that are **prime** and **less than 100**.

....

....
(2)

17. The first 5 terms in a number sequence are

30   25   20   15   10   ...   ...

Work out the nth term of the sequence.

....
(2)

18. Here are the first four terms of an arithmetic sequence

9   17   25   33

(a) Find an expression, in terms of n, for the nth term of the sequence

....
(2)

The nth term of a difference sequence is $20 - 3n$

(b) Is -71 a term in the sequence?
Show your working out.

....
(2)

19. The first 5 terms in a number sequence are

    2   2.5   3   3.5   4   ...   ...

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

    ....
    (2)

    (b) Work out the 20th term of the sequence.

    ....
    (2)

---

20. The 4th term of a linear sequence is 26
     The 6th term of the same sequence is 32

     Work out the nth term of the sequence.

     ....
     (3)

21. The first 5 terms of a sequence are

1   5   9   13   17

(a) Work out the nth term for this sequence.

....
(2)

The first 5 terms of a sequence are

$$\frac{1}{12} \quad \frac{5}{23} \quad \frac{9}{34} \quad \frac{13}{45} \quad \frac{17}{56}$$

(a) Work out the nth term for this sequence.

....
(2)

22. Here are the first 4 terms of a sequence

$$\frac{2}{3} \quad \frac{3}{5} \quad \frac{4}{7} \quad \frac{5}{9}$$

(a) Find the next term of the sequence

....
(1)

(b) Find the nth term of the sequence

....
(1)

23. Here are the first 4 terms of a sequence

$$\frac{7}{8} \quad \frac{9}{11} \quad \frac{11}{14} \quad \frac{13}{17}$$

Write down the 20th term of the sequence.

....

(2)

---

24. Martin has written the first 50 terms of the sequence with nth term $150 - 4n$.

Work out which term is the first negative term.

....

(3)

25. The first 4 terms of sequence A are

    4   9   14   19

(a) Find the nth term of sequence A.

....
(2)

The nth term of sequence B is $2n + 6$

The nth terms of sequence A and sequence B are added together to give the nth term of sequence C.

Is 1000 is a term in sequence C?

....
(2)

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26. The *n*th term of a sequence is   (n + 1)(n + 3)

Work out the first three terms of the sequence.

1st term ...., 2nd term ...., 3rd term ....
(2)